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Patents, Research and Technology in the Machine Tool Industry*

MURRAY BROWN
NATHAN ROSENBERG

SUMMARY

TECHNICAL "KNOW-HOW," RESEARCH ACTIVITY, AND PATENTS are significant elements in the operations of machine tool firms. Entry into the industry is relatively easy, but "know-how" is essential for the viability of new companies. The largest firms report increased research efforts in periods of general business decline. Patents have provided the basis for establishment of relatively few firms, but such original intangible assets have apparently contributed to durability of today's larger firms. Almost half of the sampled companies rely to some degree on owned or licensed patents in current production.

INTRODUCTION

THIS IS THE SECOND OF TWO ARTICLES ON A STUDY OF THE MACHINE TOOL INDUSTRY in the United States.[1] The origins of this industry date back, as noted in the earlier paper, to the 18th century in England. In the United States, some of the machine tool firms now in operation were established before the Civil War.

In discussing the role of patents, this paper considers various technical characteristics of the industry, the process of technological change, and the place of research and development. For the most part, the results presented here were derived from a questionnaire survey of machine tool firms. The use of this research device entails many familiar difficulties, but, wherever possible, reliability was checked by comparison with information obtained from external sources. In addition, efforts have been made to ascertain the variability in the findings due to sampling error. It should also be noted that, since not all respondents answered all questions in the questionnaire, the total number of responses to several of the questions discussed below is less than the size of the sample.

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* This is a final report. Dr. Brown is a Research Associate of the Foundation. He and Dr. Rosenberg are on the faculty of the University of Pennsylvania. The study is one of a series for which Dr. Irving H. Siegel serves as Principal Consultant.

[1] See *PTC J. Res. & Ed.*, Vol. 4, No. 1 (Spring 1960), pp. 40-48, for interim report by the same authors, "Patents and Other Factors in the Machine Tool Industry."

COMPOSITION OF THE SAMPLE

The machine tool industry has approximately 600 firms.[2] Our sample includes fifty-one firms, or about 8 to 9 percent of the population. Table I compares the size distribution of our sample (measured by number of employees) with that of the entire industry's population in 1954, the most recent year for which complete data were available. A statistical test suggests that the conformity is reasonably good.[3]

TABLE I

AMERICAN MACHINE TOOL INDUSTRY
BREAKDOWN BY SIZE: TOTAL AND SAMPLE

	Companies in Sample		Population of Industry (1954)*	
	Number	%	Number	%
Class A, 1– 50 employees	31	60.8	462	72.1
Class B, 51– 100 employees	7	13.7	54	8.4
Class C, 101– 249 employees	5	9.8	57	8.9
Class D, 250–1000 employees	4	7.8	45	7.0
Class E, 1001 and upwards employees	4	7.8	21	3.3
TOTAL	51		639	

* Source: Bureau of the Census, U. S. Department of Commerce. It should be noted that the figure of 639 refers to the number of individual plants in the machine tool industry. In 1954 there were 627 machine tool firms operating 639 plants.

AGE AND GROWTH OF SAMPLE FIRMS

Table II shows that approximately 34 percent of the firms in our sample were over 40 years old. It is also noteworthy, although not surprising, that the larger firms tend to be the oldest. Around a "hard core" of old, large firms in the industry, there is high turnover among the smaller firms.[4]

[2] A striking characteristic of the industry is the variability of the number of firms. Sharp changes in the number of firms in response to changing demand have been observed during critical periods in the economy such as war and defense buildups. The number of machine tool companies, e.g., rose from 312 to 627 between 1947 and 1954.

[3] The result of applying the Kolmogorov-Smirnov test makes us confident that the sample size distribution adequately approximates the 1954 population distribution. The sample is drawn from the 1960 population, however, so this test is not completely reliable. There are no compelling reasons to believe that the relative sizes upon which the test is based have drastically changed, although the absolute number of firms has probably declined. If a decline did occur, the reduction in number of small firms may well have been relatively greater. But it is precisely in the small group that our sample deviates most from the 1954 population, so the result would be an even closer agreement of our sample distribution with the actual 1960 population distribution.

[4] We note in this connection that a substantial majority of the firms in the industry, including even the very largest firms, were established as job shops. Sixty percent of the firms indicated that they were originally established as job shops.

TABLE II

NUMBER OF YEARS IN MACHINE TOOL INDUSTRY: SAMPLE COMPANIES

	1–10	11–20	21–30	31–40	41–200
Class					
A	8	7	5	2	3
B		3	1		2
C		1		1	3
D				1	3
E					4
TOTAL	8	11	6	4	15

In general, the growth rates of individual firms (measured by the number of employees) have not been as high as, say, in a new industry such as plastics. However, any measure of growth is bound to be volatile, since the industry is so unstable in the short run. Furthermore, the fairly high turnover among small firms tends to yield growth rates for this group which are deceptively high.

In our sample, a breakdown by size and growth indicates the following patterns:

(1) 60% of the smallest firms, Class A, had low growth rates (below 4%) but a few small firms had very high rates because they advanced from a very low base (some were new firms starting virtually from scratch).

(2) The medium-size firms, Classes B and C, tended to have high growth rates (from 4 to 11%) and none of these firms had low growth rates.

(3) The large firms tended to have moderate growth rates (4 to 6%).

In summary, all kinds of growth experience are reflected in our small firms; high growth rates were characteristic of medium-size firms; and large firms achieved only moderate growth rates.

BATCH PRODUCTION

It has already been observed that, although machine tools have played a vital role in the nation's technological progress, the machine tool industry itself does not operate on a mass-production basis.[5] This fact is substantially confirmed by responses to our questionnaire concerning a permanent assembly line. Approximately 78 percent of the respondents had no permanent assembly line; and about 22 percent had a *static* permanent assembly line, but none had a *mechanized* permanent assembly line. Furthermore, as might be expected, the permanent assembly lines are found more frequently in the larger firms; but one firm in the largest size category (over 1000 employees) reported that it had none.

For the sample as a whole, the normal size of batches in which machines are produced rarely exceeds forty. This fact is quite consistent with the response on permanent assembly lines. It should be observed, however, that even the large firms which have an assembly line produce small batches of tools. One student of the industry has suggested that successful firms in the machine tool industry expand

[5] See Brown and Rosenberg, *op. cit.*, p. 43.

the scale of their operations, not by expanding the production and sale of a single successful model (having a necessarily limited market) but by widening the range of models and designs. Our findings appear consistent with this view.[6]

CONCENTRATION, ENTRY AND SPECIALIZATION

In the earlier article, reference was made to a low degree of output concentration for the industry as a whole. The four largest firms in the industry had 18 percent of the value of total output, and the twenty largest had only 49 percent of the total machine tool market.[7] For individual products, however, the concentration ratios are quite high.

Responses to our questionnaire also show that one-third of the respondents had been involved in one or more mergers. They further reveal that retained earnings, personal capital, and bank loans, in this order, are the most important forms of financing the expansion of firms. Stock and bond issues were of very little importance as sources of business capital.

The evidence suggests that entry into the industry is easy, in the sense of absence of such barriers as high initial capital requirements. Rapid expansion of the industry occurred during past periods of war and defense buildups, although the long-run viability of entrants during boom periods may be another matter. Indeed, the evidence also indicates that the mortality rate for small firms is very high and that survival is much more difficult than mere entry.

The successful machine tool firms maintain unusually close working relationships with their major customers. Indeed, successful operation in the machine tool industry seems to require ability to appreciate and to anticipate the peculiar problems and specialized production needs of the machine tool user, as well as possession of technical "know-how" for design and re-design of tools according to needs. The technical "know-how," it should be emphasized, comprises not only technology of machine tool production, but the technology of the user industry as well.[8]

Just as technical "know-how" is vital to success in the industry, its absence is probably the most important single barrier to the success of new firms. This fact partly explains the high mortality of new firms. It also accounts for another phenomenon: the successful firms in the industry appear to be the products of very slow growth. Thus, the machine tool industry has not shared the experience of many other industries in recent years, in which a firm successful in some other field

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[6] William Henry Brown, Jr., *Innovation in the Machine Tool Industry,* (Unpublished Ph.D. dissertation, Yale University, 1952).

[7] Brown and Rosenberg, *op. cit.,* p. 46.

[8] The extent to which major machine tool users expect their suppliers not only to design but actually to initiate major innovations is indicated in the following remarks of Mr. H. Rourke in an address to the American Machine Tool Distributors Association in Cincinnati on April 16, 1953 (Mr. Rourke was, at the time, general purchasing agent for Ford Motor Company): "Ford is looking to machine tool builders to assume responsibility for the design and procurement of automation—the intermachine materials-handling equipment—in the future. This is a job for specialists in the machine tool industry and should be considered an integral part of the machine we purchase. . . . Automation should not be left to the customer to do the best he can for himself." Reported in the *American Machinist,* April 27, 1953, p. 172.

undertakes machine tool production in expanding its product lines. Nor have machine tool users undertaken to produce their own machine tools to any appreciable extent.

In short, machine tool production has itself remained a highly specialized type of activity on the part of a large number of small firms, each of which concentrates on a very narrow product range and does very little else. Thus, in 1954, 93 percent of all machine tool products were produced by firms classified as belonging to the machine tool industry. More important, the industry's primary product specialization ratio (*i.e.,* the ratio of the value of its machine tool output to the value of the *total* output of the industry) was 84 percent, indicating a high degree of specialization in, and commitment to, machine tool production.[9]

RESEARCH AND DEVELOPMENT

Although devotion of resources to R&D is critical for innovation, the concept is likely to be so loosely used in the industry as to mean, not only work on new kinds of machines, but also the redesign of existing machines. Given the highly specialized nature of the final tool and the use to which it is likely to be put, most orders for tools involve special features which require redesigning of existing machines. This limitation must be borne in mind in interpreting the responses to our questionnaire.

As might be expected, the number of people engaged in R&D during 1959 in the machine tool industry was a function of the size of the firm. Larger firms had larger technical staffs.

An effort was made to establish the degree of correlation between R&D and business conditions. Do research efforts change when business conditions decline? Half of the respondents indicated that research activity remained invariant with respect to changes in business conditions. More than a quarter (27%) increased research efforts when business declined and almost a quarter (23%) decreased such expenditures.

An important finding is that nearly all of the *largest* firms reported that they *increased* research efforts during periods of business *decline.* Typical observations follow: "Poor business emphasizes the need for development." "When things are good we have money, when bad, we have time." "Decline in business—increase in research."

None of the middle-sized firms increased research efforts when business was slack, and 77 percent of the smallest firms indicated either a decrease or no change in research efforts when business declined. Typical comments are: "Ours is a continuing program in proportion to our earnings." "More can be spent for research in good times."

Several firms indicated that the important factors were customer requirements which are imperfectly correlated with business conditions. One respondent said: "Most of our research is at customer request for future requirements."

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[9] *Concentration in American Industry.* Report of the Subcommittee on Antitrust and Monopoly to the Committee on the Judiciary. U. S. Senate (Washington, D.C.: GPO, 1957), Table 46, pp. 414-415.

In addition, some firms indicated that their planning horizon changed vis-a-vis research efforts when business conditions declined and that the composition of their research is altered in favor of activities likely to have a short pay-off. For example, "When business is declining, pure research is reduced and applied short-range projects receive more attention."

On the basis of our sample, it appears that R&D activity is carried on by machine tool firms regardless of size. The response by the very small firms is impressive, even though the dividing line between R&D and the more routine types of designing activities is difficult to establish.[10] However, it does appear that there are compositional differences, in that smaller firms tend to devote more of their research effort toward redesigning machines for an immediate specific use by their customers than the larger firms do. The larger firms, on the other hand, are more frequently engaged in research having results of wider applicability, and, in general, more likely to be patentable. These larger firms are more likely, for example, to be interested in "automation"—in increasing the application of electronic guidance systems, numerical control, etc., to machine tools.

The research activity of many respondents was so diverse, special-purpose and individualized as to defy systematic classification. In Table III, therefore, we cite categories of research activity that were frequently mentioned, and we assign highly individualized types of research activity to a "miscellaneous" category. We should note that firms with classifiable R&D activities also frequently reported research or designing activities of a nonclassifiable (miscellaneous) nature.

TABLE III

RESEARCH ACTIVITIES OF MACHINE TOOL FIRMS

	Firms Size				
	A	B	C	D	E
(1) Machine tool automation—Numerical and electronic control...	1	1	3	2	2
(2) Increased efficiency in use of materials—diamonds, tungsten-carbide, ceramics, alloys.....	6				
(3) Improvement of standardization of processes and design....	1	2			
(4) Miscellaneous—*i.e.*, special-purpose R&D.....	14	3	1	1	2

COST REDUCTION

Our questionnaire also asked: "Do you see possibilities of reducing your costs in the future? If so, please give examples." Several firms replied that an important

[10] Although strict interindustry comparison is not possible at present, we venture the guess that the machine tool industry ranks very high with respect to the participation of its smaller firms in R&D activity. Unfortunately, in the useful recent studies made by the National Science Foundation, no sub-classification of the Machinery Industry, of which the production of machine tools forms only a small part, is available. See National Science Foundation, *Funds for Research and Development in Industry, 1957* (Washington, D.C.: GPO, 1960), and National Science Foundation, *Science and Engineering in American Industry: Report on a 1956 Survey* (Washington, D.C.: GPO, 1959).

avenue of cost reduction in the future is likely to be the automation of equipment, especially via numerical control methods (mentioned by six firms). Another avenue is greater standardization of machine tools and a corresponding increase in the quantities manufactured (also mentioned by six firms).

Although firms in all size classifications mentioned the first possibility, only the smaller firms considered the second. This may signify only that the smaller firms have yet to exploit the advantages of standardization already achieved by larger machine tool producers. Apparently, the larger firms are not looking toward increased production of general-purpose and standard tools for a reduction in costs.

TECHNICAL INFORMATION

According to responses to our questionnaire, the sources of technical information for firms in the machine tool industry are many. However, the source most frequently cited is technical articles in trade journals (29 firms), followed by customers (8 firms), consultants (4 firms), and technical meetings (4 firms). Three firms replied that issued patents comprised a source of technical information. Other sources of technical information cited less frequently are personal contact (with others in a similar field) and supply houses. There appeared to be no pattern for sources according to size distribution of firms.

PATENT ACTIVITY

Only a small percentage of firms were actually established on the basis of patents, although the percentage established on the basis of patents is somewhat higher for the presently larger firms. These results are indicated in Table IV.

TABLE IV

FIRM ESTABLISHED ON BASIS OF PATENTS

Class	Yes	No
A	3	22
B	1	5
C	2	3
D	2	2
E	0	4
Total	8	36

Although some of the larger firms were not established on the basis of patents, the current operations of virtually all large firms are based on patented inventions. As expected, smaller firms tended less frequently to have either owned or licensed patents. The following table summarizes the responses to our question: "Are any of your products or processes today based on owned, purchased, or licensed patents?"

TABLE V

FIRMS HAVING PRODUCTS OR PROCESSES BASED ON PATENTS

Size	Yes	No	No Answer
A	7	18	5
B	3	4	0
C	4	1	0
D	4	0	0
E	5	0	0
Total	23	23	5

Nearly one-half of our sample firms utilize patents in one or more ways in their current operations. In the two largest size categories, however, all firms answered the question affirmatively.[11]

Most patents utilized by individual firms in the machine tool industry are owned. Our survey showed little evidence of purchasing or licensing of patents; in our entire sample only three firms reported purchasing and four reported licensing.

There was a marked reluctance of licensing firms to disclose the terms of licensing. Those that did report (three firms) stated that both fixed sum per unit and fixed sum per year (regardless of volume) were common terms of licensing.[12]

PATENT LITIGATION

With respect to patent litigation, our evidence indicates that mostly large firms were involved, but not exclusively. Some patent interference cases were settled out of court, and in the case of one very small firm, patents were granted after Patent Office interference. In the case of one very large firm, litigation occurred over trademark infringement.

The U. S. Department of Justice, in an important decision in 1956, ordered the Fellows Gear Shaper Company and other manufacturers of gear machinery to permit licensing of their processes by other machine tool firms. (Details appear in an Appendix which summarizes court cases involving patents in the machine tool industry.) An even more important court action, just before our entry into World War II, involved restrictive agreements between General Electric Company and the German Krupp interests which had the effect of substantially delaying the introduction of tungsten-carbide cutting tools into the United States. (Details appear in Appendix.)

A very recent significant development is the claim by the Bullard Company that it possesses basic patents covering the numerical control of machine tools. The company claims that its patents (a total of thirteen), first applied for in 1940 and

[11] Cf. also Table I in the earlier article (*op. cit.*) for data on the number of patents held by the largest patent-holding firms in the machine tool industry.

[12] In recent years several British machine tool firms have undertaken, under license, the production of American-designed machine tools. Furthermore, some American machine tool firms—e.g., Cincinnati Milling Machine Company, Ex-Cell-O and Brown and Sharpe—have established subsidiary units in Great Britain.

granted in 1944, justify its claim to prior ownership of the control techniques employed in all numerical control positioning systems. The company has sent letters to more than 20 makers of numerical control systems asking them to enter into negotiations for licenses. The company has indicated that a royalty fee of about 3 percent of the net sales would be a reasonable basis for negotiation. If the Bullard claim is validated and applied retroactively it is estimated that the company would collect royalties during the life of the patents of between five and ten million dollars.[13]

PATENTS IN RELATION TO RESEARCH

Our respondents mentioned a variety of possible changes in the patent system that might induce more research. Four small firms suggested stricter enforcement of patent rights: "The protection the courts give patents will determine the future attitude of research's value" . . . "More control over ability to copy and use other's patents" . . . "Make patents realistic, not grab bags." Two small firms indicated the desirability of quicker processing on patent applications: "Faster action from the patent office." A large firm suggested that patents be filed in the name of assignor, since group research makes it difficult to determine the inventor. Another large firm complained that "Most patent officials lack a sufficient background in metallurgy to fully appreciate the significance of our developments and ways to fully protect them." Also, a large firm suggested raising the "standard of invention." Although complaints concerning insufficient protection were concentrated among smaller firms, five of the smaller firms did regard the patent system as adequate.

NOVELTY IN THE MACHINE TOOL INDUSTRY

In evaluating the role of patents in the history of the industry, certain features of the industry should be recalled. Financial requirements for entry are low and the cost of experimentation is small, but skill requirements are high. Moreover, the basic machine tool processes are very simple and few in number. Although many of the outstanding pioneers in the machine tool industry in the nineteenth century were substantial patent holders (such as William Sellers and Company of Philadelphia and Pratt and Whitney of Hartford),[14] circumvention and infringement of patent rights were comparatively easy before the present century. The legal interpretation of patent law by the courts may have been partly responsible, but the sheer simplicity of many machine tool innovations was also a factor. Thus the patents on such momentous innovations as the automatic turret lathe and high speed tools proved unenforceable.[15]

Because of special (although not entirely unique) features, patenting activity in

[13] All information concerning Bullard's patent claims is drawn from *American Machinist*, September 5, 1960, p. 91.

[14] W. Paul Strassman, *Risk and Technological Innovation: American Manufacturing Methods During the Nineteenth Century* (Cornell University Press: Ithaca, 1959), pp. 132-133.

[15] *Ibid.*, p. 149. The recent comments of two British writers on the apparently similar experience of the British machine tool industry may be of interest here: "Heterogeneity also undermines the effectiveness of patent rights. In a few cases, where an entirely new principle of performing a given machine tool skill has been found, patent protection has been made the chief

the industry is an inadequate index of technological change. Furthermore, published figures on R&D expenditures are also highly inadequate indicators. Comparisons of such expenditures by firm size would appear to be particularly biased, in the machine tool industry, in favor of the large-scale firms where more formalized accounting procedures and functional specialization among employees focus attention on efforts to innovate. In the smaller firm, on the other hand, innovation is frequently a subsidiary or part-time function of persons largely assigned to other activities. Research and development activity is, in other words, carried out in less formalized, and therefore less conspicuous fashion, in smaller firms than in larger ones.[16] The fact that large firms are the more conspicuous holders of patents (cited in the earlier article) would also lead easily to quite spurious conclusions about the relation between firm size and innovation. Even if we were to ignore, for the moment, the difficulties involved in using patent grants as an index of innovation, it is not immediately apparent that, in the machine tool industry at least, large firms do *proportionately* more innovating than smaller firms. Yet this is what is involved in arguments linking firm size with innovation.[17]

There is a more serious difficulty, involving criteria of patentability and definition of novelty—questions which are particularly acute in the machine tool industry. The term "machine tool" is a loose one denoting a very wide variety of production instruments whose common feature is the use of a cutting edge for removing metal (the interested reader may wish to examine—e.g., in the *Annual Survey of Manufactures*—the lengthy breakdown into subclassifications of the annual output of machine tools).

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basis of market superiority. The outstanding example of this in the last twenty years is probably gear-shaving. Generally, however, patent protection has been much less important than skill in design and ingenuity in applying available principles in machine tools. Patents are less important than the organization and performance of development work: they are to some extent an innovatory incentive, but a rather weak one, for diligent development work in a firm usually finds an alternative to another firm's patents. Development of new designs reduces a firm's dependence on, and therefore the effect of, patent rights." M. E. Beesley and G. W. Troup, "The Machine Tool Industry," Chapter IX in *The Structure of British Industry*, Duncan Burn (ed.), Cambridge University Press, p. 373.

[16] By the same token, it appears to us also that, in interindustry (as opposed to intra-industry) comparisons, R&D activity in an industry characterized by small average size of firm—such as machine tools—is likely to be understated.

[17] The question of the relationship between size of firm and research activity is a fascinating one which cannot be pursued here. It is clear that, *in certain respects*, large firms may be better able to undertake research activity—e.g., financial advantages, greater stability, economies of scale in research activity itself, a better position to reap the benefits of the somewhat unpredictable yield, etc. Size itself, however, is only one relevant consideration, and economists have been too much concerned with it since Schumpeter gave wide currency to the notion that technological progress is closely linked up with the very large firm. The rapid technological progress in the small-scale machine tool industry by comparison with the reputed slowness of such progress in, say, the large-scale steel industry, suggests that other dimensions than size ought to be explored. In particular, recent discussions of this relationship have concentrated excessively on the *capacity* to undertake research and insufficiently upon the economic *inducements* to do so. Greater attention to the nature of the product and its market and to the constraints and inducements provided by the technological and scientific base underlying the product and the productive process itself should yield promising new insights.

One reason that novelty is so difficult to recognize in machine tools is the absence of any such thing as a "standard" machine tool. Since the machine tool is, essentially, a custom-made tool,[18] each instrument will embody a certain amount of designing and engineering to accommodate the needs of each individual machine tool user. Such activities are a normal, routine feature of the daily operation of a machine tool firm.

In the application of existing techniques and methods to the special work problems of a machine tool user, problems are continuously being solved at all levels of difficulty and skill requirements, and novel solutions to individual problems emerge, some of them capable of wider application throughout the industry. However, seldom is a particular solution or technique unique, in the sense that there is no other way of performing a certain function.

Moreover, much of the technical progress in the machine tool industry really consists in finding new ways of performing very old processes or functions—grinding, planing, drilling, etc.—or in applying new materials or alloys to old processes. In all of this the element of novelty may not be readily apparent—or indeed may appear quite trivial—whereas its economic significance may be very great.[19]

There is, of course, no difficulty in recognizing the really major technological innovations, such as centerless grinding. Such innovations, however, are comparatively few. For the rest, innovation in the machine tool industry shades off imperceptibly into comparatively minor aspects of designing and engineering, not significant from a technological point of view but possessing features of unquestionable, and frequently of considerable, economic value.[20]

TRADEMARKS IN THE MACHINE TOOL INDUSTRY

Our concluding comment concerns trademarks. Some sentiment was expressed to the effect that trademarks are used to "protect ourselves (the firm's products)

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[18] A useful dimension along which machine tools may be classified is from general (or multiple) purpose (designed for performing work within a fairly wide range of specifications and therefore possessing a high degree of built-in flexibility) to special purpose (designed for performing work within a narrow range of specifications at high speed and therefore particularly well suited when long production runs are possible). The analysis presented here is more especially appropriate to special-purpose tools, although even general purpose tools vary considerably with respect to size, special attachments, fixtures, tooling, jigs, etc.

[19] Moreover, many innovations create structural imbalances among different components of the machine tool whose correction or readjustment is crucial to the success of the initial innovation. Thus, the introduction of high speed steel made possible higher cutting speeds; these higher cutting speeds, in turn, required adjustments in the transmission mechanism and control elements and required redesigning for increased structural rigidity and heavier overall construction.

[20] One respondent stated that his firm's customers frequently terminated negotiations ". . . *after* we have disclosed our ideas on design. *This is a serious problem*—protecting our rights to designs while disclosing enough to induce customer to buy. Most of these designs, while novel, would not be patentable. Moreover, they would be applicable to only the specific machine being designed. Too many prospective customers 'pick the brains' of several suppliers, then combine desirable features in a machine of 'their own design'. Machines are then built by outsiders who have no development expense (or ability) and hence can underbid." Emphasis as in original.

from others passing-off goods as of our origin. However, this is not a problem in our industry." Most firms (Table VI) found trademarks to have no effect on their share of the machine tool market, although the proportion believing trademarks did have a positive effect was somewhat higher in the larger size categories.

TABLE VI

OPINIONS CONCERNING EFFECT OF TRADEMARK ON SHARE OF MARKET

Size Class	No. of Companies	Increase Share of Market	Decrease Share of Market	No Effect	No Answer
A.....	26	2		17	7
B.....	8			5	3
C.....	7	2		3	2
D.....	4	3			1
E.....	4	1		2	1
Total.....	49	8	0	27	14

APPENDIX

The following are summaries of federal antitrust actions in the machine tool industry in which patents have been directly involved. The summaries are taken verbatim from *The Federal Antitrust Laws, With Summary of Cases Instituted by the United States 1890-1951* (and the *1952-1956 Supplement*), published by Commerce Clearing House, Inc.

635. *United States* v. *Kearney & Trecker Corp.*, Civil 3337: Complaint under Sections 1, 2 and 3 of the Sherman Act filed August 22, 1941, in the District Court (N. D. Ill.) against three corporations engaged in the manufacture of milling machine arbors, used in the manufacture of automobiles, airplanes and in other industries. The complaint alleges that defendants conspired to restrain interstate and foreign commerce by monopolizing MILLING MACHINE ARBORS through possession of a patent covering a spindle arbor connection and that, by reason of defendants' refusal to issue licenses for the manufacture and sale of milling machine arbors under their patent, they have been able to fix prices and to restrict production and distribution. A consent decree entered August 22, 1941, enjoins the alleged practices and requires defendants to dedicate their patent to the public, royalty free (CCH *Trade Regulation Reports,* Supp. 1941-1943, par. 52,644).

646. *United States* v. *Barber-Colman Company,* Civil 3491: Complaint under Section 1 of the Sherman Act filed on October 7, 1941, in the District Court (N. D. Ill.) alleging that the Barber-Colman Company and six other tool manufacturing companies through patent license agreements fixed prices on GROUND HOBS (STEEL PRECISION TOOLS used to cut gear teeth on milling and hobbing machines). It is alleged that the effect of the conspiracy was to suppress competition and fix prices for ground hobs. On January 14, 1946, after the principal patents which were the subject matter of the license agreements had expired and the license agreements had been terminated, an order was filed on motion of the Government dismissing the case without prejudice.

650. *United States* v. *General Electric Co.,* Cr. 110-412: Indictment in five counts under Sections 1 and 2 of the Sherman Act and Section 73 of the Wilson Tariff Act returned on October 21, 1941, in the District Court (S.D.N.Y.) against three American corporations, three of their officers, and a German corporation, charging that defendants conspired to restrain and to monopolize interstate and foreign commerce in patented and unpatented HARD METAL ALLOYS and TOOLS AND DIES made therefrom (principally TUNGSTEN CARBIDE). The indictment charges that the conspiracy was effectuated by acquiring and pooling competing patents, price fixing, excluding others, limiting production, eliminating imports and exports from the United States, and allotting marketing territories. All defendants except the German corporation pleaded not guilty. On June 16, 1942, notice was filed postponing the case for the duration of the war at the request of the War and Navy Departments. This indictment superseded the one returned in Case No. 553. Trial of the case was concluded on March 27, 1947, and on October 8, 1948, an opinion was rendered finding each of the American defendants guilty on all counts (CCH 1948-1949 Trade Cases par. 62,318). On November 12, 1948, the court imposed fines on defendants totaling $56,000. On January 6, 1949, the indictment was dismissed as to the German corporation.

1099. *United States* v. *Associated Patents, Inc.,* Civil 10-664: Complaint was filed in the District Court (E. D. Mich.) on June 22, 1951, charging seven corporations and one individual with conspiracy to restrain interstate trade and commerce in the manufacture and sale of MACHINE TOOLS in violation of Section 1 of the Sherman Act. The complaint charges that defendants allocated among themselves the manufacture and sale of machine tools according to specified fields, so that each of the defendants claimed certain types of machine tools as its exclusive field of manufacture and sale, and agreed not to manufacture or sell machine tools within the field claimed by any other defendant. Defendants are also said to have agreed to pool their existing and future patent rights and organized a patent holding and licensing company to carry out their illegal scheme. The government seeks cancellation of the illegal agreement and dissolution of the patent holding company in order to establish free competition in the industry. The case is pending.

(From *1952-1956 Supplement*) On June 20, 1955, the defendants were found to have conspired to violate the Sherman Act but the granting of injunctive relief was not appropriate in view of the lack of proof of any threat of future violations. The court retained jurisdiction of the action until the final disposition of a dissolution proceeding and a suit between certain of the defendants (CCH 1955 Trade Cases par. 68,092).

On February 27, 1956, the United States Supreme Court granted a motion to affirm the judgment (CCH 1956 Trade Cases par. 68,274).

1159. *United States* v. *Michigan Tool Co., et al.,* Cr. 33671: An indictment was returned by a Federal Grand Jury at Detroit, Michigan, on April 14, 1953, charging three corporations with conspiracy to restrain and to monopolize interstate and foreign trade and commerce in gear cutting and finishing MACHINES AND TOOLS in violation of the Sherman Antitrust Act.

The defendants named in the indictment were: Michigan Tool Co., Detroit, Mich.,

The Fellows Gear Shaper Co., Springfield, Vt., National Broach and Machine Co., Detroit, Mich.

The defendants were engaged in the manufacture and sale of gear cutting and finishing machines. These are machine tools utilized in the production of various types of gears used in most industrial plants, especially those engaged in the manufacture of aircraft, tanks, tractors, and motor vehicles, which are essential to the defense program. Certain types of machine tools, including gear cutting machines, have been designated as being in critically short supply by the National Production Authority.

The indictment charged that since 1937 the defendants, through PATENT licensing and cross-licensing agreements, had (a) allocated among themselves various fields in the manufacture and sale of gear cutting and finishing machines and tools; (b) refrained from competing in certain fields of manufacture and sale in which the other defendants were engaged; (c) adhered to published prices, discounts, terms and conditions of sale in the manufacture and sale of gear cutting and finishing machines and tools; (d) exchanged among themselves on an exclusive basis their respective patents and technology relating to the manufacture of these machines; (e) allocated customers among themselves; and (f) agreed not to license others without the consent of the other defendants.

On March 15, 1956, the court accepted the defendants' pleas of nolo contendere, and on June 27, 1956, each of the three defendants was fined $3,750 on each of the two counts in the indictment, making a total fine of $22,500. (See No. 1160)

1160. *United States* v. *Michigan Tool Co., et. al.,* Civ. 12605: A companion civil action to No. 1159, naming as defendants the same three corporations manufacturing gear cutting and finishing MACHINES and TOOLS, was filed concurrently with the return of the indictment (E. D. Mich.). This civil case sought a court order enjoining the continuance of the activities complained against, and also such orders relating to the defendants' patents as would dissipate the effects of their unlawful conduct.

Attorney General Brownell stated:

> The Department of Justice is determined to eliminate unlawful restraints upon the free flow of goods, whenever they appear. This is particularly true when the restraint involves a commodity which is an essential part of our industrial economy and so vital to the defense program.

Edward P. Hodges, Acting Assistant Attorney General in charge of the Antitrust Division, said:

> These cases involve PATENT agreements among competitors which are alleged to deprive their customers and the public of the benefits of competition and which adversely affect the business of those manufacturers who are not parties to the agreements. The cases do not attack the legitimate rights of a manufacturer under his patents. They do, however, attack agreements which seek to extend the legitimate scope of the patent privilege into fields which are proscribed by the antitrust laws.

A consent judgment was entered against all defendants in the civil action of February 28, 1956 (CCH 1956 Trade Cases par. 68,290). (See No. 1159.)

1190. *United States* v. *The Cincinnati Milling Machine Co., et al.,* Civ. 13401: A civil action filed April 19, 1954, in Detroit, Michigan, charged three corporations

with violating the Sherman Antitrust Act by conspiring to restrain and to monopolize interstate trade and commerce in the manufacture and sale of MILLING MACHINES. At the same time, a consent judgment was entered terminating the restraints alleged in the complaint.

The defendants named in the civil action were: The Cincinnati Milling Machine Co., Cincinnati, Ohio; Cincinnati Grinders Inc., Cincinnati, Ohio; Kearney & Trecker Corp., West Allis, Wis.

Named as co-conspirators but not as party defendants were the Ingersoll Milling Machine Co. of Rockford, Ill., and Vickers, Inc. of Detroit, Mich.

The defendants Cincinnati Milling and Kearney & Trecker were the largest manufacturers in the United States of standard milling machines, and the defendant Cincinnati Grinders was a wholly-owned subsidiary of Cincinnati Milling. Milling machines are machine tools utilized in producing finished surfaces on multiple parts for a wide variety of industrial and military machines and equipment, and hence, are essential to industry and vital to national defense.

The complaint charged that the defendants entered into a series of PATENT license and cross-license agreements, the terms of which were (1) to allocate or divide manufacturing fields among themselves; (2) to refuse to assign the patents involved or grant licenses thereunder to others, except under restrictive terms and conditions; (3) to grant immunity to each other from suit for patent infringement and to require assignees and licensee of the defendants to extend similar immunity; and (4) to refrain from competing with each other in the manufacture and sale of certain types and sizes of milling machines.

In addition to enjoining the restrictive practices alleged in the complaint, the judgment (1) cancelled certain agreements between the defendants and others; (2) required each of the defendants to grant licenses, on a reasonable royalty basis, under all patents relating to milling machines which are owned or controlled by such defendant on the date of entry of the judgment; and (3) required each defendant to grant to each of its licensees certain specifications and drawings used by such defendant in its manufacture under the licensed patents upon written application therefor, made within five years from the date of entry of the judgment (CCH 1954 Trade Cases par. 67,733).

Mr. Brownell, in commenting on the filing of the complaint and entry of the judgment, stated:

> The Department of Justice is making a determined effort to remove illegal restraints existing in the highly important machine tool field. The action taken today is designed to eliminate certain of those restraints and will open up to others patented art useful in this field.

Assistant Attorney General Stanley N. Barnes, in charge of the Antitrust Division, said:

> As announced in my speech before the Illinois State Bar Association on December 4, 1953, the Department is currently experimenting with a new procedure involving the negotiation, in certain types of antitrust cases, of consent judgments prior to the filing of the civil complaint. This procedure was utilized in the preparation of the judgment entered today. The primary purpose of this procedure is to expedite the disposition of antitrust cases, as well as to save all parties concerned considerable time and expense.

U. S. Companies As Licensees Under Foreign-Owned Patents, Trademarks, And Know-How

JACK N. BEHRMAN, Principal Investigator*

SUMMARY

THE FOUNDATION HAS CARRIED OUT SEVERAL STUDIES ON LICENSING by U. S. companies of their foreign patents and trademarks and know-how. A substantial outflow of such proprietary rights has occurred, and the flow is expanding annually. The license contracts generally contained clauses providing for a grantback to the licensor of improvements to the licensed inventions or know-how. In an effort to find the nature and extent of the inflow of such assets to U. S. companies from abroad, the Foundation questioned several companies that had indicated they were licensees of foreign companies. The resulting responses suggest, as detailed in the following presentation, that there is a relatively small flow of such rights or assets into the United States under separate licenses (*i.e.*, not as a result of grantbacks) but that for several of the companies it is becoming quite significant and is expected to increase in the future. Since mutually advantageous ties can be consummated with the U. S. company as licensee, just as they can as licensor, more U. S. companies should be watching developments abroad more carefully than they appear to be doing.

SOURCES OF DATA

AS A RESULT OF ITS PREVIOUS INVESTIGATIONS, the Foundation had a list of 57 companies which had indicated that they held licenses from foreign companies. This group comprised about 25 percent of the more than 200 companies which had provided data on their foreign licensing activities; the remaining companies apparently were not licensees. A Department of Commerce report on foreign licensing seems to indicate that something between 100 and 200 U. S. companies are paying royalties under licenses from foreign companies; thus the companies on our list comprised around one-third of the estimated U. S. licensees.

Of the 57 companies to which questionnaires were sent, 24 returned the mailed questionnaire (see Appendix). Of these, 3 are licensed only under grantback

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provisions, so their responses are not included in the data on number or origin of agreements; 9 others were interviewed personally. The 30 U. S. licensees are in the electrical, chemical, machine tool, photographic, aircraft, glass, equipment, food, and rubber industries. This listing checks with that of the Department of Commerce as to the industrial fields of licensees in the United States (see Table 6).

The responses related to the nature and extent of licensing from abroad, the relationships with licensors, contract provisions, and the profitability and significance of licensing.

NATURE AND EXTENT OF LICENSING

Although we knew that the respondents were licensees, we did not know how long they had been licensees nor the kinds of rights licensed. The first question, therefore, was directed at determining the nature of the inflow under licenses, the duration of the relationship, and the types of contracts. By far the most important assets were know-how and U. S. patents held by foreign companies. Acceptance by U. S. companies of foreign patent rights under license was next in order of frequency. The number of our respondents licensed under know-how was 24; under U. S. patents, 23; under U. S. trademarks, 4; under foreign patents, 11; and foreign trademarks, 2.

All but two of the companies licensed under foreign patents were also licensed under U. S. patents (in the same or separate agreements). All of those having licenses under U. S. trademarks were also licensed under U. S. patents. Of the two licensed under foreign trademarks, one held a license under U. S. trademarks also; the other held no other licenses. Five of the six companies *not* receiving know-how under license (the sixth company being licensed only under a foreign trademark) were licensed also under U. S. patents. Five companies were licensed to use foreign know-how only, receiving no other rights from companies abroad. Only three received rights to U. S. patents alone. Twenty-one held rights to both U. S. patents and foreign know-how, under agreements combining these rights or under separate agreements (as shown in Table 1). Three of the four licensed under U. S. trademarks were also licensed under U. S. patents and foreign know-how; the other under U. S. patents but not know-how.

Many of the respondents date their first agreement in the 1950's. Since only half of the companies answered this question, it is difficult to make an unequivocal statement, but it is apparent that most of this activity is post World War II and only a few such agreements continue from before 1940.

In addition to these license agreements, all but 4 of the respondents had grant-back clauses in the agreements they extended to foreign companies covering the return of improvements in patented inventions. All but 8 had such clauses relating to know-how. Only 4 companies indicated that they received rights to foreign-owned trademarks through provisions in licenses they extended. (Caution is necessary, again, against generalizing from this sample, which may be unrepresentative as to practices of all companies.)

In an attempt to obtain some measure of the relative extent of the flows of licensed rights out of the United States and those coming into the country, we

asked respondents to indicate the ratio of the value of the inflow (including grant-backs) to that of the outflow. Six of the 30 respondents did not answer the question. Of the remaining 24, 2 indicated that so far nothing of value had been received, and another indicated that only nominal values were returned. Only one company indicated that the inflow of rights and assets was larger than the outflow—in a ratio of 10 to 1. All others reported an outflow in a ratio of 1 to 100 times that of the inflow; of these, 10 indicated that the ratio was between 1:1 and 1:10; 5 showed a ratio of 1:20 and 1:30, and the remaining 5, a ratio of 1:100.

The pattern of assets received is reflected also in the types of licenses extended. We were concerned to know whether the pre-World War II pattern of cross licenses was being employed and if so to what extent. During our earlier investigations, we were told that most U. S. companies do not offer cross licenses to foreign companies. The reasons advanced were that each agreement should be separate (one-way) and that foreign companies have not attained the level of U. S. research; it would, therefore, be unprofitable to swap U. S. inventions and know-how for a small and uncertain return flow. The same approach obtains generally for the U. S. licensees. They are reluctant to offer what may be a considerably larger package of research and know-how to a foreign licensor in exchange for a few specific inventions. There are exceptions, of course; a very few U. S. companies consider that foreign research and development in their field (particularly pharmaceuticals) is so valuable that they want a continuing tie and a reciprocal one. Some desire only a continuing tie and negotiate a separate (one-way) agreement on each invention or development.

These attitudes are reflected in the data presented in Table 1 for the 30 companies on number and types of licenses held. A reciprocal agreement involves a swapping of patents or know-how frequently on unrelated items; it is a barter-type deal.

By far the most important activity takes place through the inflow of patent rights and know-how combined, but patent rights transferred under separate agreements are also significant. Other types of assets and agreements are less

TABLE 1

NUMBER AND TYPES OF LICENSES HELD BY 30 U. S. COMPANIES, 1960

Type of Licensed Assets	One-Way Licenses		Reciprocal Licenses	
	Number of Companies	Number of Licenses	Number of Companies	Number of Licenses
Patents Only	10	40	3	5
Trademarks Only	1	1	0	0
Know-how Only	4	9	1	1
Patents & Trademarks	2	7	4	10
Patents & Know-how	16	79	3	12
Trademarks & Know-how	2	2	0	0
Patents, Trademarks & Know-how	3	3	0	0
Total separate companies	28*	141	10	28

*Two companies held only reciprocal agreements.

important relatively, with only one agreement covering trademarks alone. The activity is not evenly spread over the 30 companies reporting. In the "patents only" category, two companies accounted for over half the separate agreements. In the "patents and know-how" category, three companies accounted for half of the separate licenses. Two companies accounted for half of all the reciprocal agreements. Only 8 companies held both separate (one-way) and reciprocal agreements; two held only reciprocal contracts. Of the total 169 agreements, one company held 33, and the next largest 15.

The usual pattern has been that of obtaining one license from one foreign company; however, there are a few U. S. licensees which have two or more licenses from the same foreign licensor, as shown in Table 2.

TABLE 2

DISTRIBUTION OF U. S. COMPANIES ACCORDING TO THE NUMBER OF LICENSES AND NUMBER OF FOREIGN LICENSORS

Number of Licenses	Number of Foreign Licensors																	Total Licenses
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	30	
1	5																	5
2	1	9																20
3			4															12
4																		0
5					3													15
6						1												6
7																		0
8																		0
9																		0
10			1															10
11											1							11
12							1					1						24
13										1								13
20															1			20
33																	1	33
																		169
Total Licensors	6	18	15	0	15	6	7	0	0	10	11	12	0	0	15	0	30	145

The country of origin of the licensors was as expected—*i.e.*, almost wholly from Europe and concentrated in a few countries. As shown by the data in Table 3, Germany is the predominant supplier of proprietary rights to U. S. licensees, followed by Great Britain and France, with the remainder trailing at some distance.[1] Unfortunately, the company with the largest number of licenses did not report the country origin of the agreements. In fact, respondents with a total of 71 licenses did not report their origin.

[1] The position of France does not agree with data in Table 5 on total payments. This is the result of a different base of comparison (number versus payments), the smaller number of companies in our sample, the lack of reporting by 7 of our respondents, the fact that licensing from Germany increased since 1957 both in number of agreements and returns, and the fact that some of the French pharmaceutical licensors did not get into our sample.

TABLE 3

COUNTRY DISTRIBUTION OF LICENSORS OF 30 U. S. COMPANIES

Country of Licensor	Number of the 30 U. S. Licensees	Number of Licenses
Germany, F. R.	16	33
Great Britain	14	23
France	9	15
Italy	4	5
Netherlands	3	4
Canada	3	3
Belgium	3	3
Australia	3	3
Switzerland	2	2
Brazil	2	2
New Zealand	1	1
India	1	1
Norway	1	1
Sweden	1	1
Japan	1	1
Not Distributed*	7	71
		169

*Almost all in Europe.

Of those distributed, Germany was the origin of one-third, with Great Britain having just over one-sixth. Because of the nature of the 7 companies not reporting the country origin, it is estimated that the relative importance of countries at the top of the list would not be greatly changed for our 30 companies.

The evidence presented as to origin of licensed rights indicates either that there is relatively little being developed in Europe which American companies consider important *or* that most companies are overlooking substantial developments from which they could profit. Some analysis of the situation is presented in the final section of this article.

RELATIONS WITH LICENSOR

The relations of the licensee with the licensor which we examined included the origin of the initial contact, the financial interest which the licensee might have in the licensor, and the contract provisions.

While the patent and trademark systems are obviously important in providing licenseable assets, the publication of the letters patent is apparently not an important means of communicating the existence of a potentially profitable license. Only 4 of our respondents indicated that they obtained initial knowledge of or interest in the licensed patents through publication of the letters patent. The more usual channel of information was a direct communication from the foreign company. Eight of the respondents indicated that they were contacted 3 to 15 times per year by foreign companies wishing to initiate negotiations; a few indicated that they were equally active as the foreigner in initiating the contacts, and 6 respondents indicated that they were seldom contacted by the potential licensor—the initiative being theirs most of the time. (Most of the companies did not answer question 7c on the frequency of initiation by licensors.)

Although direct communication from the foreign company was the usual origin of the negotiations for 12 of the respondents, continuing company contacts were the usual source for 8 of the respondents, technical scouts were more active for 6, and 2 companies relied heavily on publication in technical journals. Only 10 of our respondents indicated that they had a continuing *program* for the ferreting out of possible licenseable assets abroad; the remainder indicated that they did not have such a program but were reliant upon the occasional contacts or information arising as indicated above. Of these 10, all but one indicated that they relied heavily on personal contacts of traveling officials and verbal "advertising" of an interest in particular developments. In addition, 3 companies employed representatives abroad who sought out developments, another 4 relied on technical scouts from their company sent abroad on a particular mission; 3 more merely wrote companies in their same field advertising their interest, and 1 relied also on publications to give it an initial start in its search. Only one of the 9 companies interviewed presented a detailed and active program of discovering European developments and negotiating licenses.

Since it is possible that the licensor be a subsidiary or affiliate of the U. S. licensee, we were interested to know whether the ownership relation gave rise to the initial knowledge of developments worth licensing. By far the majority of licenses are with companies in which the U. S. licensee holds no financial interest; 17 respondents indicated that they held no such interest in *any* of their licensor partners. Seven companies indicated that they held 12 agreements with companies in which they owned less than 25% interest; 3 other companies were licensees under 4 agreements from licensors in which they held 25-50% interest. One U. S. licensee held a contract from its 51-95% owned subsidiary, and 2 companies held 5 contracts from wholly-owned foreign subsidiaries. Thus only 22 of the total 169 contracts were with affiliated foreign companies.

As to contract provisions, the U. S. licensees faced the same problems which their own foreign licensees face in negotiating agreements. We find for many a set of provisions similar to those offered in their own external licensing contracts, but others obtained provisions more favorable to themselves than those offered the foreign licensees in contracts covering the outflow of licensed assets. The data in Table 4 on the frequency of occurrence of particular contract provisions gives a starting point for assessment of this relationship with the licensor; much qualification must be added, however.

The first qualification to the data in Table 4 is that the respondents recorded in the "All" category were usually those with a few agreements (1, 2, or 3), so the weight given to these responses should not be so heavy as it would appear from the number of companies recorded. If we trace the provision structure for the companies with the largest number of agreements, we find a general pattern shaping up. It would be much as follows: The U. S. licensee in our sample *generally* obtains exclusive rights to the U. S. market (this is attested by the fact that so many companies are in the "All" category and over 40 percent of total agreements are represented in the "Most" category on these provisions). Rights in third countries are about equally split according to

TABLE 4

FREQUENCY OF CONTRACT PROVISIONS IN LICENSES EXTENDED TO 21 U. S. COMPANIES, 1960.*

	Number of Companies Reporting Frequency in Contracts			
Provisions	*All*	*Most*	*Few*	*None*
a. Exclusive manufacturing rights	11	4	0	6
b. Exclusive selling rights	11	4	0	6
c. Exclusive rights to use	10	5	0	6
d. Manufacturing rights in third countries	9	2	4	6
e. Selling rights in third countries	8	4	5	4
f. Rights to use in third countries	10	2	4	5
g. Rights to future patents and developments	9	4	2	6
h. Rights to sublicense in U. S.	8	5	1	7
i. Lump-sum payment to licensor	5	1	1	14
j. Minimum annual royalty	4	1	8	8
k. Royalty on percent of sales	14	4	2	1
l. Return of improvements to the licensor	6	5	2	8

*9 respondents did not disclose the pattern of their contract provisions. This omission was usually a result of the fact that so few agreements were involved that the answer would disclose the nature of the entire agreement.

number of agreements extending and those not extending such privileges. Many U. S. companies are insistent upon rights in their traditional export markets; others are less concerned. Right to future patents and developments follows the general pattern of extending them to the licensee, though for a few companies the licenses are "one-shot-deals" in effect covering only one item or existing know-how. Rights to sublicense in the U. S. are generally sought and obtained, in contrast to the general reluctance of American licensors to extend such rights to foreign licensees. The usual pattern of payments to the licensor based on a percentage of net sales appears to apply here as well, though a few companies who obtain only existing rights or know-how remit in a lump sum; one company prefers this latter procedure. Minimum annual royalties are avoided, just as foreign licensees might desire to do, but the American licensee seems to have a greater bargaining power in this respect; at the other end, at least one U. S. company seeks to put a ceiling on royalty payments over the life of the agreement. The return of improvements to the licensor follows the general pattern in U. S. licensing abroad—that of extending a grantback to the licensor of related developments. A study of the flow of information and rights under grantbacks, from both the U. S. and European sides, should be undertaken to help construct a measure of comparative inventiveness.

Of special note in comparing the relations of the U. S. licensee to the foreign licensor with the opposite flow from the United States is the fact that there is a general reluctance on the part of U. S. companies to use or take a license under trademarks owned by foreign companies. This is in sharp contrast to the situation abroad, where a U. S. mark is frequently of high sales value. The explanations are not hard to find—larger market in the U. S. already tapped by the domestic company, greater orientation to marketing and sales efforts in the United States, larger advertising budgets both in the U. S. and abroad by U. S. companies, lax registration policies on the part of Europeans in the United

States, *et cetera.* As a result, licenseable assets held by Europeans are restricted compared to those held by American companies. There is a similar lack of patent assets licenseable in the United States.

SIGNIFICANCE OF THE INFLOW

Obviously, the licensees considered the rights which they acquired under the agreements important or significant in some degree or the contracts would not have been signed. But, not every contract brings the results hoped for or anticipated. We were interested to discover whether the agreements were still considered important after a few years of operation and by what measures. The most obvious ones, of course, are the amount of payments under them to the licensors and the effect on increased sales by the licensees. While specific information on any given license or on aggregate payments is considered confidential by respondents, they generally were cooperative in replying to our last questions on the range of payments and the major contributions made by the licenses.

Only 4 companies failed to answer the question on the range of payments made annually over the past few years; and 4 others made no payments, either because of no royalties as yet or reciprocal agreements. The aggregate amount remitted by the remaining 22 totaled over $8 million per year, broken down among the following ranges:

	Number of Companies
No payments	4
Less than $1000	2
$1000 to $25,000	7
$25,000 to $50,000	2
$51,000 to $100,000	4
$101,000 to $500,000	5
$501,000 to $1,000,000	1
$1,000,000 to $10,000,000	1
No answer	4
	30

Data from the Department of Commerce indicate that payments during 1956 and 1957 under licenses from foreign companies amounted to $22 million each year. The breakdown of payments provided by the Department gives further insight into the nature of inflow and country origins, as shown in tables 5 and 6. The high percentage of total payments, probably rising above $25 million in 1960,[2] which are represented by our 30 respondents is a result of the fact that some of the large chemical companies were included in the sample.

To this total of payments must be added some small amount of payment in the form of equities. There are apparently relatively few licensees which now permit the foreign licensor to take equities, but recently European licensors are

[2] Payments to France alone grew on the average by $1 million annually from 1954 through 1956 according to French balance-of-payments statistics.

TABLE 5

U. S. COMPANIES' PAYMENTS TO FOREIGNERS, BY COUNTRY, 1956–57

(millions of dollars)

	1956	*1957*
Europe:		
France*	6.1	6.1
Germany	2.3	3.7
Italy	.7	.2
Netherlands	.6	.3
Belgium	.5	.9
Sweden	.3	.2
Switzerland	1.1	1.6
Other West Europe	.6	.5
	12.2	13.5
Sterling Area:		
United Kingdom	8.9	7.4
Other	.1	.2
	9.0	7.6
Canada	.9	.4
Latin American Republics	.3	.2
Other Countries	.1	.2
Total	$22.5	$21.9

*French balance of payments statistics show receipts of $7 million from the "dollar area" in 1956. See also comment in footnote 1, p. 19.

TABLE 6

U. S. COMPANIES' PAYMENTS TO FOREIGNERS, BY INDUSTRY, 1956–57

(millions of dollars)

Industry	*1956*	*1957*
Food, including tobacco	.2	.2
Textiles & allied products	.5	.5
Chemicals & allied products	10.5	12.5
Rubber products	*	*
Primary and fabricated metals	1.6	1.4
Machinery, except electrical	1.3	.8
Electrical, electronic, communications machinery, equipment & supplies	.7	.1
Motor Vehicles & equipment	.5	.6
Other transportation equipment & aircraft	1.8	1.7
Petroleum	.2	.5
All other	5.2	3.6
	$22.5	$21.9

*Under $50,000.

Source: Office of Business Economics, Department of Commerce, in *Foreign Commerce Weekly*, December 29, 1958, p. 4.

requesting equity participation—just as the American licensor has been counseled that this is good policy in his own foreign licensing. Frequently, this is the *only* way to tap the large U. S. market. In addition, the reciprocal licenses, which accounted for about one-sixth of all those in our sample, do not require payment in dollars and thus cause an understatement of any "value received" based only on money payments. But, regardless of these considerations, the payments by U. S. companies made under licenses from abroad are certainly no more than 10 percent of the receipts under licenses extended by U. S. companies to foreign licensees.

The significance can be measured more specifically, however, with reference to the impact of the licensing on the operations of individual companies. For 15 of the companies responding, as to the importance of the inflow, the reply was "insignificant to date" or "minor in overall operations." Another 4 indicated that the importance varied with market conditions, and 2 indicated that they had licensed in order to clear up patent disputes. For 9 of the respondents, the licensed assets were considered "very important."

The way in which the licenses are important is shown in the responses to the questions on their impact on exports, product lines, research, and potentially increased flows of such patents or know-how. Six companies failed to answer the question. But 9 indicated that exports had risen as a consequence; 15 said they had not. Product lines had been expanded as a result of licensing by 16 companies; 8 said they had not. Twelve companies reported an impact on research expenditures, either up or down; twelve reported no effect. Of the 12 feeling an impact, 5 saw reductions in such expenditures as a result of substitution of the research from abroad; the remaining 7 found it necessary to expand expenditures in order to adapt the new product, to provide special laboratory and testing equipment and services, and to develop new products with or out of the licensed rights.

Finally, the significance of this inflow was considered to be increasing, though slowly, by about half of these respondents; the other half felt no increase. The countries from which the flow was considered to be increasing were listed in the following order: Germany, England, France, Italy, and the Netherlands. This reflects partly the existing structure of agreements and also the varying activities in the several countries in research and development as well as in obtaining patent protection abroad.

A study conducted several years ago, but just recently brought to the attention of the writer, indicates that there is a wide difference in policies on foreign patenting among European businesses, and especially as to patenting in the United States compared with filing in other European countries. This difference, which shows fewer filings in the United States, reduces the number of licenseable assets which European companies have to offer. The study observed that "There seems to be no question that in the United States, for example, obtaining a patent is, in most cases, made impossible by the high cost of the formalities which are to be accomplished, the requirements, too often unknown, of a complex procedure, and the subordination of delivery of the patent to a preliminary search which is becoming more and more severe." [8]

ANALYTICAL CONCLUSIONS

Only a small number of companies, apparently less than 200 of the 3000 having foreign operations, have taken licenses from foreign companies. There are,

[8] The study, conducted by the Company of Engineer-Councils under the auspices of the National Institute of Industrial Property in the French Ministry of Industry and Commerce, covers data for the years 1950-1954 relating to 89% of the total number of patents filed in all the countries of the Union of Paris (1883); title: "Protection of Inventions in France and Abroad (Statistics)."

undoubtedly, other U. S. licensees *not* engaged in any foreign operations, but no check has been attempted on these companies as yet.[4] The U. S. licensee finds himself on the other side of the bargaining table with the necessity to calculate potential advantages from the licensed rights and to compare with other alternatives. The alternatives are to do without the information and operate with the best domestic developments; this is the alternative most companies have taken apparently, for the scope and size of the inflow is still comparatively small. The licensees have obviously concluded that the potential income is greater than the cost, sometimes much greater. A few have been in a position to "shop around" among potential licensors to obtain the best connections. Given the small number of contacts leading to licensing of American companies by European enterprises, there would seem to be a considerable leeway for development of profitable associations. However, there seems to be little eagerness on the part of U. S. companies operating abroad to become licensees.

This is partly the result of the fact that the return flow of rights and information under grantback clauses under licenses extended by U.S. companies has been disappointingly small for most companies. That company is the exception which can point to a significant return of improvements or patents in a given field. But, the fault is not always nor wholly with the foreign licensee. Rather, most grantback arrangements involve the procedure whereby the U.S. licensor must *ask* for certain developments made by the licensee. For the latter to send all developments even in a restricted area for examination by the licensor is felt to be too time-consuming a procedure. But, the licensors have generally not taken the initiative. Management has generally been much more interested in the money returns rather than any inflow of techniques or improvements. There has, therefore, been a lack of interest in ferreting out the developments of their own licensees abroad—developments to which the licensor would be automatically entitled and often royalty free!

This lack of interest is explained partly by the fact that the engineering departments of most of the U.S. companies view European engineering developments skeptically. Little is expected to come from these countries for some time. While this attitude is not held in every industry or every company, it is pervasive and has created an attitude of "we can give but they have nothing to offer." There is, of course, an absence of important developments in some fields in Europe, but the situation is changing rapidly, and there is more interest on the part of European management in taking the initiative in selling their own techniques abroad. This same initiative is not always evident when the new developments have to be extended free to a U.S. licensor.

It is partly because of this reluctance to swap developments without an exchange of money or a separate negotiation that so few cross-licenses have been

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[4] The degree of coverage indicated in Table 5 by comparison with French balance of payments figures on license receipts shows a very high percentage of total payments reflected in the companies under the Commerce survey.

uncovered in our research.[5] This general reluctance is breaking down, however, as evidenced by the fact that several companies questioned indicated that they were not now licensees of foreign companies but expected to become so in the near future and many included in this study stated that they were in the process of negotiating additional contracts.

The U.S. licensor should be more interested in obtaining grantbacks than he currently seems to be. His European counterpart, when extending licenses to U.S. companies, is highly interested in grantbacks; in a few instances, despite the very important rights extended, the European licensor has been willing to take very low royalties in consideration of potentially profitable grantbacks. With the U.S. licensor expanding his foreign operations, grantbacks increase the package that he is able to offer to new licensees.

The process of taking licenses with rights to sub-license, and that of ferreting out developments by the licensee to be granted back, create a multilateralization of inventions and techniques. The build-up of patent positions on the part of Europeans and more effective programs of research and development will lead eventually to pressure from both sides (licensee and licensor) to extend reciprocal rights or at least to establish continuing flows of information which can lead to prompt negotiations for a license. This preclusive-option relation will bring closer ties among U.S. and European firms, intensified by the desire of Europeans now to obtain an equity interest in U.S. companies and thus to tap the large U.S. market which is now effectively closed to many European enterprises. While U.S. companies seem now intent on rejecting a true cross-license arrangement, many of those who are licensees are interested in developing continuing agreements to negotiate and thus to tap directly the research operations in Europe.

Cooperation in research seems to be the next step. There are already some joint-ventures established in Europe to conduct research for both the European and American owners. Even the creation of close licensing ties provides a sort of clearing house of information, techniques, and assets available under license to members of the group. Some companies, in fact, call technical conferences among the licensees for the more rapid dissemination of information. There are difficulties, of course, in preventing licensees from tacitly or overtly dividing the market, but U.S. companies generally stay out of such activities and keep themselves ignorant of any such efforts on the part of foreign affiliates. In time, national and Common Market laws on antitrust may bring a common pattern of behavior. In the meantime, the sharing of techniques is itself an extension of competition through providing each with the lowest cost procedures.

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[5] This is not to say that cross-licenses do not exist; there are some significant arrangements of this sort. But the extent of coverage, their number, or proportion within the whole complex of licensing is reportedly small. A much closer examination would have to be made of the extent to which reciprocal licenses, covering a swap of rights in limited areas, approach cross-licensing in effect and of the actual flows under those designated as cross-licenses before a judgment could be passed. Such a study is not likely to be made until there is greater clarity in the antitrust laws and greater permissiveness in constructing intercorporate ties than now exists so that disclosure will not be feared by U. S. corporations.

In sum, although there is only a small inflow of direct licensing to U.S. companies from abroad, it is significant for a few companies in providing new products or techniques, thus expanding their sales at home and/or abroad. The growth of European research and development activities is likely to expand this flow and to increase the number of intercorporate ties through licensing or continuous communication on technical developments. These ties, in turn, will involve the danger of anti-competitive misuse of what is essentially a move toward a more desirable competition through the spread of managerial and technical know-how and the extension of the fruits of inventiveness. To maximize the benefits and minimize the dangers, it is desirable now to re-examine U.S. antitrust legislation as interpreted in foreign operations and to analyze the movements in the Common Market both toward unification of their patent and trademark systems and their efforts to establish a common anti-monopoly policy. The Foundation is now turning its attention to these aspects of foreign licensing so as to provide a better understanding of the complex problems and interrelations which are arising as intercorporate ties become more numerous.

APPENDIX

THE PATENT, TRADEMARK, AND COPYRIGHT FOUNDATION OF THE GEORGE WASHINGTON UNIVERSITY

QUESTIONNAIRE ON LICENSES FROM FOREIGN COMPANIES

1. Are you a licensee of any foreign company— *Date of first license*
   - under U. S. patents? Yes____ No____
   - under U. S. trademarks? Yes____ No____
   - under foreign patents? Yes____ No____
   - under foreign trademarks? Yes____ No____
   - to use their know-how? Yes____ No____
2. Do you receive rights to foreign-owned U. S. patents (yes____ no____) or trademarks (yes____ no____) or foreign know-how (yes____ no____) under grantbacks in licenses you have extended abroad?
3. Would you compare by a ratio (1:2 or 1:3, etc.) the value of foreign licenses extended to you, including grantbacks, and the value of such rights you have extended to foreign companies? _____
4. If you are a licensee, to how many *separate* licensing agreements and how many reciprocal (or cross) licenses—*not* including licenses with mere grantback clauses—are you a party, covering the following rights?

	Separate	*Reciprocal*		*Separate*	*Reciprocal*
Only patents			Patents & Trademarks	____	____
Only trademarks			Patents & Know-how	____	____
Only know-how			Trademarks & Know-how	____	____
			Patents, Trademarks, and Know-how	____	____

5. How many foreign companies are licensors of your company? _____
6. Please list the number of agreements by the countries of the licensors:

Country	No. of Agreements	Country	No. of Agreements
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

7. Does your interest in specific licenses from abroad usually originate in information published in the letters patent? Yes____ No____
   a) If not, what is the usual origin of your interest?____
   b) Do you have a program of actively seeking licenses from foreign companies? Yes____ No____ If "yes", please describe briefly:____
   c) How frequently have you been sought out by the potential licensor?____
8. In how many of your foreign licensors do you have a financial interest of less than 25%?____ 25-50%?____ 51-95%?____ 95-100%?____
9. Please indicate the frequency of the occurrence of the following provisions in your licenses *from* foreign companies:

	All	Most	Few	None
a) Exclusive rights to manufacture in the U. S.				
b) Exclusive rights to sell in the U. S.				
c) Exclusive rights to use in the U. S.				
d) Rights to manufacture in third countries				
e) Rights to sell in third countries				
f) Rights to use in third countries				
g) Rights to future patents and developments				
h) Right to sublicense in the U. S.				
i) Lump-sum payment				
j) Minimum annual royalties				
k) Royalties on percent of net sales				
l) Return of improvements to licensor				

   Please note any significant differences in these provisions as between licenses from the same foreign companies covering patents, trademarks, or know-how____
10. Please indicate the range of annual payments over the past 2 or 3 years to foreign companies under licenses:

$ 1,000- 25,000	
26,000- 50,000	
51,000- 100,000	
101,000- 500,000	
501,000-1,000,000	
Over $1,000,000	

11. How would you generally assess the importance of the inflow of foreign patents, trademarks, and know-how to your company?____
    a) Has it added to your ability to export? Yes____ No____
    b) Has it increased your range of product lines? Yes____ No____
    c) Has it reduced or increased the research expenditures of your company? Yes____ No____ Please explain____
    d) Is the inflow increasing? Yes____ No____ If so, from what countries?____

A Review of the Taxation Study

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JOHN F. CREED, Research Associate*

SUMMARY

THIS PAPER REVIEWS, IN NON-TECHNICAL TERMS, the general problem of taxing proceeds from patented inventions or related industrial property as capital gain or as ordinary income under the federal Income Tax law. The research carried on by the Foundation in this area is briefly described and the research results forthcoming are indicated.

FOR THE PAST TWO YEARS, AN ECONOMIST AND AN ATTORNEY from the Research Staff of the Foundation have been engaged in a study to reexamine, both in law and in practice, the influence of federal income taxation on (a) the use by business organizations of patents and similar intangible property (such as know-how), and (b) the terms under which such property is actually traded or leased. A related inquiry, also being carried on simultaneously by the same team, seeks to determine the degree of evenness or unevenness in application of the formal tax rules contained in the Internal Revenue Code in the actual day to day administration of federal tax law.

In the course of this research study, we have made rather a careful examination of the existing law and its various boundaries, seeking in this scrutiny to determine (1) precisely what sort of property patents and other related intangibles represent in the eyes of federal tax law and (2) how a sale of these intangibles differs from a mere leasing contract. This latter point is extremely important because the amount of federal income tax liability to which a contract gives rise often turns on this question. The limits of existing law are important to owners of patents and technical knowledge because of a unique characteristic of the federal income tax in this country; namely, favorable taxation of long-term capital gains.

BACKGROUND CONSIDERATIONS

Our federal income tax has developed gradually since 1913 under an enabling Constitutional Amendment (the 16th) which empowers Congress to tax income "from whatever source derived." In practice the tax has never, since 1913, been laid on any comprehensive definition of income; in fact the law has developed

* Dr. Bangs and Mr. Creed are members of the Foundation's Research Staff.

without ever specifying, except by example, precisely what income is and what it is not.

In a broad philosophical or economic sense all increases in capital values over time constitute income; but what is taxed as income in this country is only a part of aggregate capital accretion—an increment or net amount which (a) is actually or potentially capable of being given a monetary valuation and (b) which is a surplus over and above the maintenance intact of capital, when capital is a material income producing factor. All measures of net as opposed to gross income provide for capital maintenance; federal law taxes only net income.[1]

Because the concept of taxable income is so amorphous, income tax law has developed over nearly 50 years into a maze of complex detail, in which myriad specific rules are given in the statutes for the treatment of different types or categories of transactions. For example, we have special rules governing "short" sales of securities, the treatment of proceeds from land which is sold with an unharvested crop, the sale of partially depreciated property that has been used in a trade or business, and distributions in kind made by corporations or trusts.

All this specificity is doubtless necessary because we do not know in general (as against in particular) what it is that we are trying to tax or to exempt. We only know in individual instances, *e.g.*, in the case of a particular type of transaction, whether it is wanted, as a matter of public policy, that the increment should or should not fall within the concept of taxable income.

The British income tax, which long antedates the American, lays the tax on a base known as "annual profits or gains." Under the British concept regularly recurring value increments, or those realized from transactions entered into for profit, are taxed as ordinary (annual) income, whereas occasional windfalls are exempt—because they are in some sense not considered to be income, by virtue of their irregular occurrence. In a loose way what the British call "casual profits" we call capital gains. What they refer to as "annual income" we call ordinary income; but the lines of demarcation between annual and casual profit and between ordinary income and capital gain have not been drawn in the same relative places.

The British concept of annual profits is much broader than the American concept of ordinary income; consequently, the British area of casual profit (exempt from tax) is much narrower than the American concept of capital gains (taxed at a lower rate). Moreover, developments in the law in the two countries are, for the most part, taking place in opposite directions. The British are continually narrowing their area of casual profit by taxing more and more of this casual profit at ordinary income rates.

In part, this is because the difference between a zero rate on casual profit and a 50 percent rate (let us say by way of illustration) on annual income is much larger than the difference between the (ordinary income and capital gain) rates under the American tax system.

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[1] Whether these measures provide adequately or not for capital maintenance is a broad and controversial question that will not be discussed here. Many analysts feel, for example, that failure to allow depreciation on replacement rather than original cost means taxing capital as income during an era of advancing prices.

In the U.S., in contrast to British practice, we are constantly, as time proceeds, enlarging our area of capital gains. More and more types of transactions are being allowed to fall under this rubric because either Congress or the Courts desire somehow to moderate the harsh effects of our present high nominal rates of taxation.

THE INDIVIDUAL INVENTOR AND HIS TAXPAYING ABILITY

Consider, if you will for a moment, the non-salaried or "garret type" individual inventor in the United States. Such an inventor may toil for years at great expense to himself, in terms both of time and equipment; yet he may never come up with a commercially practical idea. Suddenly he hits at last on a notion that does make commercial sense and is capable of yielding him a large return. Over the years in which he was developing his commercially successful invention he had no deductions for research and development expenses, because he had no income of a type against which these expenses could properly be offset. When he does realize his dream, his reward is apt to come in a large lump sum—subjecting him to much higher taxation than would have been the case had he realized his gain in smaller amounts spread over all the years he spent working on his invention.

We have a real practical problem of tax equity here; it arises because of the progressive character of income tax rates. It is manifestly unfair to tax a man who makes a big income in a few years and a small income in most years more than you do a man with the same total income, evenly distributed over the same number of years; yet this happens constantly under our existing system. Our income tax, simply because it is progressive, does discriminate against those with fluctuating incomes in favor of those who have constant incomes year after year. What can be done about this?

One possible answer would be to impose tax not upon annual income (in the U.S. rather than the British sense) but upon an average income computed for an arbitrary period of (say) five years. Such a tax base might be recomputed each year on a moving average principle. Although more equitable than the existing system, such a tax on average income would be relatively unresponsive to economic expansion and contraction.

When the incomes of certain people are increasing, averaging would give them lower tax liabilities than does the separate levy upon each year's income. Similarly, when a person's income is declining, laying tax on the average income may mean burdening his current year's income too much; conceivably the tax based on average income could even be larger than the individual's total income for the current year—from which the tax must be paid. For this reason, and also because of the administrative complexities that are involved, schemes for basing tax on average income have not been especially popular in this country—except with academic students and with those groups who have experienced sharply fluctuating incomes.

Instead, whenever there has arisen a problem of relieving a taxpayer who has lumpy income (for one reason or another), the tendency of Congress has usually

been to lighten the tax rate applicable to that income in some manner. The most popular method of lightening the rates has been to treat the lumpy element of income as capital gain.

We tax such gains in this country at no more than half the rate that is applicable to ordinary income. This has not always been true, but it has been the prevailing rule since 1942, when the custom of taking only 50 percent of long-term capital gain into account for tax purposes was first established. This custom has remained unchanged down to the present time. Evidently it is considered to be not incongruous with the kind of income tax the country wants and should have.

Under our present tax system the category of capital gains is an umbrella of favorable rates under which both classes of people and classes of transactions hasten to find shelter. The individual inventor was given a statutory place under this umbrella by the Internal Revenue Code revision of 1954—which provided in Section 1235 that:

> if an inventor (or an investor in the invention before it has been reduced to practice) sells an undivided interest in his invention which is patented or patentable, the proceeds of this sale may be considered capital gain and not ordinary income.

The intention of Congress at the time this section was legislated was clearly to encourage inventors, by relieving them of some part of their tax burden under prior law, and also to place a legislative blessing upon certain earlier court decisions in which some patent sales had been treated as sales of capital assets. To qualify, such sales had to have been made by a non-professional inventor. Patents held by a professional inventor were not capital assets but stock in trade. There was no reason in logic why a non-professional inventor should be treated more leniently than a professional; hence Congress made more lenient treatment available to all.

PATENTS OWNED BY CORPORATIONS

When corporations rather than persons are taxed, the rules are a little different. There is a special division of the Internal Revenue Code (Subchapter B, Part VIII) which contains rules for the definition of taxable income that are applicable only to corporations and not to natural persons. A natural person has both a business entity and a nonbusiness entity. The corporation has only its business entity.

OBJECTIVE OF CURRENT WORK ON THE TAX STUDY

Our object in the second phase of the taxation study has been to collect some broadly based experience that American corporations have had in administering their patent and related intangible assets. We have sought to obtain and to quantify this experience in order to discover what tax problems these companies had encountered most frequently, and whether these tax problems had influenced, in a material way, their decisions to buy or to sell, to lease or to license their rights to inventions and related technology.

For this purpose we designed and mailed to all U. S. corporations having

150 or more patents a questionnaire calling for detailed information about tax experience. A copy of this questionnaire is appended to the present report. (See Appendix)

In response to our initial request for information, some companies returned completed questionnaires quite promptly. A follow-up letter was directed some three months after the original questionnaire was mailed to those companies that had not reported. This follow-up letter brought in additional replies, giving us in all 61 completed questionnaires for analysis. Another 38 corporations, unable to complete the questionnaire, replied by letter giving some information, usually incomplete.

A few background facts may perhaps usefully be cited at this point concerning the characteristics of our reporting companies. The survey was not based on a sample but was directed to all U. S. companies having more than the specified number of patents. There were some 242 of these companies on our list to whom questionnaires were sent in the first instance. Our mailing list was compiled from a U. S. Patent Office tabulation dated 1956.[2] No more recent list was known to be available.

The response rate following our second letter was approximately 41 percent; we consider this a relatively good response in view both of the nature of the subject matter and of the confidential character of the information that was sought.

The 61 companies that reported to us in detail had, according to their returns, approximately 50,000 U.S. patents in force on December 31, 1959. This is approximately 16 percent of all the outstanding patents in the United States that have been issued to corporations.

A great majority of our respondents were medium-sized or large American companies doing extensive research work in their own behalf, and also following carefully any outside technological developments within their industry or area of business. Common sense leads us to expect, and the survey confirms this fact, that the bulk of patents that are either issued to or are subsequently assigned to corporations go to those companies which are forward looking and aggressive. Occasionally patents of detail will be assigned to a static or decaying business, just because these ideas were conceived by a creative workman who happened to be in the employ of such a company. More and more—because invention is becoming an activity not carried on primarily by isolated individuals, but a team operation, in which there is a heavy investment in laboratory equipment and in scientists with special training and knowledge—we find that many companies go so far as actually to retain inventors without other duties on their staffs—keeping these people free of detail work or administrative responsibilities so they may concentrate on creative ideas that are likely to advance the fortunes of the business.

As we are all aware, there has been a tremendous rise in research and development outlays by American corporations during the past 10 years. In part this has undoubtedly occurred because tax rates have remained high. Research and

[2] Distribution of Patents Issued to Corporations (1939-55), Committee Print, Senate Judiciary Committee, 84th Congress, 2nd Session, December 1956.

development costs constitute a currently deductible expense for income tax purposes, although these outlays are in a very significant economic sense capital investments, e.g., investments in new products and new processes or in the building of a strong competitive position that is vital to the future health and growth of the firms sponsoring this research and development work.

AVENUES OF PATENT EXPLOITATION OPEN TO THE INVENTOR

An individual inventor who has an idea, and who is successful in obtaining a patent, frequently finds that, in order for his idea to be put into practice, he must sell the patent outright to a corporation. There is a considerable traffic in such outright sales (or in exclusive licensing) of patents to corporations by individual inventors. Nevertheless, our earlier survey disclosed that most non-salaried inventors were relatively ignorant of the tax saving possibilities inherent in such outright patent sales—or else they knew about the tax saving but preferred to hold their patents themselves—purely in the expectation (often vain) of being able to use them in independent manufacture at some later date.

HOW CORPORATIONS USE PATENTS

In contrast to the individual inventor, our present survey confirms what we had already anticipated; namely, that large corporations do not, except in rare instances, sell outright any inventions to which they may have become entitled. For example, an oil company in possession of a new technique for fractional distillation may be quite willing to license this process to other companies, even if the latter are fairly close competitors; but the company itself retains the title to the patents involved and gives out only such licenses (either exclusive or non-exclusive ones) as may appear to be in the title company's best interests.

When a corporate owned patent is sold, it is usually because the company has decided to divest itself of some division, department, or other operating branch of the business. The normal practice, instead of selling patents, is to seek to retain them.

UNIQUE FEATURE OF THE TAXATION STUDY

We are frequently asked what we do in the tax study that cannot be done equally well by tax advisors. The answer lies primarily in the frame of reference with which our research is undertaken. A tax advisor is one who tells his client (a) what the latter can and cannot do, if the client wishes to comply with existing law and (b) whether a proposed course of action will or will not be to the client's tax advantage.

In other words, the tax advisor is looking always to the individual transaction; he is constantly advising his client whether or not a particular transaction that may be contemplated is within or outside the limits of the law and what its tax consequences will be.

Our interest, on the other hand, centers hardly at all in the individual transaction or in the tax liability of any individual person or business firm; rather our interest is in the law itself—in how broad it is; in how it applies in individual

situations; and in whether it is, in practice, uniform between one taxpayer and another.

A tax advisor looks primarily to the statute, the regulations, and then to the litigated cases, which together determine how a particular section of law has been applied in the past, and presumably how it will be applied in the future. We study the litigated cases only in so far as they help us to define precisely the limits of existing law and how it is applied. Our concern is not at all with whether an individual taxpayer owes or pays more or less than he should, or than he might under slightly altered circumstances; instead our focus goes entirely to whether taxpayer A receives the same treatment as taxpayer B who is similarly situated.

THE PROBLEM OF UNIFORM TAX ADMINISTRATION

Our federal income tax is today administered largely through decentralized offices of the Internal Revenue Service—in each of which a good deal of latitude and authority is concentrated. Congress passes generally worded statutes imposing taxes on us; the Treasury Department writes regulations that, for purposes of implementing these statutes, are a little more specific in language. These regulations are then applied, in a supposedly uniform manner, by the various district and regional offices of the Internal Revenue Service.

Litigated cases are only a small fraction of the total cases in which the amount of tax may have been in dispute. A great majority of the taxpayers do not go either to the Tax Court or to the federal District Courts, even though they may feel that they are entitled to an abatement of liability or a refund. The litigated cases, therefore,—being such a small percentage of the total actual settlements—tell us comparatively little about how the tax laws are actually administered in individual circumstances. It is partly to remedy this lack of knowledge that we sought to elicit replies from business corporations owning or controlling substantial numbers or substantial values of patent assets.

We thought that, if these replies conformed to a consistent pattern, we should be able to talk more understandingly about uneven administration in relation to such problems as the treatment of depreciation and similar matters which are in the forefront of taxpayers' agenda for change. In such centers of irritation the typical taxpayer feels, understandably enough, that he gets rather short shrift from the Internal Revenue Service.

Our object, then, in the tax study is to get corporations (and other taxpayers) to exchange information, through the medium of an impartial research survey, on their experiences with tax administration, so that they can better form some judgment about the evenness of application of the law and about whether the law has, in fact, produced equitable results. We are not primarily interested in whether taxpayer A has paid more or less than taxpayer B, who may be similarly situated. We are very much interested in whether taxpayers A and B do, in practice, receive the consistent treatment they are entitled to expect from the Internal Revenue Code as it is administered by the Internal Revenue Service.

APPENDIX

THE PATENT, TRADEMARK AND COPYRIGHT FOUNDATION OF THE GEORGE WASHINGTON UNIVERSITY WASHINGTON 6, D.C.

QUESTIONNAIRE DIRECTED TO CORPORATIONS WITH EXTENSIVE PATENT ASSETS

STRICTLY CONFIDENTIAL

		U. S. Patents	Foreign Patents
*1.	Number of patents in force that are owned by your company (do not include those to which you hold an exclusive license)	_____	_____
*2.	Of the number of patents in item 1, approximately what percentage was developed by your own employees or in your own laboratories?	_____%	_____%
*3.	Number of patents not owned but licensed from others for use by your company (include both exclusive and non-exclusive licenses, but do not include licenses from U. S. Government)	_____	_____
	From what sources are these licenses derived?		
	(1) other U. S. companies	_____%	_____%
	(2) foreign companies	_____%	_____%
	(3) individuals	_____%	_____%
*4.	Of the patents owned by your company, what percentages		
	a. are currently used by you only?	_____%	_____%
	b. are used by you and also licensed to others	_____%	_____%
	c. are not used by you but licensed to others	_____%	_____%
5.	Do you ever sell or assign patents outright (exclude for this purpose exclusive licensing arrangements)	_____	_____
	Under what circumstances?_____		
6.	If answer to 5 is yes, were proceeds from such sales reported as capital gain? (yes or no)	_____?	_____?
	If not, why not?_____		
7.	If so reported and capital gains treatment was denied, on what grounds? _____		
*8.	Of the company owned patents you have licensed to others, approximately what percentages have been exclusive licenses?	_____%	_____%
9.	Did you report proceeds from these exclusive licenses as capital gains?	_____?	_____?
	If not, why not?_____		
10.	If so reported, and capital gains treatment was denied, on what grounds? _____		
11.	What were your estimated average annual receipts from licensing for the years 1955 through 1959?		
	exclusive $_____		
	non-exclusive $_____		

* Please answer asterisked questions with facts as of December 31, 1959.

12. Of the company owned patents you have sold or licensed exclusively, can you estimate what percentages of the total proceeds therefrom were paid to you as:
    a. a lump sum _____% _____%
    b. instalments based on a fixed amount _____% _____%
    c. royalties based on manufacture, use or sale _____% _____%

13. Of the patents owned by your company, what percentages are:
    a. chemical _____% _____%
    b. mechanical _____% _____%
    c. electrical _____% _____%

14. Do tax considerations sometimes influence your decision as to whether to license one of your own patents exclusively or nonexclusively? (yes or no) _____? _____?
    If not, why not?_____

15. Do you customarily license others to use your
    a. patents only _____
    b. trademarks only _____
    c. know-how only _____
    d. a combination of the above? (Specify which combination) _____

16. If you license "know-how" alone or in combination with patents and/or tradesmarks, do you in your accounts, allocate any portion of the proceeds to "know-how"? (yes or no) _____? _____?
    Do you report these proceeds from "know-how" as ordinary income or capital gain?_____
    If capital gains treatment has been denied, on what grounds?_____

17. With respect to questions 14 and 15, is your licensing practice and/or tax reporting substantially different in foreign than domestic licensing?_____
    If yes, please explain_____

18. What terms do you customarily employ in licensing your patents *to others?* (Please check)

	Chemical	Mechanical	Electrical
a. lump sum payment	_____	_____	_____
b. flat rate royalty dependent solely on production, use or sale	_____	_____	_____
c. royalty with minimum	_____	_____	_____
d. sliding scale royalty	_____	_____	_____
e. any other basis	_____	_____	_____

    f. if (e) has been checked, please explain_____

	U. S. Patents	Foreign Patents
19. On patents you license *from others,* do you customarily employ similar arrangements to those indicated in your answer to question 17?	_____	_____

    Why or why not?_____

20. Have you had any other problems with the Internal Revenue Service concerning taxation of proceeds from patents, trademarks or "know-how"_____?
    If yes, please describe briefly but disclose no amounts_____

21. How is your budget for research and development determined?
    a. estimated cost of specific projects_____
    b. percentage of sales or expected profit_____
    c. any other way? (Please specifiy)_____

22. Do you customarily expense for tax purposes all possible research and development outlays or do you customarily capitalize some or all of them? (please specify)_____

    On what factors do you base your decision to expense or capitalize?_____

23. Have you encountered any problems in qualifying research costs as current income tax deductions? (yes or no) _____?
If yes, please explain?_____

Have these problems diminished since the 1954 Internal Revenue Code became effective? (please explain briefly)_____

24. Do you patent all patentable subject matter resulting from your research programs? (yes or no) _____?
If not, what considerations generally weigh against patenting?_____

25. In licensing foreign patents owned by your company, have you encountered any unusual U. S. or foreign tax problems? _____?
If yes, please explain briefly_____

26. Have you had any problems with state or local governments regarding valuation for property tax purposes of patents owned by your company? _____?
Has your book value usually been accepted? _____?

27. What method do you usually employ to depreciate patents or trademarks owned by you?

	Patents	Trademarks
a. straight line	_____	_____
b. sum of years digits	_____	_____
c. declining balance	_____	_____

d. any other method? (please specify)_____

28. Have you entered into any agreements for the purchase of inventions for which it is not intended to apply for patents? (yes or no) _____?
If yes, did you take a deduction for the amounts paid as an ordinary business expense or as depreciation of a capital asset? _____?

29. Have you any suggestions for modifying the Federal income tax treatment of proceeds from patents, trademarks, know-how, or copyrights owned by corporations?_____

CONTRIBUTED ARTICLES

Foreign Licensing and the Investment Guaranty Program*

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SUMMARY

THIS PAPER REVIEWS THE EXTENT TO WHICH LICENSORS have availed themselves of the opportunity to insure their licenses against certain losses under a United States government program designed to stimulate foreign investment, and analyzes the procedures and restrictions in gaining such insurance for licensors.

BY INSURING LICENSORS AGAINST CERTAIN NON-COMMERCIAL RISKS in order to encourage the transfer of American know-how to countries receiving foreign aid, the United States government over ten years ago gave official recognition to the contribution that foreign licensing makes to economic growth abroad. The American licensing community has returned this salute with only a modest acceptance of the opportunities afforded by the program. Data developed for this article indicate that guaranties against loss for less than $40 million of royalties have been issued to American licensors over the entire life of the program. This compares with royalties of $380 million received in 1957 alone for the transfer of patents, processes, technology, rental equipment, and other proprietary assets such as copyrights and trademarks.[1]

As part of a guaranty program for United States foreign investment, the government offers licensors insurance against the risks of loss through the inconvertibility of currencies, expropriation, and war in underdeveloped countries.[2] At the beginning of the program, in 1949, the insurance was available only for income from techniques and processes which accompanied tangible investment in countries

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[1] *Foreign Commerce Weekly*, December 29, 1958.

[2] For general information see the *Investment Guaranty Handbook*, which is available free of charge from the Investment Guaranties Division of the International Cooperation Administration, Washington 25, D. C.

receiving Marshall Plan aid, and it was limited to losses due to inconvertibility. Subsequently, the requirement that the license must accompany tangible investment was dropped, and the program was expanded geographically and functionally. Coverage was extended to the risks of loss through war and expropriation, and, because the geographical spread of the program was limited to licenses to countries receiving U.S. aid, licenses to an increasing number of nations became eligible for guaranties as the U.S. aid program widened. Recently Congress reduced the scope of the program by limiting it to licenses in underdeveloped areas.

The underlying reason for the American government's support for foreign licensing through the guaranty program has been, of course, its interest in stimulating economic growth in the rest of the Free World. Among the vehicles used to serve this purpose, the government has employed large-scale transfers of funds to foreign governments, but it has also attempted to encourage private contributions to foreign economic development by mitigating obstacles to international trade, private investment, and licensing. The attention to private activity stems in part from our prediliction for private enterprise in domestic affairs, but it also finds its justification in the need to conserve public funds: to the extent that private activity performs the tasks of accelerating economic growth and well-being abroad, the need for public funds is reduced.[3]

THE VOLUME OF GUARANTIES

The most recent data available indicate that, from 1949 through March 1961, U.S. licensors purchased guaranties against the risk of loss through inconvertibility for $34,540,078 of their expected receipts. Another $3,001,350 of guaranties have been issued against inconvertibility losses on packages of licenses and either loan or equity investment which cannot be separated statistically. Convertibility insurance for licenses as well as for equity investments and loans totals to $317 million through December 1960, indicating that something more than 10 percent of the convertibility guaranties have been purchased by licensors.[4]

Against the risk of loss through expropriation, licensors have taken out, since the beginning of the program, $2,425,000 of guaranties, which is about 1 percent of all expropriation guaranties written through December 1960.[5] No guaranties have been issued to licensors against the risks of war.

The country distribution of insurance against loss through inconvertibility issued over the life of the program to licensors is shown in Table I.

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[3] For a careful review of the legislative history of the program and its operation, though with little specific attention to foreign licensing, see Whitman, Marina von Neumann, *The United States Investment Guaranty Program and Private Foreign Investment,* (Princeton: International Finance Section, Princeton University, 1959).

[4] All data in this section are from worksheets of the Investment Guaranties Division of the International Cooperation Administration. Note that comparisons between license guaranties and equity or loan guaranties, while accurate for representing comparative activity under the program, do not reveal the relative economic importance of these guaranties inasmuch as guaranties for capital assets as well as income are lumped together.

[5] This figure excludes the royalty part, which cannot be isolated, of a $2 million guaranty on a combination loan and guaranty contract.

TABLE I

COUNTRY DISTRIBUTION OF GUARANTIES ISSUED TO LICENSORS AGAINST LOSS THROUGH INCONVERTIBILITY OVER LIFE OF PROGRAM

Italy	$9,125,000
Iran	6,000,000
India	5,700,000
France	5,358,000
Germany	3,546,078
Philippines	1,500,000
United Kingdom	1,363,500
China	875,000
Japan	500,000
Belgium	300,000
Denmark	182,500
Turkey	40,000
Austria	30,000
Netherlands	20,000

Source: Investment Guaranties Division, International Cooperation Administration

Pending applications for convertibility insurance, if completed, will raise India to second place with $7.3 million, while Iran's total will rise by more than $735,000 and Turkey's total will increase by $500,000.

Table II displays the country distribution, over the life of the program, of insurance issued to American licensors against loss through expropriation.

TABLE II

COUNTRY DISTRIBUTION OF GUARANTIES ISSUED TO LICENSORS AGAINST LOSS THROUGH EXPROPRIATION OVER LIFE OF PROGRAM

Iran	$2,000,000
Italy	375,000
Japan	50,000

Source: Investment Guaranties Division, International Cooperation Administration

If a pending application for Iran is approved, the Iranian total rises to $2,350,000.

The data available do not permit the presentation of a profile of the licenses enjoying guaranties. However, among officials of the Investment Guaranties Division of the International Cooperation Administration, which administers the program, these impressions prevail: when U.S. companies undertake both investment in and licensing of an enterprise abroad, they generally will guarantee both the investment and the license if they guarantee either; the firms that guarantee both investment and licenses are most often larger American enterprises; and guaranties on licenses are usually purchased for 10-15 years, in contrast with the 20-year term which prevails for guaranties on equity investments.

The data available reveal that guaranties on equity investments against inconvertibility which accompany guaranties of licenses have totaled to $18,602,933 over the life of the program. The similar figure for loans is $2,553,875. For guaranties against expropriation risks, the equity investments guaranteed in conjunction with licenses total to $16,797,424 over the life of the program. The similar figure for loans is $2,003,875.

THE SCOPE OF THE GUARANTIES & ELIGIBILITY REQUIREMENTS

While guaranties are available against the risks of loss due to inconvertibility, war, and expropriation, certain restrictions narrow the opportunities afforded licensors and various requirements must be met for a license to be eligible for guaranty.

a. Trademark licenses

Trademark licenses cannot be insured because the legislation supporting the guaranty program permits insurance only for licenses covering patents, processes, and techniques. Insurance will not be provided for the trademark part of a package license which also covers patents and know-how. In determining the fees for such package licenses, the Investment Guaranties Division appears to rely heavily on the opinion of the licensor as to the proportion of the royalty receipts expected from the license which can be attributed to the trademark, and experience with this procedure indicates that licensors give only small weight to the trademark in proportioning the royalty receipts.

The exclusion of trademarks seems to have been initiated in the Executive Branch and overlooked in Congress. While it has been exceedingly difficult to establish the reasons for the limitation because those persons involved have scattered or died, it has been suggested by competent authorities subsequently involved in the program that the exclusion of trademarks reflected a preference for the stimulation of production that would come through the transfer of know-how to the Marshall Plan countries. It further has been suggested that the great attention to international restrictive practices in Washington at the time of the decision may have militated against guaranties for trademarks because they sometimes involved exclusive clauses. The validity of these objections to trademark licenses will not be considered here.

b. War & expropriation guaranties

The opportunity to obtain war and expropriation guaranties for licensors is limited by the method of payment employed in the license. Where the method of payment establishes a clear-cut value, either in whole or in part, for the returns on the license, a guaranty can be issued. This is the case where the license agreement calls for payment in stock, payment of a fixed amount of currency, and/or the payment of minimum annual royalties. For a license employing only a running royalty, the determination of the value of the assets lost through war or expropriation after their loss would require an estimate of the amounts of future royalties sacrificed. Inasmuch as the legislation limits the provision of guaranties to losses of *actual* earnings, no guaranty can be provided for war or expropriation risks on running royalties.[6] However, such a prohibition does not bar protection against loss on that portion of running royalties which have been retained in the enterprise, either through reinvestment or perhaps through delays in computation, since "actual" and

[6] This difficulty does not arise in the instance of convertibility guaranties on running royalties because the earnings which cannot be converted into dollars will be actual earnings in local currency at the time conversion is prevented.

not prospective earnings are involved. On the other hand, the legislation would appear effectively to prevent the guarantee of licenses in which the return consists of know-how or patent rights from the licensee.

c. New licenses

Inasmuch as the purpose of the insurance program is to stimulate the transfer of American know-how to the underdeveloped countries, guaranties are not offered on existing licenses. This does not prevent the guarantee of new licenses to foreign enterprises which are already licensed by the U.S. company if the new licenses include different patents or processes, but it may preclude the guarantee of royalties on the transfer of know-how which is developed after the signing of the license agreement if that agreement is not guaranteed and if the licensor is committed to transfer the new know-how by that agreement, though this situation has not yet been faced by the Investment Guaranties Division.

d. Convertibility at time of contract

A license is eligible for convertibility insurance only to the extent that the royalties from the agreement are transferable at the time the guaranty contract is signed. In effect, a guaranty against inconvertibility is not available if, at the time of the signing, the only method of converting the proceeds of the license is to invoke the guaranty agreement. While the responsibility ultimately rests with the licensor to determine the extent of transferability, the U.S. Embassy or United States Operations Mission in the country concerned will provide assistance to the potential licensor in determining the necessary facts; in addition, in the course of clearing a license with various departments of foreign governments, the licensor often unearths most of the required information.

e. Term, rates, & contributions

In general, license agreements will not be guaranteed unless they are extended for five years or more; no exception has been made to this rule to date. The licensor must establish that the license will make a contribution to the development of the recipient country, that the royalty rate is reasonable, and that the licensor's estimate of the prospective receipts over the life of the agreement is reasonable. The latter requirement arises from the fact, to be explained in detail later, that the guaranty is in part for a maximum amount of royalties over the life of the agreement; hence, some estimate of prospective receipts is necessary.

Discussions with officials of the Investment Guaranties Division make it clear that the effort imposed upon the licensor to establish the contribution of the license to economic development is exceedingly modest. These officials do check the probable contribution of the proposed license with other divisions of the International Cooperation Administration and with the United States Operations Mission in the country concerned. No particular type of license is automatically excluded on the ground that it does not contribute to economic development.

The requirement that the licensor establish the reasonableness of the rate of royalty seems to have had no force, except possibly to preclude applications, if any, by licensors who felt that the royalty rate that they desired was unreasonable.

No application for a guaranty has been rejected on this ground, at least not in the memory of present and past officials of the Investment Guaranties Division who could be consulted in Washington. Nonetheless, the official procedure calls for an inquiry into the reasonableness of the rate. The criteria employed include the rates charged by the applicant on similar licenses, the rates charged by licensors from other countries, and the reaction, if any, to the rate in periodicals and newspapers published in the recipient country. Since a license agreement is often an arm's length transaction, except in the licensing of subsidiaries, it would require strong evidence to support a charge of unreasonableness in the view of the International Cooperation Administration officials.

f. Limited to underdeveloped countries

Finally, the United States government currently offers guaranties only for licenses to countries which are regarded as underdeveloped and which have agreed to institute the investment guaranty program. Not all underdeveloped countries have agreed to do so, and a list of eligible countries will be found in the appendix. This list is subject to expansion because the United States government is constantly pressing other nations to sign the necessary agreements. A number of countries have not been willing to do so, partly for reasons of nationalism and partly because the agreements imply rights for American investors or the United States government which conflict with their laws. It is perhaps interesting to note that no agreement has been held up specifically because of difficulties over licensing; in fact, licensing has never arisen as a topic in the negotiations for these agreements in the memory of recent officials.

THE COST OF GUARANTIES

When a guaranty contract is signed, two amounts of insurance are in effect established, one for the first year and the other for all succeeding years of the contract. The face value of the contract for the first year is the amount of current protection desired by the licensor, while the face value for the succeeding years represents an estimate of the amount of protection needed for the remainder of the life of the contract. In law, the licensor would not be obliged to purchase insurance beyond the first year, but he is virtually required to do so to obtain future protection. If he took insurance only for one year, when he attempted to renew the insurance for a subsequent year, his license would not be "new" and consequently would not be eligible for guaranty.

For the first year, the guaranty costs ½ of 1% of the coverage desired during the initial year and ¼ of 1% of the standby amount, *i.e.*, the difference between the amount of coverage for the current year and the maximum face amount over the life of the contract. On each anniversary of the contract, the premium is determined at ½ of 1% of the insurance for the forthcoming year, which may differ from the amount in previous years, and ¼ of 1% of the remaining standby face value.

Table III shows the annual cost of a guaranty to a licensor who expects to receive royalties of $100,000 over the next ten years at the rate of $10,000 per year. It

TABLE III

COST OF AN ILLUSTRATIVE GUARANTY

	Current Year		Standby		
	Amount	Cost	Amount	Cost	Total Cost
First Year	$10,000	$50	$90,000	$225	$275
Second Year	10,000	50	80,000	200	250
Third Year	10,000	50	70,000	175	225
Fourth Year	10,000	50	60,000	150	200
Fifth Year	10,000	50	50,000	125	175
Sixth Year	10,000	50	40,000	100	150
Seventh Year	10,000	50	30,000	75	125
Eighth Year	10,000	50	20,000	50	100
Ninth Year	10,000	50	10,000	25	75
Tenth Year	10,000	50	0	0	50
					$1,625

will be seen that the annual cost declines continuously because the standby coverage declines as each year passes.

Over the entire life of the contract, the licensor will have paid $1,625 or approximately 1.6 percent of the royalties for the guaranty.[7]

The guaranty contract contains certain features which lend flexibility to the cost. First the annual coverage need not be the same each year but may be varied on each anniversary of the contract from zero to the maximum coverage allowed over the remainder of the life of the contract; in this way, the licensor may shift his insurance in the light of his expectations in regard to changes in his royalty receipts. Second, the standby insurance may be reduced on anniversary dates, though such reductions cannot be reinstated, and the cost of the insurance is accordingly reduced. Third, the entire contract can be terminated by the licensor without penalty. Fourth, the licensor is not obliged to take out insurance against the full amount of royalties expected.

PROCEDURES

An application for a guaranty contract must be made before a licensor has fully committed himself to a license agreement, for otherwise the license would not be considered "new" and therefore would not be granted a guaranty. Upon receipt of an application, the International Cooperation Administration will, if deemed desirable, extend its assurance that the application will not be prejudiced if the licensor concludes his license agreement prior to signing a guaranty contract. Such waivers are generally provided for a period of six months and may be extended.

In general, the application must indicate what is to be licensed and to whom. However, the Investment Guaranties Division has been known to depart from this requirement in certain circumstances. In one case, a prospective licensor indicated that he was leaving for a short trade fair where he hoped to find licensees for his patents and processes, and that it was likely that he would wish to conclude license

[7] This cost is deductible for tax purposes, of course.

agreements on the spot without further communication with the International Cooperation Administration.

Before a guaranty can be issued, the licensor must obtain approval of the foreign government for the inclusion of the specific license under the investment guaranty agreement between that foreign government and the United States government. This blessing is in addition to the various approvals which are required by foreign governments whether or not the license is to be guaranteed, and it must be forwarded by the foreign government to the United States Embassy or United States Operations Mission for transmittal to the International Cooperation Administration in Washington. No applications for guaranties have failed completely because of foreign government disapproval, but in some instances the United States government has not been able to write precisely the type of insurance initially desired by the licensor because of foreign government attitudes.

Applications for guaranties are generally sent to the appropriate country desk of the International Cooperation Administration and to the Export-Import Bank, which administers the guaranty contracts after they are signed. No other agency automatically gains access to the application. This was not always the case for, in previous years, applications were reviewed by the Business Practices and Technology Division of the Department of State for antitrust violations.[8] Currently, the Investment Guaranties Division sends each quarter a list of prospective guaranty contracts to the National Advisory Council on International Monetary and Financial Problems with a one-line description of the application. In principle, any agency can request the privilege of viewing the file on an application, but, in the memory of present officials, this has happened only once; on that occasion the Investment Guaranties Division inquired of the company whose file was requested if it objected to a transfer of the file, and the company urged that the Division satisfy the request because it felt that the information contained in it would support it in its dealings with the requesting agency.

One question on the application form calls for the licensor to reveal any contractual agreements he may have with the foreign concern which are not governed by the investment instrument, and the publications of the Investment Guaranties Division explicitly warn the applicant that he frequently may be obliged to submit additional information beyond that required by the application form.

For license guaranties, the question concerning contractual arrangements outside of the investment instrument is rarely applicable except where the license is part of a package of investments and processes and patents, all of which are guaranteed. Furthermore, with the same proviso, the license agreement alone provides in practice sufficient information to the Investment Guaranties Division to process the

[8] *A Study of the Anti-Trust Laws, Part 4, Foreign Trade,* Subcommittee on Anti-trust and Monopoly, Committee on Judiciary, U.S. Senate, 1955, pp. 1825 ff. Let it be known that the guaranty contract includes the following disclaimer: "The approval of the Director of the International Cooperation Administration of this investment for guaranty purposes is not to be construed as an acknowledgment of the legality of the agreements or arrangements constituting or relating to this investment, or of any acts in pursuance thereof, under the laws, including the antitrust laws of the United States or of the project country."

application. The division is not usually interested in additional specifications and technical details.

In general, the time required for the International Cooperation Administration to act upon an application, after the details of the application and the license are worked out completely by the licensor, is from two to four weeks. The actual time elapsing between the initial contact by the licensor with the Investment Guaranties Division and the signing of the guaranty contract varies widely, and depends almost entirely upon the speed with which the licensor can complete his negotiations with the licensee and gain the approval of the foreign government. Within the recent experience of the Investment Guaranties Division, the period is judged to have been a minimum of three to four months with an average of two years.

On the whole, it is significantly easier for the Division to process a license guaranty than a loan or equity investment guaranty, primarily because the information required by the agency is largely contained within the license agreement which is submitted along with the application. There is not the same need to investigate the investment plan of the partners to the agreement or to unearth the obligations and commitments that must accompany the processing of an application for an equity or loan guaranty. Of course, if the payment for the license takes the form of stocks, these needs assert themselves.

ASSESSMENT

At least three questions can be raised concerning the investment guaranty program as it relates to foreign licensing: (1) Is it desirable to encourage licensing through guaranties? (2) Has the program actually stimulated licensing? (3) Could the program be revised to stimulate more licensing?

Only the third question will be considered here. The first question would take us into a lengthy and involved discussion of foreign policy and the role of private enterprise in assisting foreign economic growth, while the second question founders on the inability of analysts to devise a method of measuring what would happen in the absence of the investment guaranty program.

On the possibility of revising the program to stimulate more licensing, it is perhaps significant that officials of the Investment Guaranties Division know of no complaints by licensors with regard to the operation of the program. The most recent investigation of American businessmen's problems with various U.S. government measures to stimulate private activity abroad is silent on the guaranty program in respect to foreign licensing.[9]

Nonetheless, the National Industrial Conference Board, in its review of foreign licensing procedures wrote that

> So far, relatively few licensing companies have sought guaranty protection in connection with their licensing projects. In general, companies feel that the risks of nonconvertibility are not great enough in most countries today to warrant the rather considerable expense involved, and the detailed disclosure of contract terms and other information called for in the application form.[10]

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[9] "Reportorial Review: Responses to Business Questionnaire Regarding Private Investment Abroad," Prepared by the Office of the Assistant Secretary for International Affairs, U.S. Department of Commerce, 1958-1959.

[10] *Foreign Licensing Agreements*, Part II, 1959, p. 17.

The Board offers no supporting evidence for this statement, save a citation to the instructions accompanying an application form. One may agree that the risks of inconvertibility are slight in Europe today, where the program no longer applies, but this would hardly seem to be true in the underdeveloped countries where the pressures for economic development constantly strain their foreign exchange positions. So far as expense is concerned, the validity of the Board's statement depends upon the meaning of "considerable"; as indicated earlier, the premiums are less than 2 percent of the royalties in an illustration presented above, and the premiums may be reduced at the option of the licensor. Finally, as for the disclosure of the contract terms, the license agreement must be revealed to the United States government but little, if any, additional information is normally required. Since the license usually must be disclosed to some foreign government whether or not a guaranty is requested, the fear of disclosure would have to rest on some concern with the use to which the application and related information may be put by the United States government; as noted earlier, the automatic disclosure of the application to agencies other than the International Cooperation Administration and the Export-Import Bank is limited.

The Board fails to note what may be the most serious impediment in the investment guaranty program to the purchase of war and expropriation guaranties. Of the licensors who responded to questions put to them in the Foundation's foreign licensing study, 70 percent employed running royalties in their agreements as a general policy, while only 16 percent charged a fixed sum and 5 percent accepted stock.[11] Inasmuch as war and expropriation guaranties are not generally available on running royalties, such guaranties are not likely to find wide acceptance in the licensing community. To relieve this problem a major shift in policy would be required. Congress would have to remove that portion of the legislation which restricts the program to guaranties against *actual* losses because this prevents the writing of insurance against losses through war or expropriation of estimated income that would have been received on the destroyed or expropriated asset.

The extent of guaranties of licenses may be limited by the fact that the areas of greatest interest in licensing, namely the advanced countries, are excluded from the program, though it is not self-evident that the risks of loss through inconvertibility, war, and expropriation are sufficiently great in the advanced countries now to induce many guaranties even if they were available for the industrialized nations.

Finally, the program is perhaps limited in that not all underdeveloped countries have signed the necessary agreements with the United States government to qualify for guaranteed licenses. This obstacle could be avoided if the United States government were willing to guarantee licenses without such agreements, but this also would require a major shift in policy inasmuch as the rights of the United States government, with respect to assets coming into its hands through the invocation by a licensor of a guaranty contract, would be reduced.

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[11] *PTC J. Res. & Ed.*, Vol. 3, No. 3, (Fall 1959), p. 288.

APPENDIX

Countries Where Investment Guaranties Are Available
(March 31, 1961)

CONVERTIBILITY	EXPROPRIATION	WAR RISK
Afghanistan	Afghanistan	Afghanistan
Argentina	–	–
Bolivia	Bolivia	–
Chile	–	–
China, Republic of	China, Republic of	China, Republic of
Colombia*	–	–
Costa Rica	Costa Rica	–
Cuba**	Cuba	–
Ecuador	Ecuador	–
El Salvador	El Salvador	–
Ghana	Ghana	–
Greece	Greece	–
Guatemala*	Guatemala	–
Haiti	Haiti	–
Honduras	Honduras	–
India	India	–
Iran	Iran	–
Israel	Israel	Israel
Jordan	Jordan	Jordan
Korea	Korea	Korea
Liberia	Liberia	Liberia
Malaya, Federation of	Malaya, Federation of	–
Morocco	Morocco	Morocco
Nepal	Nepal	Nepal
Nicaragua	Nicaragua	Nicaragua
Pakistan	Pakistan	–
Panama*	Panama	Panama
Paraguay	Paraguay	–
Peru	–	–
Philippines	Philippines	–
Portugal	Portugal	–
Spain	Spain	–
Sudan	Sudan	Sudan
Thailand	Thailand	Thailand
Tunisia	Tunisia	Tunisia
Turkey	Turkey	–
Viet Nam	Viet Nam	Viet Nam
Yugoslavia	Yugoslavia	–

* Agreement yet to be ratified.
** Currently inoperative.

Although the Mutual Security Act of 1959 excluded economically developed countries for purposes of the Investment Guaranty Program, guaranties are still available for the underdeveloped overseas dependencies of the following countries:

Belgium	Belgium	–
Denmark	Denmark	–
France	France	–
Italy	Italy	Italy
Netherlands	Netherlands	–
Norway	Norway	–
United Kingdom	–	–

Payment for Discoveries and Innovations in the Soviet Union*

HERSCHEL F. CLESNER**

SUMMARY

THIS PAPER DISCUSSES THE PROBLEMS AND PROCEDURES of providing funds for and compensating innovators in the Soviet economic system. The author concludes that the Soviet "innovation" system and method of compensation is an important incentive instrument for the Soviet "managerial-technocrat" in carrying out his responsibility of increasing per capita production and savings through the introduction of new technology.

THE PRESENT SOVIET "STATUTE ON DISCOVERIES, INVENTIONS AND EFFICIENCY SUGGESTIONS" [1] is a further attempt to stimulate creativity and thereby speed the introduction of new technology into the Soviet economy for the purpose of increasing the productivity of the nation's industrial plant. However, it should be noted that in its basic approach the present statute is similar to the previous statute but through its detailed provisions it represents the increased effort to promote incentive, innovation and in turn productivity.

The present scheme for the payment of rewards to inventors in the Soviet Union is governed by this "Statute on Discoveries, Inventions, and Efficiency Suggestions" which was ratified on April 24, 1959 by the Council of Ministers of the U.S.S.R.

* Discoveries and innovations in the Soviet Union are given the highest priority. A recently created top-level State Committee for Coordination of Research of the Council of Ministers is responsible for: (1) industrial adoption of discoveries and inventions, (2) resolving important questions, and (3) dissemination of scientific and technical information and know-how.

** Staff member, Subcommittee on Patents, Trademarks, and Copyrights, U.S. Senate Committee on the Judiciary. Since this paper was not prepared in the course of the author's duties with the Subcommittee, the views expressed herein should be attributed to him alone.

[1] The translated Russian expression reads "rationalization suggestion." The word rationalization in American usage has several meanings and the meaning intended is the one not commonly used. The term in the Soviet context means suggested improvements which create efficiency savings in the work process. It includes methods of control, observation, and research, methods of industrial safety and worker's protection besides improvements in equipment, products, systems, and processes. The words "improvement" and "innovation" were considered as the rendition for "rationalization," but as they may also include inventions it was a considered opinion to use the term "efficiency suggestion" as the term which in American usage more nearly approximates the Russian meaning and usage. However, the word "innovator" is used in this article occasionally for the term "efficiency suggester," and "efficiency innovation" for "efficiency suggestion" as modified by the word efficiency.

under Resolution No. 435.[2] The provisions set forth in great detail the rights regarding discoveries, inventions, and efficiency suggestions in the U.S.S.R. Legal rights in this sphere are obtained in the U.S.S.R. upon the issuance of diplomas for discoveries, certificates of authorship or patents for inventions, and certificates for efficiency suggestions.

By means of a parallel supplemental law the "Instruction (Regulation) Regarding Payment for Discoveries, Inventions, and Efficiency Suggestions," also ratified April 24, 1959 by the Council of Ministers of the U.S.S.R., the payment scheme is more fully disclosed. The "Instruction" does not apply to inventions on which patents have been obtained since the patent owner possesses the right to license the invention's use on whatever terms he may negotiate. The scope of the "Instruction" covers those inventions which are protected by certificate of authorship. However, very few Soviet inventors request a patent primarily for the reasons that the material and prestige benefits that flow from the filing for a certificate of authorship are much greater. Therefore, the "Instruction" must be viewed as the procedural guideline by which the overwhelming percentage of Soviet discoverers, inventors, and innovators are rewarded for their contributions.[3]

The present "Instruction" provides for the following payments, independent of any other award or bonuses:

1. A monetary incentive payment to persons who are awarded diplomas for discoveries.

2. Payment to inventors and innovators (co-inventors and co-innovators) for the extensive utilization of inventions and efficiency suggestions.

3. An award to persons: (a) who have participated in the development, adoption and the extensive utilization of inventions and efficiency innovations; (b) who have displayed initiative by disclosing to others know-how and experience which resulted in the use of inventions and efficiency suggestions by other organizations than their own; (c) who have contributed information concerning their know-how and experience which was published in the press.

The "Instruction" does not apply:

1. To suggestions for the improvement of the organization and business manage-

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[2] This law and the parallel Regulation are analyzed in "Soviet Law on Inventions and Patents" by P. J. Federico in JPOS, Vol. 43, No. 1, (January 1961), pp. 5-96, primarily from the standpoint of the conditions and administration of the law in securing rights, with only a brief treatment of the matter of payment. The present article is concerned only with the latter subject.

See also M. Hoseh, "The U.S.S.R. Patent System," *PTC J. Res. and Ed.*, Vol. 4, No. 3, (Fall 1960), pp. 220-232, which also primarily analyzes the Soviet law in securing rights and the resultant publications.

See also H. F. Clesner, "The Coordinated Soviet Effort to Promote and Apply Major Inventions," *PTC J. Res. and Ed.*, Vol. 4, No. 3, (Fall 1960), pp. 212-219, which discusses the motivation for and the enactment of the Statute and Instruction involved.

[3] The U.S.S.R. "Statute on Discoveries, Inventions, and Efficiency Suggestions, Part X, Payment and Privileges of Authors of Discoveries, Inventions and Innovations, Section 72" states: "Discoverers who received diplomas, inventors who have received certificates of authorship, and innovators who have been issued certificates for efficiency suggestions, shall have the right to payment in accordance with the "Instruction on Payment for Discoveries, Inventions and Efficiency Suggestions."

ment (the regulation of staff and organization, simplification or improvement of inventorying and accounting, bookkeeping, documentation, supplies, marketing, etc.).

2. To innovations (*with the exception of inventions*) made by engineers and technicians of research, design, technological, and construction organizations, projects, and processes adopted and developed in the course of their work assignment.

I. PAYMENT FOR DISCOVERIES

The Committee on Inventions and Discoveries [4] of the Council of Ministers of the U.S.S.R. when it issues a diploma for discovery, must pay to the originator or to all co-originators together a stimulating payment in a lump sum up to 5,000 rubles. The determination of the actual amount appears to fall within the Committee's discretion.

If the diploma is issued in the name of an organization, payment is made to the organization to be used for rewarding the people who participated in making the discovery. The determination of the amount to be paid to the participating people appears to be made by the head of the organization.

II. PAYMENT FOR INVENTIONS AND SUGGESTIONS

This is accomplished in the following manner:

a. If the innovation is used in one organization, the amount is computed and paid by that specific organization;

b. If the innovation is extensively used in several organizations of the same trust, combine or the same department (section) of a ministry, agency, Sovnarkhoz,[5] executive committee of the local governing council,[6] then the amount must be computed and paid by the corresponding trust, combine or department (section) having jurisdiction over the units using the innovation;

c. If the innovation is extensively used in organizations of different trusts, combines or department (sections) supervised by the same ministry, agency, Sovnarkhoz, executive committee of the local governing council, then the amount is computed and paid by the corresponding ministry, agency, Sovnarkhoz, or by the executive committee of the regional (provincial) governing council;

d. If the innovation is extensively used in organizations under different ministries, agencies, Sovnarkhozes, or executive committees of local governing councils, then the amount must be computed and paid by the ministry, agency, Sovnarkhoz or executive committee of the governing council whose organization *first* used the innovation.

For example, the amount of the payment is determined according to the total calculation of the annual savings made in all organizations using the innovation on the basis of the organization's information concerning the scope of use of the innovation, and must be paid from sums allotted for inventions and efficiency suggestions in the established manner with future reimbursement of proportional sums by the other

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[4] Soviet governmental agency.
[5] Regional Economic Unit (Council).
[6] Local Soviet.

agencies whose organizations used the invention or efficiency suggestion to the agency which initially made the payment.

In case of dispute as to who shall pay the amount, the question must be settled by the Committee on Inventions and Discoveries of the Council of Ministers of the U.S.S.R.

e. If the innovation is extensively used by several organizations and one organization had to pay the innovator, then the subsequent payments by the other organizations for the use of the innovation must take into account the sums previously paid.

f. In instances where the savings or other positive effect of the extensive use of the invention or the innovation appears, not in the processes of production, but in the use of a ready product, payment is computed and paid by the organization which *makes* the product.

g. Payment received for the discovery, invention, or efficiency suggestion is divided by the co-authors by agreement or in case of dispute, the question is decided by the courts.

III. AMOUNTS AND TERMS OF PAYMENT FOR INVENTIONS AND EFFICIENCY SUGGESTIONS

The amount of payment to an inventor or innovator is determined by the amount of annual savings obtained as a result of the use of the innovation, and is paid in accordance with the following schedule:

Amount of Annual Savings (in rubles)	Payment for Invention	Payment for Efficiency Suggestion
Up to 100	25% of the saving, but not less than 20 rubles	13.75% of the saving, but not less than 10 rubles
100—500	15% plus 10 rubles	7% plus 10 rubles
500—1000	12% plus 25 rubles	5% plus 20 rubles
1000—5000	10% plus 45 rubles	2.75% plus 45 rubles
5000—10,000	6% plus 250 rubles	2% plus 85 rubles
10,000—25,000	5% plus 350 rubles	1.75% plus 110 rubles
25,000—50,000	4% plus 600 rubles	1.25% plus 235 rubles
50,000—100,000	3% plus 1,100 rubles	1% plus 360 rubles
Over 100,000	2% plus 2,100 rubles, but not more than 20,000 rubles.	0.5% plus 860 rubles, but not more than 5,000 rubles.

Annual savings are determined in accordance with the "Instruction on Computation of Savings Resulting from the Extensive Use of Inventions and Efficiency Suggestions" approved by the Committee on Inventions and Discoveries of the Council of Ministers of the U.S.S.R. in agreement with the State Planning Commission of the U.S.S.R. (GOSPLAN), the Ministry of Finance of the U.S.S.R., and the All Union Central Council of Trade Unions.

The payment amount for inventions or efficiency suggestions, the use of which does not produce a savings, but improves the quality of production, labor conditions, safety techniques, etc., is determined by the head (manager) of the organization using the invention or efficiency suggestion, in accordance with the real value of the

innovation, but not to exceed the maximum schedule sum and not less than the minimum schedule amount.

The amount of the payment for inventions, which opens new areas of production, and also for inventions of new kinds of valuable materials, of machines or manufactured goods and medicines, may be increased by the head of the ministry, agency, Sovnarkhoz or by the executive committee of the regional (provincial) governing council but must not exceed twice the amount established in the schedule and shall not exceed the maximum of the sums established in the schedule.

The amount of the payment for inventions and efficiency suggestions which cannot be used on a mass scale but are used in a small-scale operation or in individual manufacturing of goods, may be increased by the head of ministry, agency, Sovnarkhoz, or by the executive committee of the regional (provincial) governing council, but must not exceed three times the payment rates established by the schedule and, furthermore, the amount must not exceed the maximum sums set forth in the schedule.

Depending upon the degree of the technical development work of complicated inventions and efficiency suggestions submitted for examination, the payment to the author is increased at the following rates (in percentage of the repayment provided for by the present "Instruction"):

a. For submission of a technical draft, up to 10 percent;
b. For submission of blueprints, up to 20 percent;
c. For submission of a model, up to 30 percent.

This does not apply if the model or technical documentation is developed by the author in executing an official assignment or contract.

In the instances where several independent inventions or efficiency suggestions are extensively used (in full or in part) together, and the effect of the extensive use cannot be established separately for each of them, payment is made on the basis of the overall effect from all the involved inventions or efficiency suggestions, and is divided among the inventors or innovators according to their agreement or in case of disagreement, the question is decided by the court.

Payment is made to the account of the inventor or innovator by the organization regardless of whether he applies for it or not. The organization must acquaint the inventor or suggester with the details of the accounting within one week after placing the payment on account, and on the request of the inventor or innovator must hand or send him a copy of the account, provided it contains no classified information.

In cases where the invention was accepted for extensive use before the issuance of the certificate of authorship, the amount of the payment is determined as for an efficiency suggestion. After the issuance of the certificate of authorship, a new computation of the payment amount must be made.

Payment to authors of inventions and efficiency suggestions must be made within the following periods of time:

a. Payment up to 200 rubles has to be made within one month from the date when the plan for extensive use of the innovation was *approved;*

b. Payment exceeding 200 rubles has to be paid to the extent of 25 percent (but not less than 200 rubles) within one month from the date when the plan for exten-

sive use was approved. The rest of the amount is paid on the basis of the actual scope of the use of the innovation, but not later than two months after the expiration of the first year of use of the innovation.

Payment for inventions and efficiency suggestions is made from computation of the amount of savings for the first twelve months of use of the invention or efficiency suggestion.

If savings resulting from the use of the invention or the efficiency suggestion in the following years are greater than in the first year, then an additional payment must be made; for inventions within the following four years, taking into account the maximum savings for any one year; and for efficiency suggestions, on the basis of savings in the second year of the use of the suggestion. The additional payment must be made not later than within two months after the expiration of the year for which a new computation is made.

Payment for inventions and efficiency suggestions is made to the author irrespective of whether the innovation relates to the field of his work.

In addition, the payment for efficiency suggestions relating directly to the assigned work is paid to the leading workers after acceptance of the suggestion, in the following manner: to the managers and chief engineers, chief technologists, chief metallurgists, chief mechanics, chief specialists in power generation; chief builders of enterprises in all branches of industry, transportation, agriculture, trade, public food supplies, and construction; to the managers of trusts, combines, main offices and branch offices, as well as to their deputies—in accordance with orders given by the manager of the superior organization; and to the chiefs of shops, bureaus and sections of the organization—according to the order of the manager of the organization.

Payment for an invention for which a certificate of authorship was issued in the name of the organization must be used by the organization for the benefit of or rewarding the people who took part in the work which resulted in the invention.

IV. PAYMENT FOR SUPPLEMENTAL INVENTIONS

For a supplemental (dependent) invention accepted for extensive use after utilization of the basic invention has begun, payment must be paid to the inventor of the supplemental invention in accordance with the effectiveness of the supplemental invention.

If the basic and supplemental inventions were made by different inventors and accepted for extensive use at the same time, payment shall be divided among the inventors according to their agreement or in case of disagreement, the question will be decided by the court.

V. EXPIRATION OR CHANGES AS TO PAYMENT

The right to receive payment is forfeited if the inventor or efficiency innovator does not take payment within three years from the date of the receipt of information concerning the payment account. However, the time may be extended by a court for good reasons.

If the invention or efficiency suggestion changes technical standards or payment

rates, the organization which uses it must introduce new standards and payment rates simultaneously with the beginning of the use of the innovation.

For an inventor or a suggester, the former payment rates must remain in force for six months from the date of the placing of the innovation into extensive use. For the others who aided the inventor or suggester in the development of the innovation, the former payment rates remain in force for three months.

The payment rates remain in force also in such instances where the inventor or suggester was not engaged directly in work for which the innovation was developed (for which the standards and payment rates were changed in connection with the utilization of the innovation), and the innovator was transferred to this work only after submission of the innovation.

VI. AWARDS FOR AIDING IN THE DEVELOPMENT, ADOPTION, AND UTILIZATION OF INVENTIONS AND EFFICIENCY SUGGESTIONS

Awards for participating in the development, adoption, and utilization of inventions and efficiency suggestions are paid to the workers of enterprises, scientific-research institutions; construction, design, and other organizations (including here the technicians of sections and bureaus of inventions) [7] Sovnarkhozes, executive committees of the governing councils, ministries, agencies, and cooperative centers.

The distribution of awards for aiding in the adoption, development, and utilization of inventions and efficiency suggestions is a function of the head of the organization, institution, ministry, agency, Sovnarkhoz, or executive committee of the governing council with participation by trade unions.

Awards for participating in the development, adoption, and utilization of inventions and efficiency suggestions are not made prior to payment to the inventor or suggester.

The amount of the award paid to an individual for his aid in the development, adoption, and utilization of an invention or efficiency suggestion during a quarter (three months) must not exceed his rate of base pay for one and one-half months.

The distribution of awards to directors and chief engineers of enterprises, heads of scientific-research institutions; construction, design and other organizations, as well as to their deputies, is the responsibility of the heads of the superior organizations.

In organizations the awards for participating in the development and utilization of inventions and efficiency suggestions are made from a fund created from budgetary expenditures for this purpose but derived, however, on the basis of a formula for deductions from the sums assigned for inventions and efficiency innovations.

The formulary deductions for this fund are made in the amount of 35 percent of the sum of the payment made by the organization to the innovators, in accordance with the results of use of inventions and efficiency suggestions.

The heads (managers) of organizations are authorized to pay awards to those who, by exchange of know-how or experience, initiated the use of inventions and efficiency suggestions which were utilized in other organizations or for information concerning their know-how and experience which was published in the press. These

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[7] BRIZ is the abbreviated Soviet name for the Bureaus of Inventions.

awards are paid either from the sums deducted for the fund for the awards for participating in utilization of inventions and efficiency suggestions, or, from other award funds which are at the disposal of the manager of the organizations.

VII. EXPENDITURES FOR PAYMENTS TO INVENTORS AND INNOVATORS

Expenditures for inventions and efficiency suggestions by the ministries, agencies, Sovnarkhozes, cooperative or public organizations are made on the basis of their budgets and included in the financial plans of the respective ministries, agencies, Sovnarkhozes and organizations.

The budgets must provide for:

a. Expenditures for payment to inventors and efficiency innovators;

b. Expenditures for the preparation of models and examples of invention and efficiency innovations, their testing, and the creation and upkeep of experimental centers and pilot plants;

c. Expenditures pertaining to the participation of inventors, consultants, engineers, designers, and technologists in developing technical documentation and testing models and samples of the innovations; expenditures for expert examination work; for the organization of conferences, exhibitions, reviews and contests for inventions; expenses for the publication of collected articles relating to know-how and experience disclosures, payment of prizes in contests and reviews, bonuses paid for cooperation in the development, adoption, and utilization of inventions and efficiency innovations, as well as for massive promotion and organization measures conducted in invention and efficiency work.

The ministries, agencies, or Sovnarkhozes expenditures for inventions and efficiency innovations which have an important impact on the Soviet economy are derived from budgetary appropriations in the special budget of the given ministry, agency, or Sovnarkhoz. The amount of the expenditure is an experimental variable based on the total cost of production expenditure for the given ministry, agency or Sovnarkhoz. For fiscal year 1960 this amount was 0.3 percent of the total cost of production expenditures.[8]

In the organizations administered by the local governing council and which are included in the local budget, expenditures for inventions and efficiency innovations are made out of appropriations for the local budget.

Expenditures for inventions and efficiency innovations by cooperative or public organizations are budgeted and deducted from the finances of such organizations.

The self-supporting organization's expenditures for inventions and efficiency suggestions which have an important impact on production are provided for in the organization's production budgets and in the case of other economic organizations, in their general budgets.

Such spending is directly made by the enterprise or economic organization.

In organizations financed by appropriations from the State budget, expenditures

[8] Reported by Leon M. Herman, member of the Committee on Economic Development Delegation who visited the Soviet Union, June-July 1960 and conversed with responsible Soviet economic and industrial officials.

for inventions and efficiency innovations having significance to the given organization are deducted from the special appropriations in the budgets of such organizations.

VIII. PROBLEMS IN ADMINISTRATION

The Soviet press, literature, and public pronouncements frequently have called attention to many of the problems that occur in the course of administering and carrying out their award system of stimulating inventive incentive. For example, such an article may be found on page 2 of the December 30, 1959 issue of the *Pravda*—the official organ of the Communist Party of the U.S.S.R.—entitled "Inventors Need Support." [9] Such criticisms appear rather often inasmuch as the Soviet leaders believe that stimulation in this direction will further the introduction and development of new technology into the Soviet economy and contribute to an increase in the productivity potential of the Soviet worker and industry.

Some of the problems that have been reported include the instances of the following character: misappropriation of inventorship or authorship, failure to obtain credit for co-inventorship or co-authorship; the awarding of credit for co-inventorship to persons who did not participate in the creative work leading to the invention or efficiency innovation.

There have also been reported other difficulties, such as the failure of managerial officials to inform the inventor or innovator of the use of his invention or innovation or, for example, there have been many instances cited of inventors or innovators who, under various pretexts did not receive for years payment for the use of their legally recognized contributions which had been introduced into industrial operation and were producing savings of millions of rubles. Other difficulties reported were the unnecessary time lapse prior to the utilization of the innovation after the decision of adoption; the undervaluation of the use of the invention; the deliberate and improper accounting of the amount of savings; the deliberate and improper allocation of funds for payment; or of delay in payment; the inability to correctly evaluate the adoption of some inventions and innovations. In the latter regard, the previously mentioned article, "Inventors Need Support", written by D. Kiselev, inventor and Stalin prize winner, asserts that responsible managerial officials do not assume the necessary required task of testing and adopting useful inventions.

The article states:

> In spite of the mass scope of inventions in our country, there is as yet no clear and well-thought-out system for introducing inventions speedily and persistently. The material facilities for large-scale experimental work and for testing the practical usefulness of inventions under production conditions are weak. The majority of industrial enterprises assign only the most meager production capacities for introducing inventions, and this only sporadically, as the occasion arises. The introduction of some inventions, even generally recognized ones, drags out for many years, at tremendous cost to the national economy. . . .
>
> Although the Party and the government have created all the conditions for the fruitful development of inventions, the fate of various proposals is often decided by people who see in every new suggestion an "attack" on their well-ordered and peaceful life. Such people think up thousands of pretexts for getting rid of inventors; they always have an argument

[9] See also "Report for 1959 of the Committee for Inventions and Discoveries of the Council of Ministers of the U.S.S.R.," found in *JPOS*, Vol. 43, No. 1, (January 1961), pp. 90-92.

ready. "This is technically impossible," or "This is not economically expedient," or "This is the concern of some other agency." That is why valuable machines that could be built and tested in a few months, and with relatively small expenditures, often remain for years merely in the form of patent drawings.[10]

At the January 14, 1961 Plenum of the Central Committee of the Communist Party of the U.S.S.R., Isaccson, Design and Engineering Director of the Taganrog Tractor and Combine Works stated that "questions connected with the testing of machinery had as yet not been solved under the present system." Nikita Khrushchev, First Secretary of the Communist Party, in an oral exchange with this Director, stated he knew of the following case. "The designer-developer has produced a good machine. But he is told that he should wait awhile before testing it. It emerges that he who says that, has a friend working on the same type of machine, but who is a year late. The testing of the machine which is ready, is held up until the friend catches up. Then, next year, they will test both." This act of delay in the testing and the adoption of the new machine was publicly denounced by the Soviet leader as "That is a crime!"

When the Soviet inventor or innovator complains about the amount, procedures and periods of time for payment, he is heard jointly by the factory, plant, or local trade union committee and the management of the organization, (who had the responsibility for the decision which led to the complaint). If the inventor or innovator does not agree with the decision made at their level, he may appeal it to the executive manager of the higher level organization responsible for the supervision of the original organization who must consider the complaint within the month. Where the inventor or innovator further believes the manager's decisions to be incorrect, he may then go to the courts. Thus, to sum up, if the inventor or innovator is displeased with any of the decisions of the manager of the organization, he has the right to be heard by that organization's manager, then by the superior of that manager; and if he persists, his appeal moves to the courts. In any event, the innovator's complaint becomes entwined in the managerial bureaucracy.

IX. MANAGER'S (DIRECTOR'S) ROLE

The operating managers of individual Soviet organizations are the backbone of the developed managerial-technocratic corps of the Soviet Union. The Soviet state has been developing this corps since the early 1930's and many of the early and basic concepts under which the Soviet technocrat operates were introduced by engineers and managers imported from the United States. Very substantial material and intangible incentives are provided to attract capable technically educated men with a drive and devotion to technology into industrial administration and engineering. For his high salary and added incentive income the manager is given extensive responsibilities. The manager and his actions control job assignments, wages, bonuses, premiums, awards, living quarters, vacations, promotions, and privileges of the industrial worker, engineer, and inventor.

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[10] Many of these recited complaints have been worked into the themes of the Soviet "production" novels, e.g., the difficulties experienced by Lopatkin in *Not By Bread Alone* by Dudintsev (published 1956-1957).

The manager of the organization employing the inventor, in short, possesses a great amount of discretionary power since he determines in most instances whether or not to adopt and utilize the innovation and the amount of the annual savings achieved by the innovation in accordance with the "Instruction." Where savings, or other positive factors of the extensive use of an innovation appear, not in the production processes, but in the use of a novel product, the manager computes the payment of such an item. He has the discretion to determine payment for innovations, the use of which does not produce a savings; payment for special inventions for new kinds of productions, valuable materials, machine-manufactured goods and medicines; the increased amount of payment for inventions used on a limited basis; the distribution of the awards for participating in developing, adapting, and utilizing the innovation; the awarding of bonuses and payment to technicians who through their disclosure of know-how, technical information, and experience bring about the adoption of innovations or if such information has been published in the press. It is the manager who determines when and who shall receive bonuses for the introduction of new machines, compositions, processes and methods; automated and integrated systems; assembly line processes; other helpful work relating to the introduction and utilization; as well as for successful theoretical research work. The payment of bonuses for lowering costs, overfulfilling production plans, and improving the quality of output is also determined by the manager.

X. CONCLUSION

In the Soviet Union, individual ownership of inventions through patents may occur. However, in the absence of filing costs, tax, and other material and prestige benefits, practically all Soviet inventors seek certificates of authorship rather than patents. In the United States, as a result of employment contracts, the majority of inventors automatically assigned all rights to developments to their employers. In these instances in the United States, if the inventor receives anything for his invention besides his salary, it is an award from his employer. Thus, in practice, in both the United States and the Soviet Union most inventors receive payment for their creativity through awards together with their regular salaries. However, a fuller examination of present practices of the Soviet and the United States innovation systems is necessary to ascertain whether the U.S.S.R. or the United States at this moment provides its creative people with greater material incentives.

Furthermore, the Soviet "Statute on Discoveries, Inventions, and Efficiency Suggestions" and the "Instruction Regarding Payment for Discoveries, Inventions, and Efficiency Suggestions" are not the only Soviet statutes which provide material incentives for the introduction and utilization of new technology. Another such statute is: "The Decree on the Economic Stimulation of Enterprises and on Increasing the Material Interest of Personnel in the Creation and Introduction of New Techniques and Technology and the Utilization of Complete Mechanization.[11]

[11] *Pravda,* June 2, 1960.
Izvestia, June 3, 1960.
This decree states that starting with October 1, 1960, bonuses of specific amounts shall be given for the creation and introduction of new machines, processes, new mineral surveying methods,

The latter statute provides also for award payments for the creation, development, and introduction of new technology similar to the manner that payment is achieved for inventors and efficiency suggestions. Another statute which rewards the originator for creating efficiency savings in the work "process" is the "Decree for Economic Stimulation of Enterprises and on Increasing the Material Interest of Personnel in Lowering Costs, Overfulfilling Production Plans and Improving the Quality of Output." There may be other statutes. However, all of these statutes are tools available to and designed for the manager's use in the promotion, introduction and utilization of new technology and to create efficiency savings in the Soviet economy.

How successful a tool is the Soviet invention and innovation system depends on how the *manager* utilizes and how he administers such a tool.[12] That the Soviet managerial and material incentive system has been effective is evidenced by the advances in Soviet industrial and technological expansion and capabilities.

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transportation and communications means; other work in the creation of new machines as well as the successful achievement of theoretical research, and prospecting work. These bonuses are to be paid over and above the bonuses awarded for lowering costs, overfulfilling production plans and improving the quality of output.

Also referred to in "Remuneration of Labor for the Development and Introduction of New Techniques" by I. Vachlamov in *Sotsialisticheskiy Trud* No. 7, Moscow, July 1960, pp. 39-45. Payment appears to be in addition to that awarded under other statutes.

[12] This is dramatically illustrated in recent Soviet "production" novels such as Dudintsev's *Not By Bread Alone,* Ehrenburg's *The Thaw,* Sofronov's *Moscow Character* and works by Nikolaeva and Panova. In all these novels the *good* manager possesses not only a drive and devotion to technology, but also one directed to the introduction of new technology and innovation and he does not tolerate abuses relating to innovations and their adoption.

FORUM

Although the primary purpose of this *Journal* is to communicate the research work of the Foundation, it also serves as a vehicle for educational activities designed to exchange informed opinion and stimulate additional study.

The Patent System From An Inventor's Point of View

CARL E. BARNES*

ONE OF THE MOST SERIOUS PROBLEMS facing our country today, setting aside world politics, is the attack being made on our patent system. Although there are always critics and would-be reformers, the current attack does not concern itself with mere modification. It seems to be aimed at complete emasculation of the system.

Despite some present weaknesses, it is evident to me that if the patent system is eliminated, the man-on-the-street has lost one of the best devices ever created to give him a fuller and better life. The patent system and our antitrust laws form an essential part of our American free-enterprise system under which we have achieved the highest standard of living on earth. The patent system stimulates competition for new products and thus provides the all-important factor of progress in our economy; the anti-trust laws insure that no one will unlawfully dominate a field and thus stifle competition. If the inter-workings of these two vital factors were but understood by our man-on-the-street, I am sure he would put up a vigorous fight to preserve the patent system. The antitrust laws are not under fire. On the contrary, they are widely believed to be good. The patent system, however, is currently under unwarranted and deceitful attack.

It is a contention of the antagonists[1] that "industrial firms will continue to operate and expand their facilities in order to serve their particular competitive requirements, whether a patent system exists or not. These units will continue to rely primarily on the non-profit research institutions for expansion of the underlying body of science from which technological application is nourished."

* A talk by Dr. Barnes, member of the Foundation's Advisory Council and Vice President, Research, Minnesota Mining and Manufacturing Company.

[1] Professor Seymour Melman, *The Impact of the Patent System on Research*, Study #11 of the Subcommittee on Patents, Trademarks, and Copyrights for the use of the Committee on the Judiciary, (Washington: GPO, 1958), p. 61.

What would happen if patent rights were denied in the future? Would industrial research and development continue? Yes, to some extent, but the character of the work would change. For one thing, it would be shrouded in secrecy and would be directed toward short-range improvements of existing products rather than toward long-range research to create wholly new products—this would hardly pay. Furthermore, profit margins would be reduced to the point where there would be far less money available for research. All of this would have a tremendous effect on our man-on-the-street, who has been accustomed to looking forward each year to the exciting new products he expects to be forthcoming—whether it be new miracle fibers, new plastics, new antibiotics, tranquilizers, or seemingly impossible developments in "electronic brain" computers. It is safe to say none of these developments would have come without the incentive of the patent system. If the legendary Little Red Hen, who so cheerfully did all the work herself, had been told in advance that she had to feed the rest of the flock, she wouldn't even have bothered to *plant* the wheat seed in the first place.

At the present time, we are in a technological race with Russia and we have been accused of lagging behind in two areas—space and atomic energy. It is more than coincidence, I believe, that *these are the only two areas* thus far where there has been government interference with the normal functioning of the patent system. This clearly indicates to me that government control of patents has already reduced incentive to a point where this country's dominant position as a world power is in jeopardy.

There were several bills considered in the 1960 session of Congress aimed at changing the policy of ownership of patent rights even more drastically in conjunction with government-sponsored research contracts. The reasoning behind these bills seems to be that since the government pays for the research, it should get the patent rights—and this seems superficially logical. Senator Long [2] contends that any businessman would use the same arguments but the important thing here is that the government is *not* the same as a private company.

The fundamental quality of a patent is its exclusivity. When the government owns it—as opposed to a company owning it—this exclusivity is destroyed, and the patent is, in effect, nullified. The government does not need to own the patent resulting from a research contract with any company. All it really needs is a royalty-free, nonexclusive license to make or have made for it anything required for national defense. Few companies would invest the development costs (to carry a patentable concept to *commercial* practicability *and* marketability) when as soon as this has been done, any competitor can get the same basic license under a governmental and administered patent.

Private companies and individuals alike need an incentive if they are to pursue a research program vigorously. An established company is awarded a government research contract primarily because of its research reputation and experience in the field. It is expected to utilize its equipment, its experienced research personnel (which it has taken many years to develop) and its proprietary tech-

[2] Senator Russell B. Long of Louisiana. *Congressional Record*, May 3, 1960; see also *Congressional Record*, May 31, 1960.

nical knowledge in carrying out this research. This means directing the activities of this experienced personnel away from other profitable efforts, toward the relatively unprofitable government research contract. In order to justify such diversion of the use of its staff, a company needs the incentive of being able to retain any commercial rights which may possibly result from this research. By commercial rights, I, of course, mean the right to market to the public any non-strategic products which may come out of this research.

Even more inequitable than the proposal that the government become the owner of a large number of patents, however, is the attempt to reach back into areas beyond the scope of the contract and to lay claim to proprietary information which was developed by private funds. Background information which is basic to an invention made under a contract may be made available through normal licensing procedures. Seeking more than this, to me, is the clue to the real objectives underlying some of these legislative proposals. Further evidence is found in certain areas such as the National Aeronautics and Space Act of 1958, where the government not only may claim rights to information in related areas—even though developed by private capital—but goes so far as to claim unrelated developments if conceived by inventors employed on the government-sponsored program, whether or not the government paid for their research time.

There seems to be a general lack of understanding of the patent system and how it affects the public welfare. Are patents somehow suddenly to be considered "bad", when they used to be "good"? Nothing could be further from the truth, and unless there is a full and complete understanding of the true situation, the public may lose one of the most valuable devices we have to promote progress and public interest.

Most of us have a tendency to feel that our ideas are our own property, and there's really nothing so radical in this thought, is there? The patent law was devised to make it *legal* to own our own ideas, provided these ideas result in some useful invention *and* provided the public is told all about this invention. If you wish to keep your idea or your invention as a secret, that's your business; but if someone finds out how to do it (e.g., steals your idea, or develops it independently), you have no legal recourse unless you have patented your invention, and thereby contributed to the public storehouse of knowledge.

An important point around which the recent attacks revolve is the 17-year monoply granted by the patent. Seventeen years is not a long time, in terms of product development. But to many people, including some of our lawmakers, this seems a long time for an individual or a corporation to hold what they describe as a "monopoly." They point out that in a country where monopolies are illegal, it is inconsistent to grant a legal monopoly. Patents, they say, discourage competition, and create great "social waste" by making it necessary to spend research money to design around existing patents—or, in their language, to "rediscover what is already known."

The fallacy of rediscovering what is already known is so obvious that it's scarcely worth spending the time to talk about it. If the critics of the system would take even a cursory look at the record, they would see that in attempting

to design *around* existing patents many superior developments not previously known have been brought forth that are patentable in themselves, and would not otherwise have come to light. The Patent Law Association of Los Angeles in a survey asked individual inventors as well as corporations whether they had "ever attempted to *design around* patents of others; that is, to develop a directly competitive item not covered by the patent." The answers strongly indicated that this type of effort had resulted in products equal or superior to the patented item, and that as a further result new fields of research and development had been opened.

The word monoply as used in connection with patents needs clarification. The patent itself does not grant an automatic monopoly. What the patent does do is to give the patentee the right to exclude others for 17 years. This "right to exclude others" more often than not requires years of expensive patent infringement litigation and if the courts, which is often the case, hold the patent invalid or not infringed, the right to exclude others is lost. Then too, in most cases the patentee grants licenses to others, in which case there is competition and no monopoly thereafter actually exists. It should also be kept in mind that the patent monopoly does not apply to an existing or known product, but only to one invented or discovered by the patentee and disclosed by him to the public. The grant of a patent does not take something from the public that was previously available to it.

It's well worth stressing that for most of today's complicated inventions, the 17-year time period is none too long. Take a new synthetic fiber, for example. From the time the original invention is made in a research laboratory until the fiber is successfully taken through the long and arduous period from product development to the pilot plant and into production, there could be a time lapse of as much as twelve years (which was true in the case of Nylon). This leaves only five years in which the manufacturer must build a market and reclaim his investment before business competition can legally come in. Hardly long enough, considering that for a synthetic fiber the investment may easily be $50 million!

What may confuse some sincere opponents of the patent system is their failure to see the *difference* between competition in research, and business competition. For progress, the important thing for the man-on-the-street is competition in research so that he can continue to get a progression of new, better and less expensive products. Through the disclosure provision, new knowledge which was gained in the process of inventing is available to the business competitor as well as the man-on-the-street, if he is interested in looking at it. The competitor, in turn, is stimulated to try to make a better product, or an entirely new product. That's when research competition comes back into the picture, and the cycle repeats itself.

The patent law in its present form encourages research competition; it does more to encourage this type of competition than any other device thus far conceived. This was understood when our patent law was enacted in 1790; I marvel that it is not understood by many of our present-day economists!

Another of the very real dangers which would result from a weakening of the patent system is the increase that would occur in the secrecy surrounding a given

development. Opponents of the system gloss over this facet of the problem, saying that they suspect there would be no more secrecy than there is at the present time. They contend that knowledge disclosed, even in the most elaborate patent coverage, often is not sufficient to enable another to duplicate the process involved.[3]

Here's the answer to that one from W. L. McKnight, board chairman of the 3M Company: "Anyone familiar with the enforcement of United States patents knows that unless a patent discloses the information necessary to carry out the claimed invention or process, the patent is invalid. Incomplete disclosure is always one of the first defenses of a defendant in a patent infringement suit. If the teaching disclosed in the patent does not teach one *skilled* in the art to produce the invention, courts invariably hold the patent invalid. . . . Companies who spend large sums of money on research do not want invalid patents; therefore, complete disclosure in patent applications is always required by such companies."

Our patent system has been in effect for 170 years as a stimulus to our free private enterprise way of life. During this time, America has developed the highest standard of living on earth. What, then, is the real meaning of all this confusing talk against the patent system? It is rather obviously a conflict of ideologies—to me this double-talk is part of a subterfuge to weaken our enterprise system which leads the world. Doing away with the patent system would be a strong move in this direction.

What does this mean to technical people—this move to scuttle the patent system?

Although I am no longer directly concerned with inventing, time was when I spent all my waking hours in search of new products and new ideas. I found then that I was strongly motivated to try new experiments in the hope of discovering something patentable; I still believe this is a tremendous incentive.

For many technical people the first patent is still a-borning, and I'm sure these people have been exposed to the idea from one source or another that as long as they have to assign their patents to the company for whom they work, part of the incentive is gone. Let's get this one straight. First and foremost, don't ever lose sight of the fact that a United States patent is issued in the inventor's name, and although he assigns the rights to his company, his name will forever be attached to that patent. This is his indisputable claim to being an accomplished inventor, and *no one*—no company—can take this away from him. The more patents that bear his name, regardless of what he did with the rights to them, the greater is his standing in the technological community. Issued patents are tangible evidence of his worth as an inventor, and they are perfectly salable in his quest for a job wherever he goes. They will have an effect on his salary.

The plain fact is that most of the research that is conducted today requires expensive laboratories and extensive equipment—of the type most free-lance inventors cannot afford. While he might invent a zipper in his basement, his best chance of discovering a new miracle fiber is in a well-equipped laboratory.

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[3] Melman, *op. cit.*, pp. 34-35.

The research graduate really has only two avenues that will let him practice his profession; one of these is teaching in a college or university; the other is working in a research institute (few in number) or in an industrial or governmental laboratory. The industrial laboratories would not exist, as we know them today, without the patent system.

What does the patent system mean to the scientist or inventor? It means the opportunity to follow his chosen profession—his life's work—with the assurance that he will get the proper recognition for his inventive efforts. Each successful move in the direction of eliminating the patent system brings him one step closer to losing his independence—his freedom to work for whom he pleases. In fact, he becomes more like a Russian scientist. Ah, you say, but the Russians reward their scientists. But I wonder just how long the Russian scientists would be rewarded if they weren't needed to meet the stiff competition from the Western countries—all of whom have patent systems similar to ours.[4]

The Patent Office itself is working to encourage more inventors to use the system, even though it now processes some 350 new patent applications each day and grants about 1,000 patents each week. It suspects, as I do, that there is a general lack of understanding of the patent system in the U. S., and feels that educational programs are desirable. Accordingly, a four-point program is underway, to show: "(1) the importance of patents in American industry, and their impact on our economic and social life; (2) the functions, operations and services of the Patent Office; (3) the value of patents as background information covering virtually all of the important creative thinking in our country; and (4) the relationship between the inventor and the Patent Office and patent profession." In essence, the Patent Office is simply following the letter of the Constitutional provisions relating to patents; that is, "to promote the progress of science and the useful arts." [5]

If companies large and small are to continue to contribute to the store of basic scientific knowledge (and I might observe what a "social waste" it would be if they didn't), we must have the protection afforded by the patent system. If this protection had never been available in this country, it is entirely likely that we would not outrank all other nations in our standard of living. The patent system has fostered and will continue to foster jobs for the man-on-the-street, jobs which are the result of new products and new businesses which have been established under the protective wing of the patent system. And through his job he will earn enough to buy the new, better and less expensive products that are the results of the same system; and the companies selling those products will take their well-earned profits and plow them back into research, that will, in turn, produce more new products—and the cycle will continue, ever upward.

It is important for us to use the patent system to its fullest extent and fight those who would destroy it, for if the time ever comes when it falls into disuse or becomes crippled, this nation will, indeed, have lessened its opportunity for a bright future.

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[4] Although Russia has a so-called patent system, it differs drastically from ours in operation and practice.

[5] "Patent Office Prods Invention," *Chemical and Engineering News,* October 10, 1960, p. 38.

STUDENT PAPER

Among the objectives of the seminar and lecture series given by the Foundation in conjunction with The George Washington University Law School are the stimulation of student interest and the initiation of a source of publishable material for the *Journal*. By making available the best papers, students receive an incentive and our readers will appreciate the evidence of scholarly development in the fields of interest. The Foundation invites educational and research institutions to submit informative student manuscripts on the patent, trademark, copyright, and related systems.

Relief In Trade Secret Cases After Patent Publication

GEORGE R. POWERS

SUMMARY

A QUESTION OFTEN ARISES as to whether one who had prior confidential knowledge of a trade secret may use the secret with impunity after a public disclosure. A study of the case law indicates that recovery will depend primarily upon the conduct of the appropriator. If the appropriator is found to be faultless, there will ordinarily be no recovery. If he acted improperly, he will be held liable for damages and may be enjoined from using the trade secret in the future.

THE COURTS WILL PROTECT THE OWNER OF A TRADE SECRET against the unfair appropriation of the trade secret by another through either improper means or a breach of confidence. When, however, the appropriation is made by one who has neither used improper means nor breached a confidential relationship, the courts have been equally uniform in holding that the owner will not be protected against such an appropriation. As a general rule, it may be stated that when a trade secret is published so that the general public has access to the secret, any member of the general public may then practice the secret without being obligated to the former owner since he has neither used improper means nor breached a confidential relationship. One way in which such a trade secret can be dedicated to the public is by publication in a patent which does not attempt to claim the trade secret. A trade secret can also be dedicated to the public by being invalidly claimed in an issued patent. In either event, a member of the general public may practice the trade secret with impunity.

A question frequently arises as to whether or not one who had knowledge

of a trade secret prior to its publication should be considered to be a member of the general public after the publication. Some courts have held that one who had prior knowledge of a trade secret is estopped from claiming to be a member of the general public after its publication and must, therefore, continue to refrain from using the secret. Others have held that one having knowledge of the secret prior to its publication may practice the trade secret upon its publication without being obligated to the prior owner. It is, of course, obvious that the answers given to this question by the courts can have great economic effects upon the business world.

The decision in the recent case of *Warner-Lambert Pharmaceutical Co.* v. *John J. Reynolds, Inc.*[1] is an extreme example of the possible economic effects of such a decision. In 1881, Dr. Lawrence, the originator of the formula for Listerine, and J. W. Lambert, the predecessor of Warner-Lambert, entered into an agreement binding on their heirs, executors, or assigns whereby Lambert contracted to pay Lawrence $20 for every gross of Listerine sold, the amount subsequently being somewhat reduced. The contract provided for no specific termination date. Sometime prior to 1949 the formula of Listerine was publicly disclosed (not by patent publication) through no fault of either party. Warner-Lambert continued to pay royalties until bringing the present action under the Federal Declaratory Judgment Act to determine the rights of the parties. The court pointed out in its decision that there was a contract here between the parties which did not provide a termination date. The court felt that if the royalties were to stop upon publication of the trade secret, it should have been provided for in express language in the 1881 agreement. The result of this decision is that Warner-Lambert, which has already paid over $22,000,000, must continue to pay over $1,500,000 a year in royalties although it is without fault and its competitors may copy the formula of Listerine with impunity.

While the *Warner-Lambert* case is an outstanding example of the economic implications of decisions in this general area of the law, this paper will be directed more specifically to those instances in which the publication of the trade secret is through the issuance of a patent which discloses, but either does not claim the trade secret or attempts to invalidly claim the subject matter of the trade secret. In either event, the general public is free to use the former trade secret. Particular emphasis will be placed on whether or not there was active wrongdoing on the part of the one who desires to use the trade secret without obligation after its publication. There is a definite split of authority in the case law. Accordingly, the cases will be divided into two groups for discussion: the *Shellmar* and the *Conmar* lines.

THE SHELLMAR LINE

The cases decided by the Sixth and Seventh Circuits are generally regarded as stating that confidential information concerning a trade secret received before publication of the secret may not be used with impunity after the disclosure.

[1] 178 F. Supp. 655, 123 U.S.P.Q. 431 (S.D. N.Y. 1959) *aff'd*, 280 F. 2d 197, 126 U.S.P.Q. 3 (2nd Cir. 1960).

In *Shellmar Products Co.* v. *Allen-Qualley Co.*,[2] the Seventh Circuit Court of Appeals held that one who receives confidential information before the publication of a trade secret may not use that information after publication, the theory being that he has surrendered his privilege as a member of the public. In this case, Shellmar and Allen-Qualley entered into negotiations directed toward an agreement whereby Shellmar could utilize Allen-Qualley's trade secrets with respect to a certain type of food wrapping invented by Allen-Qualley's employees. A patent application was pending at the time. After the negotiations failed, Shellmar began making the disclosed wrapping without permission. The patent subsequently issued, apparently having invalid claims. In the opinion, it appears that the court placed great emphasis on the conduct of the parties in arriving at its decision, the court stating:

> . . . by its inequitable conduct appellant (Shellmar) has precluded itself from enjoying the rights of the general public to the patent disclosure, and will not be permitted to place upon Allen-Qualley the burden of suing for patent infringement. . . .

In *A. O. Smith Corp.* v. *Petroleum Iron Works Co.*,[3] the Sixth Circuit Court of Appeals first asserted through Judge Simons the rule that was later applied in the *Shellmar* case. In this case, Petroleum Iron Works hired an employee of the A. O. Smith Corporation for what the court felt was the express purpose of stealing trade secrets relating to welding processes. The court found that the Iron Works had full knowledge of the confidential character of the employee's work with A. O. Smith. After the appropriation of the trade secrets, a patent issued to A. O. Smith which both disclosed and claimed the secrets. After finding that the patent claims were invalid, the court still ruled that the Iron Works could not utilize the secrets because:

> . . . having obtained the information as to the secret processes now covered by the patents, through breach of confidence, it (Iron Works) is not in position to question their validity, and that both upon authority and general equitable principles the plaintiff (A. O. Smith) ought not to have the burden for suing for patent infringement when its proprietary rights in the processes have already been adjudicated as against the defendant.

The broad rule stated in the *Shellmar* and *A. O. Smith* decisions was modified by the Seventh Circuit in its decision in *Northup* v. *Reish*.[4] In *Northup* v. *Reish*, the plaintiff, Northup, confidentially disclosed to Reish an idea he had for an improved oven liner. Following the disclosure, Northup applied for and was granted a patent invalidly claiming the oven liner. Northup began manufacturing and selling the liners and even sold some to the defendant. The defendant, Reish, later began manufacturing oven liners similar to Northup's without paying a royalty. The court held that the results in the *Shellmar* and *A. O. Smith* cases were sound, but found that Reish was not guilty of any fraudulent conduct and, on that basis, ruled that since Northup disclosed his secret to the public long before Reish began utilizing it, Reish should be free to practice the secret with impunity.

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[2] 87 F. 2d 104, 32 U.S.P.Q. 24 (7th Cir. 1936).
[3] 74 F. 2d 934, 25 U.S.P.Q. 29 (6th Cir. 1935).
[4] 200 F. 2d 924, 96 U.S.P.Q. 78 (7th Cir. 1953).

In the case of *Thiberg* v. *Bach*,[5] affirmed by the Third Circuit Court of Appeals, it appears that Bach was employed by Thiberg, a home inventor, to help Thiberg make pumps in the basement of Thiberg's home. There was no doubt that Bach enjoyed Thiberg's trust and confidence. Trouble arose, however, and Bach was discharged. Shortly after, Bach commenced using Thiberg's secrets in manufacturing his own pumps. Thiberg then obtained a patent having invalid claims. The court was apparently greatly influenced by the breach of the confidential relationship on the part of Bach. In holding that Bach could not utilize Thiberg's trade secrets although the patent claims were invalid, Judge Meaney stated:

> While his (Thiberg) pump is not patentable invention, it is nonetheless his product and the techniques or methods he has perfected for its assembly are entitled to protection if they were intrusted to the defendant in confidence.

In *Hyde Corp.* v. *Huffines*,[6] it appears that J. D. Huffines invented a garbage compressor. After applying for a patent, Huffines and the Hyde Corp. negotiated a rather extensive agreement, the effect of which was to make the Hyde Corp. a licensee to manufacture the compressor. The contract also provided that the Hyde Corp. could terminate the agreement by giving a sixty day notice. The Hyde Corp. gave a sixty day notice, but continued to manufacture the compressor. The patent then issued to Huffines which disclosed, but apparently did not claim, the subject matter of the secrets involved. In assessing damages and granting an injunction to prevent any further manufacturing of the compressors by the Hyde Corp., the court stated:

> Undoubtedly if an injunction were lifted upon the issuance of a patent (which may or may not afford protection for all of the trade secrets contained in the original application or amendments thereto), the licensee who had abused the confidence would thus obtain a marketing advantage or a head start as compared to the patentee or any manufacturer or processor licensed by him after the issuance of the patent. An award of damages for patent infringement might well prove inadequate to fully protect the one whose confidence had been violated.

The case of *Adolph Gottscho, Inc.* v. *American Marking Corp.*[7] reveals a factual situation substantially identical to that of the *A. O. Smith* case. The defendant, American Marking, hired an employee, Jackson, of Adolph Gottscho in order to learn certain trade secrets which were later disclosed but not claimed in patents issued to Gottscho. The court made it clear that the improper conduct on the part of American Marking was the basis for its decision:

> We are not here concerned with any claim of patent infringement nor are we concerned with the rights of the public generally. Jackson learned the plaintiff's trade secrets in confidence and, in violation of his obligations, he disclosed and used them for purposes other than his employer's benefit. . . . His conduct was grossly improper and gave rise to the plaintiff's cause of action, based on long settled equitable principles and supported by the marked changes in the attitude of the law towards the need for commercial morality.

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[5] 107 F. Supp. 639, 95 U.S.P.Q. 49 (D. N.J. 1952), *aff'd*, 203 F. 2d 956, 97 U.S.P.Q. 420 (3rd Cir. 1953).

[6] 170 S. 2d 627, 117 U.S.P.Q. 44 (Tex. Sup. Ct. 1958).

[7] 114 A. 2d 19, 105 U.S.P.Q. 398 (N.J. Sup. Ct. 1955).

THE CONMAR LINE

A line of cases decided by the Second Circuit Court of Appeals appears to be in conflict with the law in the Sixth and Seventh Circuits as stated in the *Shellmar* and *A. O. Smith* cases. In the first of these decisions, *Picard* v. *United Aircraft Corp.*,[8] an inventor, Martin Schenk, confidentially disclosed trade secrets concerning an aircraft engine he had designed to certain officers of the United Aircraft Corp. A patent having invalid claims directed to the engine later issued to Schenk. After United began utilizing the disclosed trade secrets in the manufacture of aircraft engines, an action was brought against United by the administratrix of Schenk's estate. In the decision, the court found that while there was an implied promise on the part of United not to use the disclosed trade secrets, the promise ended upon the public disclosure by Schenk. Although the court indicated that United was not guilty of any improper conduct, the language of the decision appears to be broad enough to cover cases in which there is improper conduct.

In the second of these cases, *Pennington Engineering Co.* v. *Houde Engineering Corp.*,[9] an inventor, Pennington, invented an improved automobile shock absorber. Pennington then confidentially disclosed the improved shock absorber to employees of the Houde Corp., which was an industry leader in the shock absorber business. A patent later issued to Pennington which disclosed, but did not claim, the improved shock absorber. While the court found that the Houde Corp. changed its products slightly as a result of Pennington's disclosures, the court absolved Houde of any misconduct. In the opinion, Judge Chase favorably cited the *Picard* case and stated:

> . . . The application for the patent in suit was pending before the defendant was approached concerning the Pennington shock absorber and there is no claim that more was disclosed in confidence to the defendant than was included in the specification in the application for that patent.
>
> As the defendant did not infringe, the cause of action based on the allegations as to the confidential submission of the invention was not made out.

In the third of these Second Circuit decisions, *Conmar Products Corp.* v. *Universal Slide Fastener Co., Inc.*,[10] the opinion written by Judge Learned Hand contains language broad enough to allow even an active wrongdoer to use a trade secret with impunity after a public disclosure of the secret in an issued patent. In this case, Universal Slide Fastener Co. hired employees away from the Conmar Products Corp., Universal not being aware at the time that the employees had contracts with Conmar in which they promised not to divulge confidential information. One of these employees, Voity, designed a machine for Universal which utilized a number of Conmar's trade secrets. Later, two patents having invalid claims drawn to the subject matter of the trade secrets issued to Conmar. While the court found that Universal was not guilty of any wrongdoing since it had no knowledge of the employee's contracts with Conmar,

[8] 128 F. 2d 632, 53 U.S.P.Q. 563 (2nd Cir. 1942).
[9] 136 F. 2d 210, 57 U.S.P.Q. 422 (2nd Cir. 1943).
[10] 172 F. 2d 150, 80 U.S.P.Q. 108 (2nd Cir. 1949).

the opinion stands for the principle that Universal would have been safe even if it had been guilty of misconduct. Judge Hand stated (citations omitted):

> The Seventh Circuit, and apparently the Sixth as well, have, however, held that if before issue one has unlawfully obtained and used information which the specifications later disclose, he will not be free to do so after issue; his wrong deprives him of the right which he would otherwise have had as a member of the public. We have twice refused to follow this doctrine, and we adhere to our decisions.
>
> The doctrine (of the Sixth and Seventh Circuits) must rest upon the theory that it is a proper penalty for the original wrong to deny the wrongdoer resort to the patents; and for that we can find no support in principle.

The Second Circuit appears, however, to have reversed itself somewhat in its latest decision, *Schreyer* v. *Casco Products Corp.*[11] In a factual situation similar to that presented in the *Shellmar* case, an inventor, E. P. Schreyer, invented and applied for a patent on an electric steam iron. After making the patent application, Schreyer carried on negotiations with the Casco Products Corp. directed toward the licensing of Casco to make the steam iron. Schreyer gave Casco blueprints of the iron and disclosed "know-how" as to manufacturing methods. After the negotiations failed, the patent issued to Schreyer with invalid claims. Before long, Casco entered the market with an iron using the secrets disclosed in the patent. In rejecting Schreyer's request that Casco be enjoined from continuing to manufacture the iron, the court favorably cited its previous decisions in pointing out that there was a disclosure here which all the world was entitled to use. The court, however, also held that Casco could be held for damages even though its iron did not go on the market until *after* the issuance of the patent. The reason for this holding was:

> ". . . the trial court found that the use of the confidential disclosures enabled the defendant to produce and market its iron at an earlier date than would have been possible had it relied upon independent research into the construction of the plaintiff's iron then on the market or upon the patent. It (trial court) accordingly ordered an accounting of the profits resulting from acceleration of the date when production was possible.

In the case of *Darsyn Laboratories, Inc.* v. *Lenox Laboratories, Inc.*,[12] affirmed by the Third Circuit Court of Appeals, it appears that an officer, Biber, of the Darsyn Laboratories received confidential information about certain trade secrets because of his position with Darsyn. Biber later left Darsyn and helped organize the Lenox Laboratories. Sometime later, a patent issued to Darsyn which disclosed, but did not claim, the trade secrets. After issuance of the patent, Lenox began using the trade secrets in its manufacturing processes. In its decision that Lenox could use the trade secrets without obligation to Darsyn, the court was careful to point out that there was no showing that Lenox used the trade secrets prior to the issuance of the patent and was, therefore, not guilty of misconduct. The fact that no improper conduct was shown in this case probably explains the apparent conflict between this decision and the decision in the *Thiberg* case which was also affirmed by the Third Circuit.

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[11] 190 F. 2d 921, 90 U.S.P.Q. 271 (2nd Cir. 1951).

[12] 120 F. Supp. 42, 101 U.S.P.Q. 50 (D. N.J. 1954), *aff'd*, 217 F. 2d 648, 104 U.S.P.Q. 39 (3rd Cir. 1954).

In the case of *Dollac Corp.* v. *Margon Corp,*[13] an employee of the Margon Corp., Harry Brudney, had access to certain trade secrets relating to the manufacture of movable doll's eyes. Brudney later left Margon and helped organize the Dollac Corp., Brudney becoming president and general manager. After a patent invalidly claiming the trade secrets issued to Margon, Dollac began manufacturing the movable doll's eyes. The court pointed out in its decision that since Dollac did not manufacture the eyes until after the patent issued, it was not guilty of improper conduct and could, therefore, manufacture the eyes without obligation to Margon.

In *Kesses* v. *Eastman Kodak Co.,*[14] it appears that Charles Kesses invented and applied for a patent on a Velox Printer. After applying for a patent, Kesses carried on what he considered to be confidential correspondence with the Eastman Kodak Co. in which he offered to sell his rights in the invention. Later, his patent issued with invalid claims. After rejecting Kesses' numerous offers, Eastman began manufacturing a Velox Printer substantially identical to Kesses'. There was evidence which the court apparently accepted that Eastman's employees had independently invented the printer. Although the court held that Kesses was barred from recovery by the Statute of Limitations, it also indicated that Eastman should be free to utilize the disclosure since it was free of any improper conduct. The case also appears to go along with the *Conmar* line of decisions, Judge Leibell stating: "Whatever defendant (Eastman Kodak Co.) did in the manufacture and sale of the Velox Printer after June 2, 1925 (it was sold until 1930) was not a violation of confidential disclosure of April 27, 1922, but, if anything, was infringement of plaintiff's patent."

In *Kohloff* v. *Ford Motor Co.,*[15] an inventor, Paul Kohloff, claimed to have disclosed his invention to the Ford Motor Co. through an exchange of letters similar to that which took place in the *Kesses* case. A patent later issued to Kohloff which disclosed, but did not claim, his invention. After finding that Kohloff had not, in actuality, disclosed his invention to the Ford Motor Co., Judge Bondy went on to say:

> . . . even if Kohloff disclosed his idea or invention to the defendant before the issuance of a patent thereon, the defendant would still not be chargeable with the wrongful appropriation of such idea, since the alleged wrongful use did not occur until after the patent issued to Kohloff. After the issuance of the patent the subsequent use of the invention gives rise only to a suit for infringement, no matter whether the idea was disclosed before or after the issuance of the patent.

It appears in the case of *Gallowhur Chemical Corp.* v. *Schwerdle* [16] that employees of Gallowhur, including Schwerdle, had express written contracts with Gallowhur not to disclose confidential information. Schwerdle left Gallowhur's employment with full knowledge of certain trade secrets. After a patent to Gallowhur disclosing the trade secrets issued, the company then employing Schwerdle began to use the trade secrets. In its decision, the court distinguished the *Shellmar* and *A. O.*

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[13] 164 F. Supp. 41, 118 U.S.P.Q. 257 (D. N.J. 1958).
[14] 82 U.S.P.Q. 13 (S.D. N.Y. 1949).
[15] 37 F. Supp. 470, 46 U.S.P.Q. 475 (S.D. N.Y. 1940).
[16] 117 A. 2d 416, 108 U.S.P.Q. 260 (N.J. Super. Ct. 1956).

Smith cases by pointing out that in both of these cases there was active wrongdoing on the part of the one who had prior knowledge. The court pointed out that Schwerdle was not guilty of any wrongdoing. In rejecting the contention that Schwerdle should be estopped from using the former trade secrets because of his prior knowledge, the court stated:

> Plaintiffs urge a trust concept as affecting the status of these defendants arguing that the individual defendants here were fiduciaries. Accepting this hypothesis, let us pose a question. Where the fiduciary has kept his trust until after the inventor has voluntarily revealed the subject matter, should the fiduciary be penalized in a trade secret case (by contrast to the rest of the public) for having had the fiduciary status and faithfully maintained it? And still holding to the hypothesis of trust, is not the trust itself terminated by the truster's publications? The answers appear to be obvious.

COMPARISON OF THE SHELLMAR AND CONMAR LINES

In the future, it is quite likely that situations of the type presented in the cases discussed above will appear in litigation with increasing frequency, although not always with the staggering economic implications presented by the *Warner-Lambert* decision. A primary factor which will tend to bring about the increased litigation is the present practice of large (and small) corporations in dealing with ideas submitted by independent inventors. Quite often, companies negotiate with independent inventors who may have applied for patents on their inventions without any clear understanding as to the rights of the parties in the event that the secret may be published without patent protection. Another important factor which will tend to increase the frequency of such situations is the recent emphasis in industry on research and development in combination with the increasing tendency of modern workers to shift from job to job. It is, of course, obvious that in these situations there will be a certain amount of confidential information carried from one job to the next. Finally, the unsettled nature of the law at the present time will probably contribute to increased litigation since each side in each case will possibly feel that it has the equities and can, therefore, "win" the decision. Because of these factors, it is imperative that some basis be found upon which decisions in particular factual situations can be predicted with a fair degree of certainty.

In considering situations of the type involved in all of the cases cited above, courts are generally quick to point out that there is a definite split of authority in the case law. To suggest otherwise would be, of course, to ignore the clear import of Judge Learned Hand's words in the *Conmar* decision where the Second Circuit clearly rejected the doctrines which had been expressed by the Sixth and Seventh Circuits in the *A. O. Smith* and *Shellmar* decisions. An examination of the case law with particular emphasis on the factual situations involved in the various cases reveals, however, that the different doctrines expressed by the various courts are not quite as divergent as is generally supposed.

Courts are generally inclined to cite the *Shellmar* and *A. O. Smith* decisions as standing for the general principle that one who receives confidential information concerning a trade secret before the publication of the trade secret in a patent may not practice the trade secret after its publication, the rationale being that the person has surrendered his privilege to practice the secret as a member of the general

public. A careful analysis of the factual situations involved in these cases along with a study of the reasoning expressed in the opinions indicates, however, that the true role of the *Shellmar* and *A. O. Smith* cases is that a *wrongdoer* may not practice the trade secrets since he, through his improper conduct, has surrendered his privilege to practice the secret. In each of these opinions (see quotations above), the court made it clear that the inequitable conduct of the defendant was the real basis for the decision.

In the *Shellmar* case, the Seventh Circuit Court of Appeals found that Shellmar had acted inequitably in its use of Allen-Qualley's trade secrets after the collapse of their license negotiations. Likewise, in the *A. O. Smith* case, the Sixth Circuit Court of Appeals found misconduct on the part of the Iron Works in enticing an employee away from A. O. Smith, the Iron Works having full knowledge of the confidential character of the employee's work. Similarly, the *Thiberg, Hyde,* and *Gottscho* cases all disclose situations in which one party acted improperly after having gained knowledge of a trade secret through a confidential relationship. As the Circuit Courts in the *Shellmar* and *A. O. Smith* cases, the courts rendering the decisions in each of these latter cases were quick to point out the defendant's inequitable conduct and apparently based their decisions primarily on the issue of misconduct.

The broad rule of the *Shellmar* and *A. O. Smith* cases was modified in the *Northup* decision by the Seventh Circuit. Here, the defendant was found to have acted properly in his business dealing with the plaintiff. The court accordingly found that, on the facts presented, the defendant was free to practice the plaintiff's trade secret after its publication.

In other decisions in this area of the law, the Second Circuit Court of Appeals is usually credited with advancing the principle, by virtue of its *Picard, Pennington,* and *Conmar* decisions, that one who receives confidential information concerning a trade secret before the publication of the trade secret in a patent may practice the trade secret after its publication without any obligation to the discloser of the secret. This rule is, of course, the true meaning of the language used in Judge Learned Hand's opinion in the *Conmar* case (see quotation above). But, in view of the opinion in the *Schreyer* case, also decided by the Second Circuit, it appears that perhaps the language in the *Conmar* opinion is not entitled to as broad an interpretation as it is generally accorded.

In the *Picard* case, the Second Circuit found that the officers of the United Aircraft Corp. had not acted improperly in appropriating the secrets confidentially disclosed to them by Schenk. Likewise, in the *Pennington* case, the court failed to find that Houde had acted improperly in its use of the secrets conveyed to it by Pennington. Also, the court absolved Universal of any misconduct in the *Conmar* case. Thus, it can be clearly seen that although there was language expressed in the opinions to the effect that even an active wrongdoer could use a previously disclosed trade secret after its publication with impunity, the court was not actually concerned with situations in which there were parties who had acted improperly.

It must, of course, be admitted that the Second Circuit's definition of "wrongdoer" appears to be quite different than the definition applied in either the Sixth

or Seventh Circuit. But, nevertheless, it remains that the appropriators of the trade secrets were held to be faultless in each of the *Picard, Pennington* and *Conmar* cases.

It is interesting to note, however, the *Schreyer* decision where, for the first time, the Second Circuit was faced with a situation in which, even according to its own definition, the defendant had acted improperly. Here, Casco entered the market with an iron utilizing Schreyer's trade secrets *after* the issuance of Schreyer's patent. While upholding its previous decisions to the extent of refusing to issue an injunction, the court held Casco for the damages to Schreyer brought on by its misconduct. The sweeping language of the Second Circuit in its previous opinions is noticeably missing in the *Schreyer* opinion.

The opinions in the *Dollac, Kesses, Kohloff,* and *Gallowhur* cases all clearly indicate that the courts considered the defendants charged with misappropriating trade secrets to be faultless. The decisions appear to be primarily founded upon the factual findings of no misconduct.

Thus, it may be stated that when the Second Circuit was faced with defendants who were faultless, it laid down the rule that even a wrongdoer could use a trade secret after its publication with impunity; however, when it was faced with a defendant who was guilty of misconduct, it still held a wrongdoer could use the trade secret after its publication, but no longer with impunity. It is submitted, therefore, that the Second Circuit has adopted a test based on the conduct of the parties. The test applied here is very similar to that applied by the Seventh Circuit in the *Shellmar* case as modified by the *Northup* decision.

It also appears that the Third Circuit has adopted a test based on conduct in affirming both the *Darsyn* decision in which it appears that the defendant, Lenox, was faultless and the *Thiberg* decision in which it appears that the defendant, Bach, acted improperly. The conduct of the parties involved in the two cases appears to be the only basis on which the cases can be distinguished.

CONCLUSION

The law with respect to the liability of one who, after prior knowledge, appropriates a trade secret after its publication is generally considered to be in conflict. By carefully considering the conduct of the parties involved as well as the particular court in which an action may be brought, however, a great deal of the conflict can usually be resolved. The *Shellmar* line of decisions, representing primarily the view of the Sixth and Seventh Circuits, generally holds that one who had prior knowledge of a trade secret may not appropriate and use the secret after its publication. This general rule has been modified by the Seventh Circuit in the *Northup* decision where the court allowed a faultless party to use a trade secret after its publication. The *Conmar* line of decisions, representing the view of the Second Circuit, generally holds that one who had prior knowledge of a trade secret may use the secret after its publication without any obligation to the one who disclosed the secret. In the case of a wrongdoer, however, the Second Circuit, according to the *Schreyer* decision, will not prevent him from using the secret after its publication, but it will assess against him all damages caused by his misconduct.

In view of the *Northup* modification of the *Shellmar* line and the *Schreyer* modification of the *Conmar* line, it is submitted that the two lines of decisions are closer together in their holdings than is generally supposed. As modified, each line now holds that a faultless party may use a trade secret after its publication and that a wrongdoer will be at least held liable for damages.

EDUCATIONAL ACTIVITIES

Thomas Alva Edison Fellowship Announced

THE THOMAS ALVA EDISON FELLOWSHIP FOR GRADUATE STUDY of the patent and related systems has been established for award to a candidate for a graduate degree in one of the schools of The George Washington University. A fund of $3000 will be made available annually to The Patent, Trademark, and Copyright Foundation to enable men and women of unusual capacity for productive scholarship to follow an approved program of research under the supervision of a member of the Foundation's Research Staff. The recipient must satisfactorily complete the degree requirements, including a thesis on a subject in a field of the Foundation's interest.

Candidates for the Fellowship are nominated by The Patent, Trademark, and Copyright Foundation with final selection by a screening committee composed of representatives of the Thomas Alva Edison Foundation and The Patent, Trademark, and Copyright Foundation.

Special assistance from the McGraw Foundation made possible the establishment of the Fellowship. The initial Fellowship will be granted for the 1961-62 academic year.

Patent Office Award Presented in Seminar and Lecture Series

THE FOUNDATION'S SEMINAR AND LECTURE SERIES, established jointly with the faculty of The George Washington University Law School, is being conducted during the 1961 spring semester by the Foundation's Executive Director. Members of the Research Staff also participate.

In conjunction with the lectures, preliminary papers are orally presented by the students for discussion, then developed into written papers by the end of the semester. To encourage original research, the Patent Office Society Student Assistance Award will be given for the best paper written by a student in the course. The winner will receive an honorarium of $100 contributed by the Society and an appropriate citation. The award paper will be published in the Foundation's *Journal.*

Fifth Annual Public Conference Planned

THE THEME OF THE SPECIAL SESSION DEVOTED TO CURRENT ISSUES of the 1961 Annual Public Conference, to be held at the Sheraton-Carlton Hotel in Washington, D. C. is: "Industrial Property, Enterprise, and Government." The Conference program is as follows:

THURSDAY, JUNE 15

10:00 a.m.–1:30 p.m.....Registration
1:30 p.m.–5:15 p.m.....FOUNDATION RESEARCH REPORTS
1:30 p.m.–4:30 p.m.....Panel Discussion of Findings
4:30 p.m.–5:15 p.m.....Brief Discussion of New Studies
7:30 p.m.....RECEPTION
8:30 p.m.....DINNER, Honoring Jo. Baily Brown of Brown, Critchlow, Flick & Peckham, the recipient of "The Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education"; presentation of the Award and Acceptance Address.

FRIDAY, JUNE 16

9:30 a.m.–12:30 p.m.....SPECIAL SESSION DEVOTED TO DISCUSSION OF CURRENT ISSUES.

A successful innovation which marked the program of the 1960 Conference will be continued in the fifth Annual Public Conference. Presentation of the Research Findings of the Foundation will be organized as a panel discussion by the Officers and Research Staff of the Foundation.

The Conference provides an opportunity for people from various branches of learning and fields of endeavor who have a common interest in the patent and related systems to meet and enlarge their perspectives by participating in stimulating and productive exchanges.

Please place the dates June 15th and 16th on your calendar and plan to attend the Foundation's fifth Annual Public Conference.

New Digest Distributed

A NEW ISSUE OF THE DIGEST has been distributed to members of the Foundation, executives, government officials, educators, and laymen generally, as well as to those with a professional interest in the patent and related fields. The recent *Digest* is devoted to a non-technical summary of the results of the Foundation's research on foreign licensing as published in the *Journal.* The previous *Digest* reported our findings on the commercial use of patented inventions.

Fourth Booklet for Young People Issued

THE FOURTH IN OUR BOOKLET SERIES addressed to young people, *The Patent System All Around You,* is being mailed to selected libraries and secondary schools throughout the nation. The booklet is entitled "Looking Into the Fascinating World of Invention" and explains how students may examine patents in their home town library.

The first booklet describes in general the purposes, problems, procedures and accomplishments of the patent system and the ways in which it directly or indirectly touches the life of every young person. The second in the series is called "How You Get A Patent Today" and deals with the procedures involved in obtaining a patent and some of the historical background on how these procedures developed. The third booklet concerns the problems of establishing priority and is entitled "Who Invented It First?"

Slides and Tape Recordings Available

SLIDES AND PHOTORECORD SHEETS from the American Patent Law Association's collection of interesting patents and trademarks have been contributed to the Foundation library by Virgil E. Woodcock of Philadelphia. We have also acquired tape recordings of the current issues session of the Foundation's fourth Annual Public Conference.

These slides and tape recordings are available for use by groups and organizations at a nominal charge.

BOOK REVIEW

AMERICAN ENTERPRISE IN THE EUROPEAN COMMON MARKET: A LEGAL PROFILE, edited by Eric Stein and Thomas L. Nicholson. Ann Arbor: University of Michigan Law School. 1960. 510 pp.

Reviewed by J. N. BEHRMAN*

This is Volume I of a two-volume study of the problems which face American enterprise operating in the Common Market. To provide the U. S. businessman with both a broad and a specific understanding of these problems is a herculean task. The various authors have succeeded, however, in a large degree and have added stimulating comments on future trends and critical decisions ahead.

Eric Stein has written the first two pieces in Volume I, providing an introduction to the problems and the new institutions formed in the Common Market. Marc Ouin writes on the establishment of the Customs Union and the European Free Trade Association. Fernand Charles Jeantet reviews the exchange control regulations in France and their modification by the Rome Treaty. Stephen P. Ladas examines the problems in transfer of industrial property. Otto Kahn-Freund has contributed an extensive piece on Labor Law and social security. And the volume is concluded by a survey of legal remedies open to enterprises, written by Eric Stein and Peter Hay. (Volume II will contain articles on "Organizing for Business," "The Significance of Treaties to the Establishment of Companies," "Protection of Competition," "Taxation," and "The Association with Overseas Countries and Territories," plus an appendix containing the text of EFTA convention and other documents.)

The basic impression that one receives upon reading this volume is that the Common Market is a living organism—one that is healthily born but which will continue to have growing pains and has yet to pass through that most difficult period of adolescence just before the "transition" is completed. The great usefulness of the book is that it provides the corporate lawyer with the background necessary to assess the future problems and points to possible future pitfalls—not only for the members of the Union but also for enterprises operating therein. The relevance of the Common Market for American lawyers is pointed out by Mr. Stein as consisting of the facts that U. S. business has itself become interested and active in the Common Market, that the development of the Union will affect U. S. government policy, and that the CM represents a new kind of community, raising legal problems in new forms that should attract the interest of all lawyers.

* Dr. Behrman is a member of the Foundation's Research Staff.

In providing a picture of the institutional background of the CM, Stein develops the historical setting and the conflict between the Inner Six and the Outer Seven (EFTA), the timetables of integration set by each, and reviews briefly the legal framework and problems of the European Economic Community (EEC or CM). He stresses also the longer view that integration of Europe will depend on and be altered by the attitude taken by the United States toward international economic cooperation—specifically toward commercial policies, financial transactions, and the maintenance of high levels of economic activity within the Atlantic Community.

In his description of the new institutions of the CM, Stein treats the powers of the Council of Ministers, those of the Commission (which administers the decisions of the Council), those of the European Parliamentary Assembly, the Court of Justice, and the relation of enterprises to these institutions, particularly to the Court and regulatory bodies. In the final chapter of the volume, Stein returns to this last topic in examining the legal remedies open to enterprises against administrative acts, against the Treaty itself, and against the Community in contract and tort cases; he concludes with a review of the procedures and sources of law for the Community's Court of Justice.

It could hardly be expected that the legal institutions and their powers be created out of the Treaty. There are problems of overlapping jurisdiction of the Community Court and national courts, of the source of precedents, and of the rights given to enterprises to sue against non-action by the Community or its members. Stein concludes that although there are numerous appropriate circumstances under which enterprises may appeal administrative acts or non-action, "the limiting language of the E.E.C. Treaty" gives rise to the question of "whether the Court will be able or willing to grant appeals under that Treaty in all situations where 'direct and specific concern' of the enterprises affected would warrant it." (p. 509)

As to the institutions themselves, there are two major forces which will determine their long-run nature. The existence of the EEC, the Coal and Steel Community, and Euratom would seem to call for a coordination of these agencies either through the Parliamentary Assembly or under one Council of Ministers (or both). But the French at least are opposed to creation of a "supranational" assembly or administrative agency; de Gaulle is insistent upon cooperation among sovereign states on technical or administrative problems through policies agreed upon by national governments, rather than through a policy formed by an "extra-national" institution. Given the fact that this schism in approach exists and that the current institutions will be dealing with similar problems of manpower, resource use, trade, finance, etc., it is evident that the nature and powers of the existing agencies will change within the coming years. The review provided in this volume gives a good understanding of the areas in which changes are more likely, but no prediction is attempted as to the future forms or timetables.

For those concerned with U. S. government policy on such matters as tariffs, quotas, free movement of goods within the Community and attitudes toward trade with third countries, the chapter by Marc Ouin gives not only adequate background but a clear assessment of the existing problems. The rules governing the commercial relations among the Six Members of the Community are reviewed (tariffs,

quotas, and escape clauses), as well as those of the Six with other countries. The formation of the common external tariff is examined, displaying the difficulties in agreement on some commodities, the escape clauses available, and the actual developments to date. Of particular importance is his review of the relations between the EEC and EFTA, which leads to an assessment of the problems facing cooperation or integration of the two. Once again, U. S. policy toward each and toward problems common to them and itself—such as trade, finance, aid to developing regions, etc.—are denominated as of first importance in shaping future events. A recession in any major group, a move toward protectionism, or unwillingness to coordinate financial and fiscal policies over the long run will damage the growth of closer cooperation and the mutual benefits arising therefrom. The appendix on EFTA draws clearly the differences between the free-trade-area concept and that of the customs union and shows the measures adopted by EFTA to bring internal integration yet not to destroy the future possibility of closer integration with the CM nor to violate the international agreements (GATT, IMF, OECD) to which the EFTA members are signatories. Again one gets a feeling of complex and imminent change, but predictions are rightly eschewed in this field, which is so fraught with political considerations as to be highly mercurial in its direction of change.

The chapter on French exchange controls, though superseded by the increase in convertibility of European currencies during late 1958 and 1959, is still a good review of the types of controls imposed on trade and payments. The scope of the chapter indicates the extent to which such regulations are required when a country is in balance of payments difficulties: controls over payments, over trade, over investments abroad, over foreign investments in France, and the sanctions required to put each of these controls into effect. The importance of the chapter lies in the fact that the Treaty includes several important provisions covering exchange controls. Future restrictions will have to be consistent with these provisions. A concluding section in the chapter shows the effect of the transfer of powers to the Community on the types of controls formerly employed by France.

One of the chapters looking more to the future is that by Stephen Ladas on Industrial Property, in which he discusses the protection provided under the Treaty and in national legislation, the national laws on patents, trademarks, designs and models, with possibilities of unification, and the question of licensing and the rules of restraints of competition. On harmonization of laws, he concludes: "The adoption by the Six of a uniform patent, design or trademark law is unlikely in the near future. So, probably is any major rewriting of their industrial property laws." (p. 240) This view is reached because of the fact that the laws represent a current balance of the interests of the national governments, the consumers, and those who hold property rights; there is, therefore, a basic reluctance to alter the laws. But, the pressures of integration are also likely to bring changes in the laws, with some moves toward unification in the longer run. The probability of harmonization will be determined, in Ladas' view, because pressure will be built up as a result of "the fact that where industrial property rights are created by differing laws, obstacles to the free movement of goods do inevitably tend to result." (p. 291) How and

how soon harmonization occurs will in turn depend on "the direction in which the Common Market will evolve"; that is, if the CM becomes in fact completely economically integrated, unification of laws on industrial property will necessarily follow; if it does not, nationalistic pressures will succeed in preventing harmonization. In the long run, harmonization may be expected that will bring a uniform duration of patents, a single payment of annuities to the Six, a single working requirement for all Six, and a common definition of novelty of inventions. Harmonization seems improbable, to Ladas, in the areas of opposition procedure, patentability, subject matter, inventions of employees, treatments of improvement inventions, incontestability of patents, and compulsory licensing for reasons of public interest. However, he sees a greater possibility of harmonization of the trademark laws over an extensive area of the law.

Of less importance to licensors but of high importance to investors is the labor law and social security legislation, examined by Otto Kahn-Freund. This 160-page chapter defies summarization, covering the labor laws of the Six and the impact of the Treaty upon them and social security practices, plus an appendix briefly outlining the social security benefits offered by each of the Six. The Treaty envisages substantial intervention so as to equalize and push upward the social benefits and working conditions within the Six. Of equal force, however, is expected to be the pressure of general economic advance. Professor Kahn-Freund anticipates that the great diversity of the laws makes it unlikely that administrative pressure from the EEC will bring great change in the near future, although—like the law of industrial property—there is an unmistakable tendency toward harmonization in the long run, he refuses to predict what the moves will be. Any future assessment of the law on the subject, however, will benefit greatly from the examination made in this chapter.

One can make the same observation for most of the chapters in this volume, and the second is eagerly anticipated by the reviewer.

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NOTES

Brown Receives Kettering Award

JO. BAILY BROWN of Brown, Critchlow, Flick, and Peckham, Pittsburgh law firm, will receive the 1960 "Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education." The award, which is presented annually by the Foundation, is given for outstanding work in the fields of patent, trademark, and related systems.

The award citation and honorarium will be presented at a dinner in Mr. Brown's honor during the fifth Annual Public Conference to be held June 15th and 16th at the Sheraton-Carlton Hotel in Washington.

Mr. Brown is a graduate of Centre College and received his Bachelor of Laws degree from the University of Pittsburgh. He was admitted to the Pennsylvania bar in 1912 and has since practiced law in Pittsburgh.

Mr. Brown served as an intelligence agent for the Department of State in 1918, and in 1919 was technical adviser for industrial property, patents, trademarks, and copyrights at the Paris Peace Commission. He was a member of the President's committee for the investigations of Patent Office practice in 1923 and 1924, and served as United States delegate and Vice President at the International Union for the Protection of Industrial Property at The Hague in 1925.

During almost half a century of patent law practice, Mr. Brown has been a frequent contributor to legal and other professional journals. He is a past President of both the American and Pittsburgh patent law associations, and served for two years as chairman of the patent section of the American Bar Association. He is a member of the American Law Institute and the Pennsylvania State and Allegheny County bar associations. Mr. Brown has served as a trustee of Centre College, and is a member of Beta Theta Pi social fraternity and Phi Alpha Delta legal fraternity.

Nominations for the award are made by representatives of the Foundation's National Directors, Area Committees throughout the country, Research Staff, and Advisory Council. Final selection of Mr. Brown to receive the award was made by a six-man board of review: Oswald S. Colclough, Director of the Foundation and Acting President of the University; L. James Harris, Executive Director of the Foundation; Willard C. Asbury, Chairman of the Foundation's Advisory Council and Vice President of Esso Research and Engineering Company; U.S. Commissioner of Patents, Robert C. Watson, Honorary Member of the Foundation; John C. Green, Executive Director of the National Inventor's Council and Con-

sultant to the Foundation; and S. Chesterfield Oppenheim, Professor of Law at the University of Michigan and Adviser on Research to the Foundation.

Both Professor Oppenheim and Commissioner Watson have received the award in previous years. Frank A. Howard, New York research consultant and Chairman of the Sloan-Kettering Institute for Cancer Research, was last year's winner.

Former Commissioner Watson Honored by Foundation

FORMER UNITED STATES COMMISSIONER OF PATENTS Robert C. Watson has been named an Honorary Member of the Foundation, the first such appointment since the inception of the Foundation. Selected on the basis of eminence and knowledge in the fields of law, basic and applied science, education, business, labor and public affairs, an Honorary Member serves on the Advisory Council for life.

In July 1952, Mr. Watson was appointed National Director of the Area Committees of the Foundation. In January 1955, he withdrew by reason of his appointment as Commissioner of Patents. Since that time he has served as an ex officio member of the Advisory Council. His advice, assistance, and support have been invaluable in determining policies and executing specific programs of work.

Mr. Watson was the recipient of the "Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education" in 1958.

Advisory Council Officers Elected

ROBERT C. WATSON, now with the Washington firm of Watson, Cole, Grindle & Watson, has been elected Chairman and Laurence B. Dodds, Vice President of Hazeltine Corporation of Little Neck, New York, was reelected Vice Chairman of the Advisory Council of the Foundation. Named to the Executive Committee of the Council were Willard C. Asbury, Vice President of Esso Research and Engineering Company of Linden, New Jersey; Dr. Lawrence R. Hafstad, Vice President in Charge of Research of General Motors Corporation of Warren, Michigan; Theodore S. Kenyon, of the New York firm of Kenyon & Kenyon; Earl P. Stevenson, Chairman of the Board of Arthur D. Little, Inc., of Cambridge, Mass.; Dr. Edward R. Weidlein, former President of the Mellon Institute of Industrial Research in Pittsburgh, Pa.; and William T. Woodson of the Chicago firm of Woodson, Pattishall & Garner. Both Mr. Asbury and Dr. Hafstad have previously served as Chairman of the Council.

Number of Patents Issued to AEC Contractors Corrected

IN THE REPORT ENTITLED *Federal Patent Policies in Contracts for Research and Development,* published in the Winter 1960 issue of this *Journal,* it was stated that "Some 700 patents have been issued . . ." (p. 347) to AEC

contractors under the Commission's authority to waive title to patents. It has come to the attention of the project investigators that the figure 700 is an error. The error appears on pages 347, 348, 362, and 380 in the report. The corrected figure is 28 as of a recent date and not 700.

It is regrettable that this error in one of the sources found its way into the report published in this *Journal.* Before publication, the investigators sought an up-dating of the 700 figure from the Atomic Energy Commission. Unfortunately, the error was not detected at that time and called to their attention.

They are of the opinion that this correction adds further weight to their conclusions in the report: ". . . AEC waiver policy is highly restrictive . . ." (p. 362); "In the way in which it has been administered, the title policy of the Atomic Energy Commission has probably been too rigid." (p. 381)

Patent Validity Searching

T. HAYWARD BROWN*

MUCH OF THE WORK OF THE PATENT PROFESSION is concerned with validity searching. That is, the searching of the prior art patents, publications, etc., to determine whether or not a particular patent claim is valid.

Title 35 U.S.C. Section 131 provides that the Commissioner shall cause an examination to be made of the application and the alleged new invention; and if on such examination it appears that the applicant is entitled to a patent under the law, the Commissioner shall issue a patent therefor. Implicit in the language "an examination . . . of the application" is the requirement not only that the application be read and thoroughly understood by the Patent Office Examiner, but that the related prior art be compared therewith to see if the invention disclosed is novel. This requires validity searching by the Patent Office Examiner.

Patent validity searching can be compared somewhat with the searching done by a shopper in a department store. The store is departmentalized or classified so that the would-be purchaser, if he wants shoes of a particular type, goes to the shoe department and looks over the stock until he finds the type he wants or decides that it is not available there and goes elsewhere to continue his search. A patent validity search is not quite so simple. The searcher often has to look in many departments, and much of the literature available is not as well classified as the well-run department store. The searcher's job requires imagination, the application of logic, a good memory, willingness to follow leads, and sometimes sheer luck.

Although it was hoped by our founding fathers that the Patent Office Examiner would find everything pertinent to a patent application and disallow all claims to devices which were not novel or patentable, it became apparent at an early date that some patents are improvidently granted. This fact is reflected in the decisions of the United States Courts going back over a century and a half.

Title 35 U.S.C. Section 102 sets forth certain conditions affecting patentability

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of an invention. Thus, an invention is unpatentable if it was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, etc.

Section 102 is the reason behind most patent validity searching both by the Patent Office Examiner and by defendants in patent suits. The importance of a good search and some of the attendant difficulties are highlighted in the case discussed hereinafter.

The case of *Louis H. Crook, et al* v. *The United States,* Court of Claims No. 46,000, was filed on October 18, 1943. Thereafter a validity search was made respecting the involved patent, No. 1,645,643. Due to the fact that the nation was at war, the only places searched were the domestic and foreign patents in the Patent Office, together with such literature as was available there, and in the Library of Congress.

A considerable amount of pertinent prior art was found, and relied upon at the trial. This prior art is set forth by the Court in its opinion reported at 113 C. Cls. 595; 84 F. Supp. 173. One of the pieces of prior art relied upon at the original trial was the "Yearbook of Wireless Telegraphy and Telephony," published in 1922 by the Wireless Press, Ltd., London. This Yearbook referred to a printed specification, prepared by the Marconi Company. Before the first trial, a letter was written to the Marconi Company asking for a copy of this specification, but due to war conditions, Marconi personnel then on duty were unable to verify the existence of the specification.

After the war was over and after the decision in the case of June 6, 1949, the search continued through the libraries of the world. This search entailed many, many man hours of labor in many countries. After the war, the Marconi personnel who were in Service returned to London, and from them it was learned that Marconi had in fact published in 1921 a specification corresponding to the one mentioned in the Yearbook reference. It was ascertained from Marconi personnel then available that 300 copies of the booklet entitled "Marconi Aircraft, Telegraph & Telephone Apparatus, Its Installation, Testing & Maintenance" were published in 1921 and sent to interested organizations and individuals in practically every country of the world. It was reported that a copy of this booklet was in 1921 sent to the Radio Corporation of America in New York, but after a lengthy search it was impossible to verify this. It was learned that a copy of this publication was sent to Amalgamated Wireless (Australasia) Ltd., in Sydney, New South Wales, Australia. Correspondence with Amalgamated Wireless revealed that they had received a copy of this booklet in 1921, had placed it in their Technical Library, and that the booklet was still in the Library. It was further ascertained that Amalgamated Wireless maintained cross-lending privileges with the University of Sydney Library, and that this booklet was actually borrowed in 1921 by an amateur who constructed some equipment made in accordance therewith. Thereafter the amateur was called as a witness, together with the Librarian, and the president of

the Company to prove the existence of the booklet, its publication in 1921 and its use in the Library in Sydney in 1921.

The reason for the proof that the publication had been in existence and in a library which was open to the public in 1921 was occasioned by the fact that the booklet bore no printing date and contained no copyright notice.

This case illustrates the importance of a thorough validity search and some of the difficulties that are sometimes encountered in making one. Had this publication not been found and established, the defendant, no doubt, would have had to account to plaintiff in the amount of several millions of dollars. With the introduction in evidence of this publication, the Court on rehearing held the patent invalid; 123 C. Cls. 591; 108 F. Supp. 598; 95 USPQ 325.

Probability and Patent Law

DUANE C. BOWEN*

SUMMARY

DECISIONS ON INVENTIVENESS sometimes are unrealistic in language, in grounds of decision, or in conclusion. Use of the concept of probability is offered to be an improvement in analysis that may lead to better decisions. Such analysis points up unrealities in the statutory definition of prior art against which inventiveness is measured. Statutory redefinition is suggested limiting the age of anticipatory prior patents, prior publications and prior uses to fifty years.

ONE BASIC QUESTION IN MOST PATENTABILITY AND VALIDITY CASES IS: Would the public have enjoyed use of the invention without the inventor's disclosure? This question may be rephrased as: How *probable* would have been the public benefit without the inventor's contribution?

Stating the question in terms of probability is believed to clarify the issue. No technique has been developed for mathematical computation of such probability and judgment will be partly objective and partly subjective.

Probability is a relative concept, whereas obviousness (35 *USC* 103) is a more absolute term—an invention is said to be obvious or not obvious. The former is believed to be a more fundamental and analytical term. A patent attorney in advising a client may say an invention is probably patentable but may hesitate to say the invention is obviously patentable. This word choice is more realistic—as well as more discreet.

The same public disclosure is always possible without the inventor, *i.e.*, another person of equal inventive prowess may make the same invention even if it takes another "flash of creative genius" à la Cuno.[1] In the case of "gadgets that obviously have had no place in the constitutional scheme of advancing scientific

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[1] *Cuno Eng. Corp.* v. *Automatic Devices Corp.*, 314 US 84, 91, 51 USPQ 272, 275 (1941).

knowledge," [2] angels fear to say with certainty that the inventor's disclosure is not needed for public disclosure, *i.e.*, the Hula Hoop obviously should have been available to an earlier less privileged generation.

THE GREAT ATLANTIC AND PACIFIC TEA COMPANY REVISITED

Mr. Justice Jackson in the *A. & P.* case [3] spoke of diminishing "the resources available to skillful men" by the monopoly of the patent grant. Impliedly, it was highly probable the "skillful men" would have used the "resources" to have made the same system available to the public without the inventor's disclosure. In his concurring opinion, Mr. Justice Douglas used the words "exacting tolls from the public," implying it was probable the invention would have been available for public use without toll in the absence of the patentee's work. Douglas cited the language of Mr. Justice Bradley in *Atlantic Works* v. *Brady,* 107 US 192, 200 (1882):

> . . . every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures.

By implication, probably the invention would have "naturally and spontaneously" occurred to others ("any skilled mechanic or operator in the ordinary progress of manufactures") and would have been available in the market place without the patentee's efforts.

What would be accomplished by talking about probability in patent cases? The suggestion is not that the word *obvious* be deleted from the patent statutes but rather that the concept of probability be used as part of the reasoning to reach a conclusion as to obviousness. It is submitted that the idea of probability points up the issues more clearly than language usually used. The *A. & P.* case used the following ambiguous words and phrases: "standard of invention" (standard of invention is rather like a chancellor's foot [4]); "a combination . . . made up entirely of old components" (the elements combined in any invention are old); "good idea"; "results more striking"; "mechanical function"; "assembly of old elements"; "unusual or surprising consequences"; "inventive genius"; "constitutional standard"; "gadgets"; and "simplest of devices." The opinion of the Court would have been clearer if it had stated the following:

> In the opinion of the Court, other people working in supermarkets probably would have devised the same counter system and would have made it available for use without the disclosure of the patentee.

This approach would provoke the attorney for the patentee to argue on rehearing that the history of the case made it evident such other people would not have

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[3] *Great A. & P. Tea Co.* v. *Supermarket Equip. Corp.,* 340 US 147, 87 USPQ 303, 307 (1950), concurring opinion of Mr. Justice Douglas.

[4] *Supra.*

[4] "One Chancellor has a long foot, another a short foot, a third an indifferent foot: 'tis the same thing in the Chancellor's conscience." The *Table-Talk of John Selden,* originally published 1689, republished in various sources including *English Belles-Lettres,* Universal Classics Library, M. Walter Dunne, Publisher, Washington & London (1901), pp. 163, 172.

devised the counter system because they had not. The three-sided rack, guide rails and counter individually were known for many years, yet other workers did not devise the counter system before the patentee. When he disclosed the system, it was widely copied.[5]

A proper response of the Court to such argument could be as follows:

> The patent statutes charge those working in the art with knowledge of prior United States and foreign patents and publications and with knowledge of prior public use in the United States. The statutes do not provide relief in cases where those working in the art are not indeed familiar with such patents, publications and use. The probability of other workers disclosing the counter system without the patentee's efforts has to be judged with the statutory assumption of such knowledge of the prior art, until such time as Congress changes the definition of anticipatory prior art, although the assumption may be particularly doubtful in fields such as the present one, where workers do little library work.

The attorney's argument should be seriously considered, however, in cases where all of the allegedly anticipating prior art was in the workers' everyday environment for years prior to the invention.[6]

Righteous denunciation by a Court of the Patent Office's action in issuing a patent considered to be manifestly invalid might be tempered if it was perceived that the definition of anticipatory prior art is purely statutory, may not be realistic, and can be changed. The Jungersen patent [7] was invalidated partly on *The Treatises of Benvenuto Cellini on Goldsmithing and Sculpture,* yet it was purely Congressional choice whether to include writings from the Sixteenth Century in its definition of anticipatory prior art. Criticism of including old books in the definition of prior art would have been provoked if Cellini's writings had been familiar only to scholars in an esoteric and remote field.

Public benefit is the designed end of the patent system and the more realistic the patent operation, the more responsive to public improvement, the better the results. The idea of probability of public instruction, were-it-not-for-the-patentee, is believed to be more realistic than much of the other language common to patent cases. Judgment as to probability is made somewhat unrealistic by the difference between the art that an industry actually knows and uses, and the art inventors in that industry are held to know by the patent statutes. Common use of the reasoning of probability might point up needed revision of the statutory definition of prior art, to the extent it is unrealistic.

A good case could be made for redefining prior art to exclude all publications, patents and public use more than fifty years old—for statutory definition of prior

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[5] This is the reasoning used by Judge Learned Hand in *H. G. White Co.* v. *Morton E. Converse & Son Co.,* 20 F2d 311, 313 (1927):

> It is the obvious when discovered and put to use that most often proves invention. In such matters we look rather to history than to our own powers of divination, if history is at hand.

[6] This idea was important to sustaining the patents in a number of United States Supreme Court cases, including: *Webster Loom Co.* v. *Higgins,* 105 US 580, 591 (1882); The Barbed Wire Patent Case, 143 US 275, 282 (1892); *Carnegie Steel Co.* v. *Cambria Iron Co.,* 185 US 403 (1902); and *Eibel Process Co.* v. *Minnesota & Ontario Paper Co.,* 261 US 45 (1923) (increase of pitch of Fourdrinier wire).

[7] *Jungersen* v. *Ostby & Barton Co.,* 335 US 560, 80 USPQ 32 (1949).

art as disclosures of publications and patents and matters in public use within the last fifty years. A few foreign countries limit the age of patents or publications to fifty or a hundred years. Some limit in the age of prior art eventually will be established—at some time the bulk of prior patents and publications the Patent Office and private parties should search, on questions of patentability and validity, will be so large that limitation will be an economic necessity. In fact, the point already has passed that the Patent Office and private litigants can afford to thoroughly search prior publications. Anticipation sometimes depends on the amount of money the party contesting patent validity will or can budget to search patents, publications and prior use.

PRIOR KNOWLEDGE

A patentable invention must be made before the same subject matter was known by others in this country. Consider the circumstances of a German machine disclosed in this country before World War II. Sales promotional activities were made by contacts and written communications. The description of the machine was given to twenty parties in ten companies in an industry numbering one hundred companies. Let it be assumed that the oral or written description was sufficient to disclose the invention but was not in a form that could be characterized as a printed publication, even if the communication were called public instead of private. Let it further be presumed that the contacts were to sample the market reaction, *i.e.*, the machine was not priced, so that the machine was not yet on sale. Sales were not made before the war began. During the war, an inventor in the United States made the same invention, produced the subject matter and was granted a patent. Was the patent invalid because of prior public knowledge?

The decision should be made, it is submitted, on the basis of the probability of the machine being made, and being available for use in production, resulting, directly or indirectly, from the information given to the twenty men. If the disclosure had been made to an average of five people in each of the hundred companies, the probability would have been higher than if the disclosure had been made to one man in one company. A decision for the patentee could be worded in terms that this was private rather than public knowledge, and a decision against the patentee could be accomplished by characterizing the prior activity as sales negotiations resulting in public knowledge. The more basic analysis would be in terms of probability of public benefit were-it-not-for-the-patentee.[8]

PRIOR PUBLICATION

The CCPA in the case of *In re Tenney, Frank, and Knox*,[9] discussed the requirement that publications be printed, rather than handwritten:

> . . . what Congress was concerned with . . . was the *probability* that the subject matter would be made known to the American public. Knowledge and use in the United States

[8] Compare the sales bulletin in *Unistrut Corp.* v. *Power*, 175 F. Supp. 294, 121 USPQ 381, 385 (DC Mass-1958), affirmed 280 F2d 18, 126 USPQ 82, 86 (Cal-1960).

[9] 45 CCPA 894, 254 F2d 619, 117 USPQ 348, 353-55 (1958).

> would *probably* . . . come to the attention of the American people whereas the same probability would not be present with respect to such knowledge and use abroad. By the same token, in the case of "printed" publications, . . . one would not go to the trouble of printing a given description of a thing unless it was desired to print a number of copies.
>
> Printing alone . . . would be insufficient to reasonably assure that the public would have access to the work . . . it is required that the description . . . be published as well.
>
> But though the law has in mind the *probability* of public knowledge of the contents of the publication, the law does not go further and require that the probability must have become an actuality.
>
> While microfilming furnishes a means of multiplying copies, there is no *probability*, from a mere showing that a microfilm copy of a disclosure has been produced, that the disclosure has achieved wide circulation and that, therefore, the public has knowledge of it.

Chief Judge Johnson did not find the law consistent on this point:

> . . . the present law is anomalous, as evidenced by our conclusion that the microfilm is not "printed." A foreign patent file, laid open for public inspection, is not a printed publication, because typewritten, while a printed publication, available to the public only in a Southern Rhodesian library, would be. The former is more likely to reach the eyes of the American public than the latter.[10]

In a concurring opinion, Judge Rich said, in discussing the difference between printed material and means for producing printed material, *i.e.*, a bibliography offering to furnish applicants with photostatic copies of original documents:

> We would then have precisely the same degree of *accessibility* but we would not have the *probability* of wide circulation which is, I agree, the real significance of the word "printed" in the term "printed publication."

IN CONCLUSION

The concept of probability of public improvement were-it-not-for-the-patentee is not directly involved in all patent law subjects. For example, in interferences either the senior or the junior party presumably will receive or maintain the patent grant and the public will receive the disclosure. If the applicant in an ex parte application has made public use of an invention more than one year prior to his filing date, the public has received at least a partial disclosure—some public disclosure is a certainty. However, public disclosure cannot be presumed in the absence of the patent grant in ex parte applications as a class.

The cases in which probability has basic meaning are inventive questions where industry may not learn of inventions, or disclosures may be delayed, were-it-not-for-the-inventors. For example, one reconciliation of the law concerning prior use by third parties is that activities of doubtful permanence probably won't adequately inform an industry of a new development and should be held non-anticipatory by being characterized as experimental and abandoned.

The use of apt, basic terminology is of assistance in deciding any case and a secondary benefit of realism is indication of needed law revision. It is believed

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[10] The opinion of the Court noted cases such as *Ex parte Hershberger*, 96 USPQ 54 (Board of Appeals-1952) in which typewritten college theses placed on library shelves have been held to be printed publications. The *Tenney* case appears to indicate that the CCPA would hold to the contrary if such a case were now presented to it.

the statutory presumption of knowledge of prior patents, publications and uses is unrealistic in many patentability and validity cases. Whether or not the prior art definition should be changed, it is well that those working with patents be reminded of the question of realism. This reference to reality is accomplished by talking of likelihood of public knowledge without the inventor's tutorage.

Patent attorneys are instructed day by day in the realities of the inventive process. Few others are so educated in the common history of invention. Patent attorneys seriously think, in the class of inventions on which they file patent applications, that the public needed to have the instant inventors to reveal the inventions: that there would not have been timely disclosures by others of the same inventions. Patent people are educated regarding the probability of public benefit without the disclosures of their clients and they are aware of the frequent unreality of decisions of unpatentability on the grounds of forgotten patents issued thirty, fifty, a hundred years before their client's conception.

Judges, lawyers other than patent attorneys, and other influential people, such as economists, making judgments on patent matters, usually have not been exposed to broad education in the practicalities of invention. Not by fault but by narrowness of patent experience, they frequently are in a position like that of the blind man describing an elephant by touching his tail. When the attorney for a party contesting patent validity finds anticipatory prior art—obscure prior use, old patents, publications known to librarians—these people outside of the patent profession tend to believe the inventor was not needed, to believe that the prior art was a practical fact rather than a legal definition. They are less sympathetic with the argument of the plaintiff's attorney that invention is present over the statutory prior art than they would have been if they had understood the degree of probability of public disclosure without the inventor's efforts.

This is not to say that patent attorneys are always right in matters of public policy regarding patents. At least some bias is likely. It is offered, however, that a source of difficulty in the public forum on patents is the fact that the critics of the present patent system, familiar with patents in the environment of prior art offered by defendants' lawyers in litigation, lack practical knowledge of the typical history of invention. They assume that the disclosure of an inventor is not needed if his invention can be simulated by sufficient library work or by extensive detective work in the bone yard of old or obscure public use. Research workers in some industries do considerable reading in old patents and other literature. In other industries, such study is seldom done. It does little good to say such other industries need more scholars. The use of the concept of probability is believed not only to be valuable in deciding cases under present statutory definitions of prior art, but also to be valuable in pointing up the realities of invention to such critics and to the framers of future laws.

Inventors make inventions. Lawyers make laws. If positions were reversed, nothing would be patentable. The purpose of this paper is to advocate a less extreme position in which realism, keyed by the concept of probability, is promoted.

Bulletin Revised

COPIES OF THE 1961-62 *Bulletin,* including information on the organization of the Foundation, the research and educational programs, and a list of Foundation members, are available to those interested in the work of the Foundation.

Report to Members Published

THE TENTH *Report to Members,* recently distributed, reviews Foundation developments, activities of the staff, and includes information on persons associated with the Foundation. A section entitled "What They Are Saying. . . ." reproduces excerpts from other publications which refer to the work of the Foundation. The report also contains a series called "Do You Know That. . . ." which are brief summaries of the results of the Foundation's study on antitrust.

Offices and Library Moved to New Location

THE FOUNDATION OFFICES AND LIBRARY have moved to a newly renovated building at 708 22nd Street, N. W. The new quarters afford space for a specialized library on the second floor. Books, manuscripts, and reports have been catalogued and arranged for easy accessibility.

Evolving Court Opinion on Patent Licensing: An Interaction of Positive Competition and the Law*

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THIS EXPLORATORY PAPER has two related objectives. One is to examine the trend and flux of court opinion respecting certain patent licensing arrangements that have been regarded as inconsistent, in varying measure, with the public interest—viz., "tie-ins," [1] package licensing, and grant backs. All three have been directly or indirectly attacked as forms of patent misuse or antitrust violation. They may be said to have the common characteristics of permitting benefits to the patent owner which do not necessarily derive from the use of the patented invention. This paper takes the view that, since these arrangements have developed through the exercise of opportunities afforded in free societies for pursuing private gain while meeting felt social needs, they merit evaluation on the basis of existing legal standards generally applied to economic affairs as well as legal standards concerning the exclusivity of patent rights.

The second objective is to point up an important consequence of the frequent avoidance of court tests of the legal validity of business arrangements, particularly those affecting patent licensing. In our kind of society, it is desirable to make an energetic legal defense of challenged business practices that have been pursued in good faith—that is, on the assumption of compliance with the law. Indiscriminate quests for settlement by consent decree, like other failures to defend assumed economic rights, impede the fullest development of positive competition, hamper the functional and self-correcting evolution of law through proper court test, and even threaten the vitality of a free society.

POSITIVE COMPETITION

AT THIS POINT, WE SHOULD RECALL the meaning of "positive competition," a term introduced by the authors in an earlier article to emphasize the pervasiveness and variety of constructive "normal" behavior in transacting the nation's business.

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* This is a second report in a series on the concept of "positive competition" and its application. The first report, "Positive Competition and the Patent System," appears in *PTC J. Res. & Ed.*, Vol. 3, No. 1 (Spring 1959), pp. 21-32.

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[1] The term "tie-in" is used in this paper in a limited sense. It comprises arrangements (1) requiring the licensee to purchase from the patentee unpatented articles outside the scope of the licensed patent when such articles are not suitable for substantial non-infringing use; or (2) in which the tying product is patented and the patent does not create illegal market power in the entire factual setting.

The term refers to the very large, unspectacular "core" of economic behavior, in contrast with the pathological or deviant fringe which, regrettably, attracts much greater popular and professional attention. It refers to accepted modes of action in the world in which we live—permissive and inventive, as well as repetitive and routine. These modes are dynamic and varied, unlike the rigid, mechanical behavior encountered in textbook models which abstract, simplify, and idealize. Related terms are "economic freedom" and "competition in free markets," as these are understood in the literature of antitrust. All connote a "style" which we as a nation are historically committed to preserve and foster: maximum scope for profitable private economic decision-making and organization, subject to custom and law and to such paramount common needs as national defense.

In the patent field as in other parts of the economic domain, many avenues of positive competition are well marked and well traveled. Indeed, despite the existence of uncertain paths, some useful guidelines already fairly well delineated lead to the very frontiers of the specialized area of licensing.

COMPLEX PATTERN OF INTERPLAY

Another preliminary matter that requires explicit notice is the reciprocal dynamic influence of positive competition and the larger cultural environment, including the law. Modes of private behavior interact continually through time, with each other and also with the elements of this environment. Indeed, conduct and institutions always are reshaping each other in varying respects and in varying degrees.

Since the citizens of a free society have considerable control over, and also have a stake in, the outcome of this interaction, they should participate with deliberateness and foresight. Specifically, they should seek to avoid the erosion of their economic and political freedoms, especially through failure to exercise adequately the range of options currently available to them. Vigilance must include the active use of available instruments, legal as well as other, for enlightened pursuit of self-interest. Through the exercise and defense of existing rights, atrophy of these rights is avoided and their positive significance is retained. Recourse to adjudication when the law is unclear helps to make law responsive and to keep law vital. Only through the appropriate test of cases, especially widely representative ones, can the law meaningfully evolve to serve the broad needs of changing times and circumstances. This evolution may, of course, entail reconsideration of presumably settled issues and reversal of earlier dominant opinion.

SOME ESTABLISHED GUIDELINES

Certain propositions command wide judicial acceptance and already provide guides to persons and firms seeking economic reward in patent licensing activities.

In *United States* v. *General Electric Company*,[2] the Supreme Court formulated the classic yardstick that a patentee may license "for any royalty, or upon any condition the performance of which is reasonably within the reward which the

[2] 272 U.S. 476 (1926); See also the *Report of the Attorney General's National Committee to Study the Antitrust Laws* (March 31, 1955), pp. 231-233.

patentee by the grant of the patent is entitled to secure." This comprehensive principle sanctions various patent license arrangements as reasonably ancillary to the exclusive rights conferred by the patent.

The General Electric principle is consistent with guidelines marked out in a number of other cases. For example, it has been held in 1938 that any conveyance of a right under a patent constitutes a license if it does not amount to an assignment of a part, whole, or fractional interest in a patent.[3] It has also been held that a license gives permission to do what the licensor could otherwise legally seek to prevent. Further, a license is granted on conditions reasonably necessary to give the patentee a reward to which he is legally entitled.[4] In addition, it has been determined that a patent owner may limit the price at which the licensee sells,[5] the persons to whom the licensee sells, as well as the location of licensee operations,[6] and the volume of licensee production.[7] Another point well settled is that, when the patentee imposes restrictions beyond the scope of the claims of his patented invention, he may be denied relief in infringement suits because of patent misuse or may be held in violation of the antitrust laws for conduct amounting to unreasonable restraint of trade, an attempt to monopolize, or actual monopolization.[8]

We should also note at this juncture three general changes that have occurred over the years in the circumstances of patent licensing. First, the patentee can no longer include any condition he pleases in a license on the grounds that he can license or not as he chooses (*Motion Picture Patents Company* v. *Universal Film Mfg. Co. et al.*)[9]—although this choice is still permitted in many foreign countries. Second, in contrast with the experience in early years of our country, inventions are now generally part of a large group embodied in a machine or they are combined with many others in a process or product. Third, certain patent antitrust issues are no longer the subjects of vigorous controversy that they were prior to World War II.

MISUSE—EQUIVALENT TO ANTITRUST VIOLATION?

Some courts have held antitrust violations involving patents to constitute misuse and have also held misuse to amount to an antitrust violation. The latter position was asserted in a dictum in the *Mercoid* case. This decision tends to reflect a public

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[3] *L. L. Brown Paper Co.* v. *Hydroiloid*, 32 F Supp. 857 (1939); *General Talking Picture Corp.* v. *Western Electric Co.*, 304 U.S. 175 (1938).

[4] *Extracted Process Limited* v. *Hiram Walker & Sons*, 153 F (2) 264 (1946).

[5] *U.S.* v. *General Electric Co.*, 272 U.S. 476 (1926). See *Attorney General's Report, supra,* pp. 233-236 for differing views on price limitations.

[6] *Westinghouse Electric & Manufacturing Co.* v. *Tri City Radio Electric & Supply Co.*, 23 F (2) 628 (1927). See *Attorney General's Report, supra,* pp. 236-237.

[7] *American Equipment* v. *Tuthill Building Material Co.*, 69 F (2) 406 (1934). See *Attorney General's Report, supra,* pp. 236-237.

[8] *Ethyl Gasoline Corp.* v. *U.S.*, 309 U.S. 436 (1940). A patent monopoly is lawful and not a monopoly in the familiar economic sense. See discussion in earlier article, "Positive Competition and the Patent System," cited above, pp. 27-32. See *Attorney General's Report, supra,* pp. 247-259.

[9] 243 U.S. 502 (1918).

distrust of all "monopolies" [10] even though the patent monopoly has an explicitly lawful status [11] and does not limit any preexisting public right: "An inventor deprives the public of nothing which it enjoyed before his discovery." [12]

The history of patent tie-in cases reached a turning point in 1917, when the doctrine of misuse was explicitly stated in *Motion Picture Patents.*[13] In this case the court held that no need existed to test an alleged patent tie-in violation against the standards set up in the Clayton Antitrust Act since this type of misuse could be tested against the criteria of patent law. In contrast, Justice Douglas's *Mercoid* decision in 1944 [14] stated that patent misuse was *also* an antitrust violation.

Since an antitrust violation involving patents may unreasonably restrain commerce and exceeds the lawful patent monopoly, it could indeed be considered, as some courts have, a form of misuse. However, to consider misuse always as an antitrust violation, even when the misuse does *not* violate the standards of the antitrust statutes, is to say that anything done outside the lawful patent monopoly expands that monopoly into a violation of these statutes. Even though the courts have not generally gone as far as Justice Douglas, a confusion of the two concepts is frequent and some authorities even perceive a trend toward his position.[15]

Since, in a certain sense, patent law and antitrust law are concurrent or supplemental to each other, the conclusion that violation of one also automatically represents violation of the other seems illogical. However, developing case experience provides a constructive basis for confrontation of both types of law and should eventually harmonize their interpretation and impact.

TIE-INS

Though tie-ins are generally regarded as incompatible with positive competition, experience with such arrangements has actually served to clarify acceptable modes of behavior. This statement is not intended to justify tie-ins, but to point up their contribution to the trial-and-error process of mutual adaptation of business practice and the law. Indeed, certain arrangements that have been forbidden at one time as tie-ins have later been recognized as legal, thus becoming additional guidelines for positive competition.

Most authorities agree that the courts have primarily objected, from *Motion Picture* to *Mercoid,* to the fact that benefits were derived by the patentee from sources other than the patented invention. Unless a case is excepted under

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[10] Monopoly is in bad odor, not only because of its connotation in economic literature, but also because of the public impression of it, which may have been reinforced by the widely publicized recent electrical equipment criminal conspiracy convictions under the Sherman Act. The popular view seems to be reflected in the Supreme Court's *per curiam* opinion in *Radiant Burners, Inc.* v. *Peoples Gas Light and Coke Co., et al.,* 81 S. Ct. 365 (1961) in which the court held that it was not necessary for the plaintiff to allege and prove "public injury" in a private treble damage action. Many Sherman Act cases had been dismissed by the courts on this ground in the past.

[11] Title 35 U.S.C. Sec. 101.

[12] *U.S.* v. *Dubilier Condenser Corporation,* 289 U.S. 178 (1933).

[13] See *supra,* note 9.

[14] 320 U.S. 661 (1944).

[15] See *Attorney General's Report, supra,* p. 238.

Section 271 of the 1952 Patent Act, courts still consider this objection valid. (The 1952 Act in Section 271 (d) excepted the derivation of revenue from licensing to perform acts which, if performed by another without consent, would constitute contributory infringement. It also permitted the patent owner to enforce patent rights against contributory infringement.)

Pursuant to Section 271 (b) and (c), an action may be brought against a contributory infringer who knowingly sells a staple article not suitable for substantial non-infringing use or against anyone who actively induces infringement. Explicit recognition is thus given in the statute to the doctrine of contributory infringement which was questioned in the *Mercoid* case.[16] An inventor is now enabled to sue a single contributory-infringer company instead of pursuing many small direct infringers, as in the manufacture of household articles.

Here is an example of the law returning to a former interpretation as it seeks to facilitate what is generally recognized as economically constructive. In the *Mercoid* case there was some question as to whether there was anything left of the contributory infringement doctrine. The 1952 revision undertook to remove that question and to reestablish the doctrine firmly, thus also demonstrating that the law regarding patents is eminently practical and that, when misused, it can cope with the misuse. The same practical orientation is further demonstrated by the decisions in cases requiring the licensee to purchase from the licensor all of the patented item that he uses.[17] The requirement is held to be an agreement that properly provides against infringement.

Concerning the other type of "tie-in" arrangement considered in this paper,[18] some authorities maintain that the courts have perhaps gone too far in the condemnation of tie-in clauses in patent licenses from an antitrust standpoint. The following statement, appearing on page 238 of the *Report of the Attorney General's National Committee to Study Antitrust Laws,* expresses succinctly the majority and minority positions of the Committee members:

"From an antitrust standpoint, a tying clause in a patent license is like a tying clause in any other contract. The Committee feels, however, contrary to the apparent trend of Supreme Court opinions,[57] that in determining whether a tying clause may substantially lessen competition under the Clayton Act, or is unreasonable under the Sherman Act, the fact that the tying product is patented need not be decisive of illegality. The patent may be broad and basic, in which event the

[16] "When the patentee ties something else to his invention, he acts only by virtue of his right as the owner of property to make contracts concerning it and not otherwise. He then is subject to all the limitations upon that right which the general law imposes upon such contracts. The contract is not saved by anything in the patent laws because it relates to the invention. . . .

"That result may not be obviated in the present case by calling the combustion stoker switch the 'heart of the invention' or the 'advance in the art.' The patent is for a combination only. Since none of the separate elements of the combination is claimed as the invention, none of them when dealt with separately is protected by the patent monopoly." (From the majority opinion delivered by Justice Douglas. See also Justice Frankfurter's dissenting opinion) *Mercoid Corp.* v. *Mid-Continental Investment Co.*, 320 U.S. 661 (1944).

[17] *Steiner Sales Co.* v. *Schwartz Sales Co.*, 98 F (2) 999 (1938).

[18] See *supra,* note 1.

economic power incident to the patent makes the tying clause illegal. On the other hand, the patent may be narrow and unimportant, in which event it may confer virtually no real market power. Accordingly, where the tying product is patented, the patentee should be permitted to show that in the entire factual setting, including the scope of the patent in relation to other patented or unpatented products, the patent does not create the market power requisite to illegality of the tying clause.

"A few Committee members, however, approve the recent trend of Supreme Court opinions in this area. A monopolistic position in the market for the tying product is a prime criteria [sic] of illegality and, in his [sic] opinion, a patent which has any validity at all necessarily gives the owner market control over that product. Thus, he [sic] does not agree that a tying clause in a patent license is like a tying clause in any other contract. With this dissent, Louis B. Schwartz agrees.

[67] "On a number of occasions the Court has regarded the patent itself as involving sufficient market power to make any tying clause a violation of the antitrust law. See *United States* v. *Columbia Steel Co.*, 334 U.S. 495, 522 (1948); *Times-Picayune Pub. Co.* v. *United States*, 345 U.S. 594, 601 (1953); *International Salt Co., Inc.* v. *United States*, 322 U.S. 392, 396 (1947). Cf. Mr. Justice Frankfurter's statement in *Standard Oil of California* v. *United States*, 337 U.S. 293, 307 (1949) that '* * * A patent, moreover, although in fact there may be many competing substitutes for the patented article, is at least prima facie evidence of * * * [market] * * * control.'"

PACKAGE LICENSING

In packaging licensing, the patentee may seek to tie in subject matter from articles outside the scope of the patents he owns. In *United States* v. *Paramount Pictures, Inc.*,[19] the licensing of one block of pictures was made contingent on the licensing of another block from the distributor. However, the court stated: "We do not suggest that films may not be sold in blocks or groups, when there is no requirement, express or implied, for the purchase of more than one film." *American Securit Company* v. *Shatterproof* [20] clearly held that refusal to license a patent except with others is misuse, and it appears from the opinion on appeal that the royalty should be reduced as patents in the package expire.

The Supreme Court has held that, where royalties were computed on the basis of a licensee's total sales,[21] a package license is valid and the sale could even include unpatented items. The question of coercion was practically eliminated since royalties were based on total sales and the licensor had no difficulty convincing the licensee to take the package. The court recognized the reasonableness of using package licensing to avoid questions of infringement and bookkeeping and other practical problems arising from the increasing complexity of the arts.

Almost ten years later, the *Securit* case left unclarified points: Is it a misuse to continue to collect royalties for all patents in the package without any reduction for those that expire? How do you determine whether coercion is present? Do

[19] 334 U.S. 131 (1948).

[20] 154 F Supp. 890 (1957); 268 F (2) 769 (1959).

[21] *Automatic Radio Manufacturing Inc.* v. *Hazeltine Research Inc.*, 339 U.S. 827 (1950).

simple request and refusal suffice? Is there any consideration of reasonableness of conditions?

We can see from these questions that there still is room for interpretation of law in subsequent cases to define, clarify, and establish additional guidelines for positive competition. The subsequent interpretation of law will mark out new channels of opportunity in our enterprise system. Although some decisions criticize normal practice, most adhere to the view that the normal is also functional.

The few critical cases, like *Securit,* have been the basis for considerable professional writing. The volume and tenor of this writing may give a distorted impression of the situation which actually prevails. Specifically, they exaggerate the prevalence and consequences of the abnormal and dysfunctional behavior manifested in a relatively few cases. Witness the amount of literature on such atypical and comparatively rare cases as *Hartford-Empire,*[22] and consider also the enduring impact of such literature.

It is sometimes thought that there is a distinction between package licensing and tie-in arrangements, because the former involves only patented items that are generally related while the latter involves only unpatented items. This distinction certainly is not valid with respect to Section 3 tie-in cases of the Clayton Act,[23] for the Act there expressly states "whether patented or unpatented." Some limitation of this aspect of the tie-in rule was expressed in *Libbey-Owens-Ford Glass* v. *Sylvania Industrial Corporation.*[24] However, in this case, the licensed process and the tied patented item were in the same patent. Whether tie-in limitation or package licensing is involved, it appears that the convenience of the parties will not be considered (compare *U.S.* v. *Paramount Pictures, Inc.,* in which copyrighted films were not licensed unless other copyrighted films were accepted).

GRANT BACKS

Despite economic and other differences among block booking, "tie-in" [25] arrangements, and package licensing, the fact that the patentee seeks to derive revenue from sources other than the specific patented invention might cause the courts to treat such arrangements as in restraint of trade or outside the lawful patent monopoly. In *Transparent-Wrap Machine Corp.* v. *Stokes & Smith Co.,*[26] the classic grant back case, the Supreme Court reversed Judge Hand, who had attempted to extend by analogy a ruling to what he considered a similar situation. In this case the Supreme Court felt "that the monopoly which the licensor obtains when he acquires the improvement patents extends beyond the term of his basic patent, but . . . that is not creating by agreement a monopoly which the law otherwise would not sanction." This opinion does seem to contradict the theory of Judge Biggs in *Securit,* who stated "that that agreement shall continue 'in full force and effect to the expiration of the last to expire of any' of *Securit's* patents set out in

[22] *Hartford-Empire* v. *United States,* 322 U.S. 386 (1945).
[23] *International Business Machines Corp.* v. *U.S.,* 298 U.S. 131 (1936).
[24] *Libbey-Owens-Ford Glass* v. *Sylvania Industrial Corp.,* 154 F 2d 814 (1946).
[25] See *supra,* note 1.
[26] 329 U.S. 637 (1947).

'Schedule A' constitutes a patent misuse for it extends the payment of royalties of patents under patents which may expire to the expiration date of that patent most recently granted to *Securit.*"

It is of interest that the same Supreme Court Judge, Justice Douglas, wrote the *Mercoid* and *Transparent-Wrap* decisions, both of which involved benefits to the patentee from sources other than the patent, and that he came to opposite conclusions. The grant back restriction (*Transparent-Wrap* decision) required the licensee to assign or license all improvements on the licensed invention to the licensor. The District Court in the *Transparent-Wrap* case found for the licensor on the ground that he was trying to protect himself so that he could manufacture and sell a marketable product on expiration of the license or on default by the licensee. The opinion of Judge Hand [27] reversed the District Court largely on the basis of the *Motion Picture Patents* and *Mercoid* line of cases. Justice Douglas, writing for the Supreme Court, reversed the Court of Appeals and stated that the consideration might be "services, or cash, or the right to use another patent." Thus grant backs are not in the category of illegal per se violations.[28]

An important private benefit derived from the grant back is the incentive it offers to patentees who might otherwise fear the potential competition of licensees and refuse to license. In this respect the grant back may differ from tie-in arrangements, block booking, and package licensing, which do not promise such protection. Other than the royalties collected, there is no inducement to the patentee to license his competitor. The grant back is in effect an instrument that widens industry utilization, for it opens an avenue that might otherwise remain closed because of a reluctance of the patentee to give a competitor an "in."

The key question for these misuse violations still remains whether the patentee seeks to benefit from sources other than the patented invention as marked out by its claims. With respect to antitrust violation, Justice Douglas's dictum in *Mercoid* considered misuse an antitrust violation per se; but, in his subsequent *Transparent-Wrap* opinion, he cautioned that only grant back limitations that unreasonably restrain trade or monopolize are illegal for violation of the antitrust laws.

The preceding discussion prompts two observations that bear on positive competition. First, grant backs and package licensing are *not* per se illegal and still may provide possibilities for action that industry might wish to explore. Second, the variety of decisions described above and the differences expressed by Justice Douglas suggest that new cases may disclose new opportunities for distinction and reversal as further judicial clarification is sought in the changing economic environment.

LICENSING AS AN AVENUE OF COMPETITION

The mere fact that licensing exists may reduce the tendency to monopolize, although this probability is rarely mentioned in the literature. Licensing assures that companies which may be better equipped than the patentee to serve a market

[27] *Transparent-Wrap Machine Corp.* v. *Stokes & Smith Co.*, 156 F 2d 198 (1946).

[28] Some have distinguished between the scrutiny to be given to exclusive, as opposed to non-exclusive, license grant backs (*Attorney General's Report, supra,* pp. 228-229).

will have an opportunity to do so. It also readies a number of additional sources of supply for the period after the patent expires or in event of emergency. Thus, licensing may serve to encourage maximum volume and to dilute monopoly control.

Although multiple licenses may differ from a single license in its potential to restrain trade unreasonably,[29] there is law on the subject to deal with this contingency too, as there is with respect to "tie-in" [30] clauses, block booking, package licensing, and grant backs. Thus, existing law lights the way to acceptable practice and constructive economic behavior, and fulfills an essential mission in our enterprise system.

Positive competition affects the character and alignment of the law with respect to licensing, and the law in turn affects economic functioning. As already indicated, a reciprocal dynamic relationship exists between positive competition—between what is, what works, what actually occurs—and the law, which is the guide, a perfectible chart that helps us over the complex course of history.[31] Specifically, patent law has developed in the endeavor to foster and encourage technical advance. It serves as a guide for positive competition to the extent that it actually promotes "the progress of science and useful arts" and contributes to both the public welfare and private benefit.

POSITIVE COMPETITION AND CHALLENGED BUSINESS PRACTICE

At this point we must call attention to the failure to utilize to full advantage the possibilities for constructive interaction of positive competition and the law in the area of patent licensing and in other areas in which business practices have been challenged. A conspicuous type of failure is the resort to negotiation or consent procedures that may prejudice or compromise the future exercise of rights now clearly possessed, or now widely believed to exist. Such procedures seem particularly attractive when there is doubt or fear concerning the outcome of litigation. Although it is desirable not to burden the courts with excessive or trivial litigation and to burden the law with every small difference of opinion, it is also possible to go too far in the direction of abstinence. It is a duty of citizenship to defend challenged rights to the extent that we believe in them lest they be attenuated by default. It is the give-and-take of controversy in particular cases that helps positive competition and the law to evolve in a complementary, compatible, and functional manner—in a manner that enriches, rather than hobbles, enterprise.

A distinguished authority on the antitrust law has effectively expressed this view in a recent address:

". . . [I]t is extremely important that a corporation charged with antitrust violation it believes it is not within the settled per se violation areas, should have the fortitude to litigate the case whenever it believes that the issues involved are fairly justiciable and are significant to itself and to the industry in which it operates. . . .

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[29] *Newburgh Moire* v. *Superior Moire Co.*, 237 F 2d 283 (1956); *Tinnerman Products, Inc.* v. *George K. Garrett Co.*, 185 F Supp. 151 (1960).

[30] *See supra*, note 1.

[31] In *Navy JAG Journal*, October, 1959, Representative Carl Vinson, of Georgia, Chairman of the House Armed Services Committee stated that: "Laws are nothing more, and nothing less, than the needs and concerns of the people, expressed in words and requirements."

Complacency in avoiding litigation under the circumstances stated, or docile acceptance of hard bargains in antitrust consent settlements, will tend to create the very peril of undue interference with freedom of lawful private enterprise managerial decision-making business should at all costs strive to preserve. Remember that the ultimate safeguards against unwarranted antitrust charges are the independent courts to which the issues are submitted." [32]

Let it not be thought that this position is rooted in narrow political considerations. According to a Staff Report of the Senate Judiciary Subcommittee published on February 19, 1960, from August 1941 to January 9, 1959, patent relief was obtained in 107 judgments filed in civil antitrust cases brought by the United States Government. Ninety-four of these judgments were entered by consent. This report concludes, in part: "In short, compulsory patent licensing relief, when negotiated by consent, without prior specific judicial finding that it is appropriate relief in a particular case, may have created competitive disadvantages as well as benefits."

Implicit in the United States two-party system and the general theory of American government is a continuing contention of fairly balanced forces. Victories are regarded as reversible, and it is also recognized that majorities may be transient. The achievement of power is not to be used for the aggrandizement and crystallization of power to resist future challenge. Accordingly, it is important for our citizens and organizations to exercise rights with vigilance and diligence, to prevent a setting of unequal relationships. In particular, rights should be exercised in traditional and established forums, such as the courts, lest these prerogatives be forfeited to administrative expediency.

What has just been said applies with equal force to other processes vital to positive competition and its healthy interaction with the law. For all kinds of legislative deliberations or hearings, full debate by representative, informed, articulate spokesmen is desirable. Maximum participation, direct or indirect, in national decision-making processes provides a basis for maximum acceptance of outcomes, even though change or reversal of these outcomes may still be sought by legal means. Great damage is done to positive competition when vigorous argument is eschewed, or when it is hampered by the misuse of political power to discredit opposition.

Perhaps, we have entered a period of American history in which we shall have to rely increasingly on the courts to uphold traditional rights. Protracted international tensions create a habit of coalition between the executive and legislative branches and also encourage the rise and spread of "bipartisanship." Both developments may proceed too far and persist too long in the face of public indifference or indulgence. In such circumstances, the courts alone may be able to show the independence and objectivity required for uncompromising support of traditional rights. Ironically, it may be the "conservative" courts that protect the "liberal" fountainhead when the system of checks and balances partially breaks down, when the doctrine of the separation of powers loses sharp definition with popular acquiescence or support. Ironically, it may be the protest of "big business" in the courts that helps

[32] Address by S. Chesterfield Oppenheim, Adviser on Research to The Patent, Trademark and Copyright Foundation, before the Michigan Patent Law Association (February 1961) and the Patent Law Club of Washington (April 1961). The address will be published in the Fall 1961 issue of the *Journal*. See also *PTC J. Res. & Ed.*, Vol. 3, No. 1 (Spring 1959), p. 31.

to maintain or salvage the rights which its antagonists hazard by trustful concurrence in the aggrandizement and fusion of executive and legislative power.

Salvation by the courts cannot be guaranteed, however, nor is it automatic. The important thing for our citizenry is that court opinion evolves, that there is an interaction between positive competition and the law, that proper resort to court test contributes to the general health and tone of a democratic society. It should be recalled that, in our country as in England, the concept of "reasonableness" was developed by the judiciary. In the *Dyer* case,[33] in early fifteenth century England, restraint of trade was held illegal without reference to any subsidiary criterion. Not until the eighteenth century was the criterion of "reasonableness" explicitly introduced. Our own Sherman Act was at first interpreted by the courts as meaning exactly what it said, so that all agreements in restraint of trade were considered illegal. However, in *Standard Oil of New Jersey* v. *U.S.*,[34] Justice White proposed as a criterion "the rule of reason guided by the established law." This case also developed the per se invalidity doctrine, which has over the years appeared pertinent to many kinds of business arrangements challenged by the government. Clearly, the judicial branch is a factor that should not be overlooked by those who believe that both private and public long-term interests can be concurrently advanced.

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[33] *Dyer* Case (variant spelling *Dier*), Yearbook 2 Henry V, fol. 5, pl. 26; Maynard's edition, part 6, 2 Henry V, p. 5, pl. 26.

[34] 221 U.S. 1 (1911).

American Inventiveness v. Foreign Inventiveness*

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SUMMARY

THIS PAPER WAS PROMPTED BY THE KETTERING AWARD ADDRESS OF MR. FRANK A. HOWARD dealing with the progressive decline in per capita patent applications in the United States, despite our phenomenally increasing research and development expenditures. The author believes that a valid international comparison of inventiveness in terms of patents requires a common yardstick, such as input per patent in terms of capital, labor and also a common measure of value of output. This information is lacking.

Since the average U.S. patent today has a much greater input than it had in the past, the decline in per capita patent applications is not necessarily a measure, or even an indication of decreasing American inventiveness.

As a possible rough measure of comparative inventiveness of nations, the author compares the proportion of domestic patents of countries patented in other countries and finds that the United States ranks third.

AT THE FOURTH ANNUAL PUBLIC CONFERENCE OF THE PATENT, TRADEMARK, AND COPYRIGHT FOUNDATION, Mr. Frank A. Howard, Research Consultant and former Vice President for Research and Development of Standard Oil Company of New Jersey (now Chairman of the Sloan-Kettering Institute for Cancer Research,) in his Kettering Award Address discussed "Patents and Technical Progress." [1] Mr. Howard's presentation was a most provocative and important contribution to the meager literature on comparative inventiveness among nations. The questions raised by Mr. Howard have evoked wide interest.

*P. J. Federico, *Consultant* to the Foundation, is presently gathering annual international statistics on patent applications and issued patents from 1900 to date for further study by the Foundation. "American Inventiveness *v.* Foreign Inventiveness" explores the uses to which these statistics might be put and sets forth a guideline for a larger study based on economic input/output.

**Dr. Sanders is a member of the Foundation's Research Staff. He wishes to express his appreciation to Executive Director L. James Harris for his valuable advice and editorial assistance.

[1] Frank A. Howard, "Patents and Technical Progress," *PTC J. Res. & Ed.*, Vol. 4, 1960, *Conference No.*, pp. 57-66, and 109-110.

Mr. Howard stated that if we consider the number of patent applications filed by residents of a country as an index of its inventiveness, the United States on the basis of recent statistics,[2] falls behind a number of industrial countries with respect to patent applications filed per 1000 population. He showed that for the last 30 years, during which our population has increased by 45 percent and expenditures for research and development increased thirty-fold, the number of patent applications per year has remained essentially unchanged. In other words, there has been a marked decline in the number of patents issued per capita.[3] Mr. Howard indicated that this decline in the United States has been sharper than in other countries, but that in some countries, particularly Germany, there has been a continued increase. The Nazi regime of Germany in the forties outlawed employee contracts for the assignment of future inventions, requiring the employer to pay a fair compensation for each assigned invention. The present democratic government of West Germany has retained this innovation, and similar limitation has been enacted in other European countries.[4]

Though there is, perhaps, an intimate reciprocal relation between inventions

[2] Compiled by the Institute National de la Propriéte Industrielle Ministére de l'Industrie et du Commerce.

[3] In 1928 the author pointed this out in an article entitled "The Course of Inventions," published in the *Journal of Patent Office Society in 1936* (October) *Vol. 18, No. 10,* pp. 666-668. "If one may assume that the rate of patenting is a legitimate index of inventions, our analysis gives a death blow to the belief originated presumably with Tarde and being perpetuated by many prominent social scientists, that inventions increase in geometric progression. It shows that in the last three or four decades there has been little increase in the per capita number of patents. The only portion of the curve that at all approximates any theory of geometric progression is the segment prior to 1868 when this country was becoming industrialized. Inspection of patent series for European countries displays the same phenomenon, that is, that only in those periods when a transition from an agricultural to an industrial state of economy is taking place the increase of patents simulate a geometric series. As the initial stages of this transition are completed, the per capita patenting seems to reach a constant level, or even show some drop," pp. 681-683.

[4] We believe it not unreasonable to attribute to this incentive the continued rise of patenting in Germany, compared to the United States. The number of patent applications, however, may be affected without significant change in inventive productivity. According to MacLaurin, "For example, in the early days of the telephone industry, it was customary to pay inventors on the basis of the number of patents that they were granted during a year. This led to curious results. When some new problem demanded solution, a group of inventors in the company was brought together for a conference to discuss the broad objectives. They would then go off into their individual cells and produce as many possible answers to the problem as they could think of. In the final analysis, *they would try to split up their inventions into a host of particular patents. This proved unsatisfactory for the company, because such patents are much more difficult to sustain in the courts.* The telephone company, preferring a general solution, abandoned its practice of giving inventors a premium for the number of patents taken out and changed its policy to offering bonuses for outstanding work." p. 4. (Emphasis Added). Ruper W. MacLaurin, *The Sequence from Invention to Innovation, with Emphasis on Capital Supply and the Entreprenеur.* Conference on Quantitative Description of Technological Change, April 6-8, 1951, sponsored by the Committees of Economic Growth and on Social Implications of Atomic Energy and Technological Change of the Social Science Research Council, 1951.

See also Frederic Neumeyer, "Employees' Rights in their Inventions—a Comparison of National Laws," *International Labour Review,* Vol. LXXXIII, No. 1. Jan. 1961, pp. 36-64.

and patents, the decline in the number of patents may not necessarily signify a simultaneous decline in invention.[5] The systematic study of incentives to patent and the number of patents requires attention, however, since inventiveness is probably the most important dynamic force in economic growth and national defense.

We do not have a direct measure of inventiveness.[6] The number of patents issued cannot be utilized as a measure because the inventiveness in different patents varies widely. There is no close correlation between R & D expenditures in the United States and the number of patents resulting from these expenditures. The increasingly large national input of capital and labour per patent is shown by the figures given in Mr. Howard's address. It may be possible, however, to measure inventive *effort* in economic terms by determining the amount of capital and labor expended in invention and the effectiveness of such effort in terms of the aggregate output.

Mr. Howard points up the problem with respect to the input per patent as follows:

> . . . the normal experience for research laboratories in the oil, chemical, and electrical fields seems to be about 2½-4 man-years of such effort for each patentable invention which results. . . . In some industrial development groups where the professional personnel consists predominantly of process engineers, a representative figure seems to be about 10 man-years for each patentable invention, and the figure seems to rise to about 15 man-years in the research and development effort of the larger mass production mechanical industries, on which my data is, however, quite meager. The above figures are based upon the personnel classified as technical or professional which commonly, but not always, is restricted to scientific or engineering graduates. Each professional or technical employee must have the support of skilled and unskilled help of all categories, and this ratio varies widely, but a figure of 3 to 1 is fairly representative for research laboratory groups, and this figure can become indefinitely higher for large projects reported as "development.". . . If we refer again to Figure 3 and take the over-all national figures on expenditures for research and development and the total United States patents issuing currently, a calculation involving a number of assumptions indicates that the national average of man-years of statistically reported research and development effort underlying each patent issued to a corporation is probably now about 30.[7]

INFERRED INPUT PER PATENTED INVENTION BY AMERICAN COMPANIES

It is a reflection on the social sciences, especially economics, that in a vital area of the national economy, such as patented inventions, we have no adequate information as to input or output. This is true despite the large amount of armchair theorizing about the benefits and evils of existing patent systems by professional economists.[8] Before any appraisal can be made of our patent system and the patent

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[5] The patent system may not only be an incentive to invent, but also a unique medium for disseminating information which, in turn, may stimulate new inventions.

[6] We have both pragmatic and other evidence of the profitability of R&D expenditures. The tremendous growth of these expenditures in the United States by our most successful corporations and our government attest to this. See also the doctoral dissertation of Jora R. Minasian, *The Economics of Research and Development*, Department of Economics, University of Chicago, 1960, which demonstrates the profitability of R&D outlays.

[7] Frank A. Howard, *op. cit.*, p. 64.

[8] *An Economic Review of the Patent System.* Study of the Sub-committee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate, Eighty-fifth

systems of other industrial nations, we must be able to assess the input and output of these systems. So far no one has tackled this difficult undertaking.[9] This is the challenge presented to economists by Mr. Howard. To meet this challenge, time and effort will be required to compare the input per patent in the United States and abroad, and the productivity of these inputs. The results of such a study would certainly be worthwhile, since the knowledge gained may enable us to accelerate our inventive output.

Even though we lack reliable information with respect to input for patented inventions, we have reason to assume from data presented by Mr. Howard and from other data, that in the United States at least this input has increased very markedly in recent years. There is also some indication that the inputs per patented invention in the United States are substantially higher than that of other nations.[10] It would be instructive to gauge this increase by following the presumption made by Mr. Howard, that R&D expenditures represent in a general way inputs for patented inventions by corporations.

Since very few patented inventions can be attributed to R&D funds provided by the government,[11] only the segment of R&D expenditure by industry will be considered as input for patented inventions. This input will be related to the patented inventions that are assigned to corporations. Though erring on the high side, we shall pursue this relationship and compare our results of inputs per patent in terms of man-years with those given by Mr. Howard.

The first survey of R&D expenditures by the National Science Foundation in 1953-54, in addition to obtaining data on R&D expenditures sought information on patents owned, and patent applications pending.[12] The patent information was obtained for some 2,950 companies, not quite one-fifth of all companies engaged in R&D in 1953. These 2,950 companies accounted for 53.2 percent of all company financed R&D. Of these companies, 55 percent owned patents and had patent applications pending; 15 percent owned patents, but had no applications pending; and

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Congress, Second Session. Pursuant to S. Res. 236, Study No. 15, 1958. Professor Machlup after many pages comes to the rather futile though not innocuous, conclusion that on the basis of economic insight "if we did not have a patent system, it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it." This effect is also produced in a more recent article by Machlup in *Science* (Vol. 133, No. 3463, May 12, 1961, pp. 1463-1466). The overall impression of this document is one of hostility toward the patent system. See also *Economic Aspects of Patents and the American Patent System: A Bibliography*, Study no. 14 by the same Senate Sub-committee.

[9] Hans B. Torelli, "The Tantalizing Concept of Productivity," *The American Behavioral Scientist*, Vol. IV, No. 3, Nov. 1960, pp. 6-11.

[10] Ellis A. Johnson and Herbert E. Streiner, *Research and Development, Research Allocation, and Economic Growth*, Operations Research Office, The Johns Hopkins University, Bethesda, Md., 1960. See especially Fig. 10 showing the percentage of Gross National Product spent for Research and Development by different industrial nations.

[11] *PTC J. Res. & Ed.* Vol. 4, No. 4, (Winter 1960), Chap. VII.

[12] National Science Foundation, *Science and Engineering in American Industry Final Report on a 1953-54 Survey, N S F 56-16*, pp. 37-38, 83-85, Tables A-33 through A-35.

5 percent had pending applications, but did not own patents. Nearly 25 percent of the companies had neither patents nor patent applications. We are not informed of the share of the R&D expenditures of the 687 companies without patents. In all probability, it was much smaller than 25 percent.[13] It is quite likely that some of the funds labeled as spent for R&D may have been spent for other things. On the other hand, some inventions are made by employees not engaged in R&D, and the expenditure for these inventions represents inputs not included in the R&D aggregate.[14] In this exploratory discussion we shall assume that these two errors offset one another.

The NSF report also indicates that in their interviews with research officials of about 200 of the largest corporations, "well over three-fourths of the large companies supplying information on this point indicated that they patent a substantial proportion of their newly developed products and processes—in general everything that is patentable or worthwhile." [15]

Proceeding on the assumption that R&D represents input, the 2,950 companies reported 65,200 patent applications pending at the end of 1953. Their total R&D expenditures (funds furnished and research performed by industry) was $1.1718 billion for 1953. The bulk of the pending patent applications is the product of R&D expenditures of prior years, when R&D expenditures were smaller than for 1953. The 65,200 pending patent applications represent patent activities not for one year but for nearly 3 years.[16] On the basis of annual applications for the years 1950-1953 as related to the number of patents pending at the end of 1953, we estimate that the 65,200 patents represent cumulative applications for 2.83 years. In other words the patent application rate of these 2,950 companies per year in this time interval was about 23,000. If companies average the same number of patent applications per patent granted as the over-all average, these applications would eventually result in about 14,400 patents per year.

The mean annual number of patents issued to American corporations in the 3 years following 1953, during which these applications would have been processed and issued, was about 20,000. This means that patents issued to the 2,950 companies would represent 72 percent of all patents issued to American corporations, even though these corporations accounted for only 53.2 percent of total industry-financed and industry-performed R&D.

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[13] Jacob Perlman, *Private Industry in Scientific Research in the United States.* Paper delivered at Joint Session of the American Economic Association and the American Association for the Advancement of Science, December 26, 1960, New York, N.Y. It is observed that "almost nine-tenths of the total R&D performance was accounted for by the first three hundred companies."

[14] Perhaps some insights and know-how which facilitate the productivity of inventiveness of private enterprise comes from federal R&D funds spent by industry. If true, this may also help to offset the fact that not all the R&D expenditures reported by industry are spent for research giving rise to patentable inventions.

[15] *Ibid.*, p. 37. We may infer that the 25 percent of companies with no patents account for much less than 25 percent of R&D expenditures.

[16] Patent application for the years 1951-53 inclusive total 197,276 while the patent applications pending at the end of 1953 were 185,785. The relationship of these two figures indicates an accumulation of patents for an average of 2.83 years.

A number of possible explanations for the wide discrepancy between the proportion of R&D and the proportion of patents issued to these companies might be offered. The fact that these companies account for 72 percent of all the patents owned by corporations [17] tends to validate our estimate. Perhaps, below a critical level, expenditures for R&D seldom result in patentable inventions. Companies not likely to have patents were excluded from this National Science Foundation sample. Nevertheless, 25 percent of these reported no patents and no pending applications. The proportion of companies without patents in the remaining more than four-fifths of companies with R&D expenditures in 1953 from whom no patent information was sought would be much larger than 25 percent.[18]

It is also possible that there was some self-exclusion from the sample by corporations with comparatively few patents. Many companies with comparatively small R&D expenditures and low patenting rate, because of their number could account for a sizable fraction of the R&D expenditures reported.[19]

It is also possible that many companies, particularly new ones, carry on developmental work and report the expenditures as R&D, though they seldom file for patents. Were the R&D expenditures of the 2,950 companies related to the estimated number of patents issued to these companies, the estimated input per patent would be much lower than per patent R&D expenditures for all companies.

If we assume, on the basis of information obtained in the Patent Utilization Study conducted by The Patent, Trademark, and Copyright Foundation, that patents resulting from 1953 R&D expenditures will generally be filed in the years 1954-1955 and would be processed by 1958, the estimated patent applications would be about 41,912. The 2,950 corporations would account for about 30,000, and the rest of the industry for the remaining 12,000.

If the R&D expenditures of the 2,950 companies are related to the estimated patent applications, the maximum possible input per patent application would be $39,000. For the balance of the industry, the corresponding average would be $94,000. The overall average R&D expenditure per patent application for the entire industry would be about $55,000. Since on the average each patent issued (assigned

[17] At the end of 1953, the total number of patents issued to American corporations which were still in force was 322,789. The patents reported as owned by the 2,950 corporations totaled 233,300 or 72.3 percent of the total. These patents will be somewhat more numerous than those initially assigned to these corporations. For the proportion of subsequently assigned patents, see *PTC J. Res. & Ed.* Vol. 3, No. 3, (Fall 1959), pp. 240-247. The total number of patents owned by all corporations in 1953 may have been about 350,000, in which case the percentage of patents reported by the corporations in the NSF sample would be about 67. This would not be inconsistent with 72 percent of the new applications filed by companies with relatively large R&D expenditures in 1953 since the 2,950 corporations represent those with the most recent R&D activity.

[18] On the basis of distribution of patents it would appear that less than 5 percent of American corporations own one or more patents and the number of corporations receiving patents in a given year is perhaps much less than 1 percent. See *PTC J. Res. & Ed.* Vol. 3, No. 3, (Fall 1959), p. 235.

[19] In this connection it is important to observe the statement in NSF Survey of 1953-54: "The data obtained on this subject (patents) cover approximately 2,950 companies, not quite one-fifth of the total number engaged in R&D in 1953." *Science and Engineering in American Industry,* p. 37.

or unassigned) requires about 1.6 applications, if this overall average can be applied to corporations, the maximum possible input per patent issued to corporations would be:

Corporations in the Survey *	$ 62,000
Corporations not in the Survey	150,000
All Corporations	88,000

* Refers to companies surveyed by NSF with respect to patents. Only a sample of the smaller corporations included in the 2,950 corporations were actually circularized.

Having estimated a gross possible monetary input per patent, we can estimate input in terms of man-years. The National Science Foundation's survey for 1953 indicates that the R&D expenditure per scientist or engineer for all industry engaged in R&D was $27,000. This amount varied considerably for different industries and for companies of different sizes.[20]

The number of scientist or engineer man-years, referred to by Mr. Howard as technical and professional manpower, would average:

Corporations in the Survey *	2.3
Corporations not in the Survey	5.6
All Corporations	3.3

* Refers to corporations surveyed by NSF with respect to patents.

The figure of 3.3 for technical and professional man-years is not too far off similar figures cited by Mr. Howard for certain industries, but it is much less than his estimate for industry as a whole. Incidentally, the National Science Foundation survey shows wide variation in R&D expenditures reported by different companies and the number of patents or patent applications of these companies. This may be seen in Table I, where R&D expenditures reported are related to annual patent applications as given by the NSF survey. Expenditures for R&D in 1953 are also related to the 30,000 estimated applications and resulting patents from these expenditures.

The National Science Foundation Survey shows that in 1953-54, the ratio of engineers and scientists to non-technical supporting personnel was 1.8:1.[21] On this basis, the maximum possible input of all types of man-years per patent would be as follows:

Corporations in the Survey *	6.4
Corporations not in the Survey	15.7
All Corporations	9.2

* Refers to corporations surveyed by NSF with respect to patents.

The estimates of input which we have obtained in terms of dollars or man-years are for 1953, representing an upper limit. There has been a progressive increase [22] in R&D since 1953. Mr. Howard was speaking in terms of input per patent as of 1960. As we shall demonstrate, this could not account for the discrepancy between Mr. Howard's estimate of thirty man-years per patent and our estimate of nine man-years.

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[20] Tables A-27 and A-28, p. 80 of the National Science Foundation's survey of 1953-54.

[21] *Science and Engineering in American Industry,* 1953-1954, p. 29-31.

[22] National Science Foundation, Review of Data on R&D, No. 24, N.S.F. 60-81, December 1960.

TABLE I

RESEARCH AND DEVELOPMENT INPUT PER PATENT FILED BY DIFFERENT AMERICAN CORPORATIONS GROUPED BY SIZE AND INDUSTRY *

Industry and Size of Company	R&D Expenditures, 1953 (Millions)	Number of Patents Pending	Amount per Pending Patent	Estimated Amount per Patent		
				Filed ** per Year	Issued †	Issued ‡
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All Industries	$1,171.8	65,200	$17,972	$ 50,860.76	$ 81,377.22	$ 62,416.33
Less than 1,000 employees	146.6	12,100	12,116	34,288.28	54,861.25	42,078.58
1,000—4,999 employees	216.9	20,000	10,845	30,691.35	49,106.16	37,664.42
5,000 or more employees	808.3	33,100	24,420	69,108.60	110,573.76	84,810.07
Machinery	166.8	11,000	15,164	42,914.12	68,662.59	52,664.21
Less than 1,000 employees	36.7	4,300	8,535	24,154.05	38,646.48	29,641.85
1,000—4,999 employees	45.3	3,200	14,156	40,061.48	64,098.37	49,163.45
5,000 or more employees	84.8	3,500	24,229	68,568.07	109,708.91	84,146.73
Chemical and Allied Products	260.4	12,200	21,344	60,403.52	96,643.63	74,127.20
Less than 1,000 employees	25.7	2,300	11,174	31,622.42	50,595.87	38,807.03
1,000—4,999 employees	41.4	1,700	24,353	68,918.99	110,270.38	84,577.38
5,000 or more employees	193.3	8,200	23,573	66,711.59	106,738.54	81,868.46
Electrical Equipment	162.9	8,400	19,393	54,882.19	87,811.50	67,351.42
Less than 1,000 employees	26.7	1,700	15,706	44,447.98	71,116.77	54,546.56
1,000—4,999 employees	33.9	2,700	12,556	35,533.48	56,853.57	43,606.69
5,000 or more employees	102.3	4,000	25,575	72,377.25	115,803.60	88,821.36
Petroleum Products and Extractions	108.6	8,100	13,407	37,941.81	60,706.90	46,562.19
Less than 1,000 employees	3.0	300	10,000	28,300.00	45,280.00	34,729.76
1,000—4,999 employees	18.5	2,200	8,409	23,797.47	38,075.95	29,204.25
5,000 or more employees	87.1	5,600	15,554	44,017.82	70,428.51	54,018.67
Professional and Scientific Instruments	79.5	3,300	24,091	68,177.53	109,084.05	83,667.47
Less than 1,000 employees	20.6	1,300	15,846	44,844.18	71,750.69	55,032.78
1,000—4,999 employees	10.1	700	14,429	40,834.07	65,334.51	50,111.57
5,000 or more employees	48.8	1,300	37,538	106,232.54	169,972.06	130,368.57
All Other Industries	393.6	22,200	17,730	50,175.90	80,281.44	61,575.86
Less than 1,000 employees	33.9	2,200	15,409	43,607.47	69,771.95	53,515.09
1,000—4,999 employees	67.7	9,500	7,126	20,166.58	32,266.53	24,748.43
5,000 or more employees	292.0	10,500	27,810	78,702.30	125,923.68	96,583.46

* National Science Foundation, "Science and Engineering in American Industry, Final Report on 1953-1954 Survey," N.S.F. 56-16, Tables A-34 and A-35, pp. 84-85.
** Assumes an accumulation of pending patents filed in 2.83 years.
† Assumes 1.6 applications per patent issued in 1953.
‡ Adjusts amounts in terms of the estimated number of patents resulting from 1953 R&D expenditures.

The latest detailed survey of R&D expenditures by National Science Foundation is for 1957.[23] This survey reports the total R&D expenditure financed and performed by industry as $3.387 billion. The expenditure per engineer or scientist engaged in R&D is given as $34,300.[24] If we assume that these expenditures result in applications during 1958-59, the annual number of applications for these years would average about 78,000, of which 42,000 are estimated to be of corporate origin. This suggests an average of $81,000 per patent application, and $130,000 per patent issued. Converting these amounts into technical man-years, 3.8 man-years would be required per patent.

The 1957 National Science Foundation Survey provides no information regarding the ratio between scientist and engineers and supporting personnel.[25] If the proportion of supporting personnel has increased, a reasonable assumption,[26] then the overall estimate of man-years per patent would be at least 11.4, using a 2:1 ratio. It appears that there is a considerable increase in real input per patent between 1953 and 1957. The increase would amount to at least 25 percent if we contrast 9.2 man-years with 11.4. If we use the adjusted figure of 8.4, (see footnote 23) the increase would be 36 percent.

It would require a first-hand study of a representative sample of industries to approximate more precisely how much of the R&D expenditures go into inventing and the proportion of these inventions that are patented in different years. It appears that there has been a progressive increase in input per patent. It also appears that in terms of man-years, the increase in input is real and cannot be attributed to inflationary changes. More intensive studies, however, would be required to assess qualitative changes in the skills and training of the man-power required.

From the foregoing it is evident that the man-years per patented invention is progressively increasing. Although we do not have evidence of the factors responsible for this trend, it seems that progressively more input is required to make new inventions; or that today a patent on the average represents a larger "inventive package" (see footnote 4); or corporations might now be more selective of the types of inventions they choose to patent. There may be other ways to account for this continuing increase in input per patent.

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[23] *Funds for R&D in Industry, 1957* NSF 60-49. In this publication, NSF revises the 1953 R&D expenditures from $3.7 billion in the earlier survey to $3.4 billion. This adjustment reduces the industry-financed segment from $2.2983 billion to $2.1 billion. This would mean that in 1953 the maximum R&D input per patented invention was $80,000 instead of $88,000; the professional man-years 3 instead of 3.3; and the aggregate man-years 8.4 instead of 9.2.

[24] *Ibid.*, Table A-10, p. 84.

[25] Though the 1957 Survey fails to give the number of supporting personnel per scientist, it does report wage rates for scientists and for nontechnical personnel. A ratio derived from these was lower than that for 1953. This suggests that the 1953 ratio of 1.8:1 supporting personnel may have been too high. On the other hand if Mr. Howard is correct that in 1960 the ratio of professional persons to supporting personnel was 3:1, then an assumption of 2:1 for 1957 would seem conservative.

[26] *Science and Engineering in American Industry, Report on a 1956 Survey,* National Science Foundation, NSF 59-50 shows that in 1956 the proportion of supporting manpower to engineers and scientists was 1.8:1 (pp. 24-27). This suggests that there had been no increase since 1953, or the 1953 figures were too high.

The increase in input has been going on since the beginning of the century, and perhaps since the establishment of the patent system. Its rate might have changed in response to forces affecting inventive productivity, such as advantages of patenting.

The industry-financed R&D has increased from $2.1 billion (adjusted) in 1953 to $3.387 billion in 1957, a 61 percent increase in 4 years.[27] Were this rate to continue, the expenditure for R&D financed by industry would have been about $5.0 billion for 1960. National Science Foundation estimates place this figure at $4.5 billion in 1960. Between 1953 and 1957 the dollar increase per scientist and engineer was about 27 percent. If we assume the same rate of growth since 1957, the R&D expenditure per scientist and engineer in 1960 would be about $41,000. The probable dollar input per patentable invention resulting from 1960 R&D we estimate at $173,000. This suggests 4.2 man-years of technical manpower per patent. Assuming the ratio of supporting staff to professional as 2:1, we would have an estimated total of 12.6 man-years. If we accept the 3:1 ratio employed by Mr. Howard, the estimate of man-years per patent for 1960 approaches 17. Since, as previously discussed, not all corporations engaged in R&D take out patents, 12 to 13 [28] man-years would be more probable. Moreover, the studies of the National Science Foundation fail to support Mr. Howard's assumption of a 3:1 ratio of supporting personnel per scientist and engineer.

Our estimate of man-years per patent is lower than Mr. Howard's overall figure obtained by relating the total number of patents to total R&D expenditures. Since few patents result from government-financed R&D, we limit input estimates to funds provided and R&D performed by industry. Additionally, we consider only those patented inventions that issue to American corporations.[29]

Our analysis of the trend in the number of patent applications and the much sharper increase in R&D funds provided by the Federal government in recent years in contrast with that supplied by corporations, suggests the possibility that the rapid increase in Federal funds may have had a depressant effect on the number of patentable inventions. There is now clear evidence (see footnote 29) that comparatively few patents result from federally financed R&D compared with that financed by industry. The sharp increase in federal R&D expenditures, making more dollars available to engage the limited supply of trained inventive manpower, leads to a sharper increase in wage rates in this sector of the economy and reduces the actual inventive man-years available to industry, albeit at a higher price. More

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[27] Some of this increase is inflationary. The overall wage rates per man-year based on the Department of Commerce data show an increase of 19 percent. For the group of skilled manpower engaged in R&D, this increase could have been much larger in view of the rapid increase in Federal R&D funds competing for this limited manpower resource. Perhaps 70 percent of the increase in R&D expenditure between 1953 and 1960 is real.

[28] These lower figures reflect an average annual increase of 10 percent from 1953. This percentage makes allowance for inflationary changes due to general wage levels.

[29] *PTC J. Res. & Ed.* Vol. 4, No. 4, (Winter 1960). This study gives a high estimate of 32,000 patents resulting from government-financed R&D since 1946. My own estimate would be about 16,000. On the basis of recent figures from NSF, the total Federal R&D expenditures between 1946 to 1959 is estimated at almost twice that provided and used by industry.

important, perhaps, some of the best talent may be engaged in government financed R&D with little patentable output. The above possibilities are fraught with implications of national and international concern.

The evidence presented by Mr. Howard of the sharp increase in total R&D expenditure over a period of actual decline in per capita patent applications and patents issued, implies a progressive increase of input per patented invention. Our own analysis supports this conclusion. Since the increased input cannot be accounted for by inflationary changes, it would be erroneous to use the number of patent applications, or the number of patents issued, as an index of the economic or technical value of the inventions produced. If this is true for patents in one country, it certainly would be true for patent applications in different countries. In addition to possible wide differences in inputs per patent application, we know that there are many marked differences in incentives and deterrents for patented inventions in these different countries and differences in criteria of patentability. Thus, comparative studies of inventiveness based on per capita patent applications or patents issued of different nations may prove instructive as measuring one term in the equation of technical progress but the other terms of technical or economic value of the average invention must also be measured to have an index figure for the patent system. Perhaps after the study and appraisal of a properly selected sample of patented inventions from certain industrialized countries it may be possible to equate patent applications with equivalent economic units to assess input. Such a comparison should prove significant and help us to understand better the dynamics of inventiveness and how to put it to better use in our national effort.

POSSIBLE COMPARISON AMONG NATIONS IN PATENTING

If patent statistics are to be used as an index, it would be preferable to compare patent applications per capita filed abroad rather than patent applications per capita nationals file at home. The advantage of using foreign filed patents as a possible index of inventiveness is that it is somewhat less heterogeneous than using the number of "domestic" patents per capita.[30] Also, the per capita number filed abroad should be divided by those filed at home. Since the patents filed abroad are first filed at home, foreign filed patents are not completely free from the influence of prejudicial or favorable forces operating on domestic patenting.

By and large, the more important patented inventions are likely to be patented abroad. This qualitative selectivity is demonstrated by the Foundation's Patent Utilization Study. The proportion of used patents, especially those in current use, is much higher for U.S. inventions patented abroad. This is shown by Tables II and III.

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[30] This does not, however, entirely equate patents issued to different nationals as constant units. In using foreign filed patents, we are reducing some inequalities but in contrasting the foreign patents of nationals of one country with those of another country the patents of the particular countries compared are not themselves comparable for our purposes. For example, if we compare the foreign patents issued to German and U.S. companies we could use at least 70 percent of the foreign patents issued to nationals of these two countries since about 70 percent of such foreign patents are taken out in the sampled countries other than in the U.S. and Germany.

TABLE II

UTILIZATION STATUS AS REPORTED BY ASSIGNEES OF SAMPLED PATENTS ISSUED IN 1952, COMPARING U.S. PATENTED INVENTIONS PATENTED ABROAD WITH THOSE NOT PATENTED ABROAD[21]

Preliminary

Utilization Status as Reported by Assignee	United States Patents		
	Patented Abroad	Not Patented Abroad	Inventor Did Not Know If Patented Abroad
(1)	(2)	(3)	(4)
Number of Patents	54	67	60
Percent	100.0	100.0	100.0
In Current Use	50.0	26.9	38.3
Past Use	11.1	7.4	23.3
"Future" Use	9.3	25.4	6.7
Never Used	29.6	40.3	31.7

[21] Whether the sampled United States patent was patented abroad was asked of the inventor only. Question 34 in the Inventor Questionnaire reads: "Is your sampled invention patented in other countries? (Check) Yes —, No —, Do not know —. If 'yes' (a) List all the foreign countries in which it was patented." *PTC J. Res. & Ed.*, Vol. 1, No. 1 (June 1957), p. 107.

The utilization status reported above is based on assignee replies. The information on whether the sampled U.S. patented invention was patented abroad came from the inventor. Fifty-four of the 1952 sampled patents with assignee questionnaires were reported by the inventor to have been patented in one or more foreign countries. Sixty-seven were not patented abroad, and the inventors had no information on foreign patenting for 60.

Table III shows the utilization status of "foreign patenting" as reported by inventors for the years 1938, 1948, and 1952 combined, giving both numbers and percentages. There are marked and statistically significant differences between the sampled patented inventions patented abroad and those not patented abroad, or not known to the inventor to have been so patented. From the utilization status of these groups of patents, it appears likely that those for which the inventor had no information or failed to answer the question on "foreign patenting" were not patented abroad.

In Table III, it should be observed that the sharpest cleavage between the patented inventions reported patented abroad and the remaining group is with respect to patents in current use (compare columns 6 and 9). It will be shown in a subsequent report of the Foundation to be published in this *Journal* that patents reported in current use are by far the most valuable patents, with a mean utilization span perhaps ten times that for patents reported used in the past. On the other hand, there is strong evidence that very few patented inventions reported "to be used in the future" are actually put to use.

The evidence presented above supports our hypothesis that comparatively speaking, inventions patented abroad constitute the cream of domestic patents. By restricting the international comparison to these patents, we will be dealing with a more homogeneous population of patents and, therefore, our comparisons of relative standing of the different countries should be somewhat more meaningful.

The variation in ranking of nations in terms of per capita patent applications at home is compared with their ranking on the basis of patent applications abroad in Table IV. The basic information for this Table comes from the report of the

TABLE III

NUMBER AND PERCENTAGE OF ASSIGNED PATENTS BY UTILIZATION STATUS, COMPARING SAMPLED PATENTED INVENTIONS PATENTED ABROAD, THOSE NOT PATENTED ABROAD, AND THOSE FOR WHICH THERE WAS NO INFORMATION.

Preliminary

Utilization Status	Numbers				Percentages			
	Patented Abroad	Not Patented Abroad	Unknown or not Answered	Total not Reported Patented Abroad	Patented Abroad	Not Patented Abroad	Unknown or not Answered	Total not Reported Patented Abroad
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
In Current Use.....	89	89	83	172	52.4	35.3	33.2	34.3
Past Use	26	47	50	97	15.3	18.7	20.0	19.3
Used	115	136	133	269	67.6	54.0	53.2	53.6
Future Use	1	3	6	9	0.6	1.2	2.4	1.8
Used or About to be Used	116	139	139	278	68.2	55.2	55.6	55.4
Unknown	26	29	76	105	15.3	11.5	30.4	20.9
Never Used	28	84	35	119	16.5	33.3	14.0	23.7
Total	170	252	250	502	100.0	100.0	100.0	100.0

Institut National de la Propriété Industrielle Ministère de l'Industrie et du Commerce, the source used by Mr. Howard.

In terms of the number of patent applications filed within the country of origin, Switzerland ranks first, followed by Sweden and Germany. The United States is seventh. The number of domestic per capita patent filings in the United States is about one third that for Switzerland, and almost the same as that for Great Britain. But in terms of filings in countries other than their own (the 14 countries of the Union) Germany ranks first, followed by Great Britain and then the United States in that order. Since patents filed abroad are a fraction of the patented inventions filed at home, when these foreign filings are deflated by those at home, there are further shifts in the comparative rankings for various nations. This revised relationship (Column 10) is probably a better index of comparative inventiveness than that based on patent applications filed at home (Column 2). On this basis, Britain ranks first, followed by Germany and the United States, with relatively little difference between the latter two countries.

There is no reason to assume that the Column 10 ranking is a reliable measure of comparative inventiveness of these nations. This ranking is perhaps closer to the truth than ranking based on patent applications filed in the home countries of these nationals.[82] Since inventions are the most dynamic contributors to economic productivity, and U.S. productivity is unrivaled, it is reasonable to assume that today (or some time in the recent past) the United States lead other nations. The time gap between ideas and their embodiment into productive knowledge requires some years. It may be, therefore, that we are no longer in the lead in inventing.

[82] Certain segments of the American population who contribute little to inventiveness should be excluded to better equate per capita patenting in the United States with certain other highly industrialized European countries. Quite different results would be obtained if we compared the patent productivity of our most industrialized states with these nations. The more appropriate approach to assess the relative inventiveness of different nations would be to compare patents in terms of their input and output, as we indicated earlier.

TABLE IV

COMPARATIVE RANKING OF NATIONALS OF DIFFERENT COUNTRIES * ON THE BASIS OF NUMBER OF PATENT APPLICATIONS FILED PER 100,000 POPULATION IN THEIR OWN COUNTRY AND IN SELECTED COUNTRIES OTHER THAN THEIR OWN, AND ALSO THE RATIO OF FOREIGN FILINGS TO DOMESTIC FILINGS, AVERAGE ANNUAL PATENT APPLICATIONS—1950-1954—INCONCLUSIVE

	Patent Application Filings in Own Country per 100,000 Population			Patent Application Filings in Other Countries per 100,000 Population				Relative Rate of Patents Filed Abroad		
Country	Number **	Rank	Comparative Index	Number †	Number ‡	Rank	Comparative Index	Percent	Rank	Comparative Index
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
United States	43.0	7	32	37,700	23.79	3	52	55.3	3	62
Germany	76.0	3	56	22,300	45.74	1	100	60.2	2	67
Great Britain	44.0	6	32	20,000	39.39	2	86	89.4	1	100
France	40.0	8	29	10,500	2.47	9	5	6.2	11	7
Japan	26.0	10	19	300	0.03	14	0	0.0	13	0
Canada	9.8	13	7	2,000	1.36	11	3	13.9	6	16
Italy	22.0	12	16	3,400	0.72	13	2	3.3	12	4
Switzerland	136.0	1	100	10,700	22.13	4	48	16.3	5	18
Sweden	84.0	2	62	5,800	8.12	5	18	9.7	7	11
Belgium	25.0	11	18	2,100	2.40	10	5	9.6	8	11
Netherlands	28.0	9	21	7,500	7.19	6	16	25.7	4	29
Australia	—	—	—	800	0.92	12	2	—	—	—
Denmark	45.0	5	33	1,500	3.45	7	8	7.7	9	9
Norway	49.0	4	36	1,100	3.29	8	7	6.7	10	8

* The countries considered are those belonging to the International Bureau for the Protection of Industrial Property.
** These numbers were read from Chart IV of the Institut National de la Propriété Industrielle Ministère de l'Industrie et du Commerce.
† These numbers were read from Chart VIII, Figure 15 of the Institut National de la Propriété Industrielle Ministère de l'Industrie et du Commerce.
‡ Population figures were taken from the Statistical Abstract of the United States for 1957, (pp. 937-938, Table no. 1172) they represent the midpoints for estimates given for mid-1950 and mid-1955.

Since our future position in the international race for power and prestige will be determined largely by our relative inventiveness, a close scrutiny of comparative inventiveness is of primary importance. An international comparative study of patents is needed, exploring resources going into goods and services flowing from the utilization of patented inventions. The patent utilization study provides a pattern for such research. The extension and fuller development of an international study should cast light on the comparative inventiveness of different countries. Moreover, it may help to appraise the factors which stimulate or inhibit inventiveness (e.g., inventor awards, innovation, capital availability, etc.). The use of such insights for national and international betterment should enable us to accelerate our economic growth and development, and that of other democratic nations.

In an interim report, we presented the limited information obtained from the Patent Utilization Study on costs of patented inventions (input) and net profits realized from them (output).[83] The evidence, though slender because of incomplete returns and our inability to vouch for the soundness of the cost accounting, nevertheless seemed startling. It appears worthwhile to pursue this type of evidence with sufficient resources to obtain more reliable answers. The nation which is first to find the answers and put them to use should lead in the arena of international competition.

TABLE V

NUMBER AND PERCENTAGE DISTRIBUTION OF ASSIGNED PATENTS BY YEAR OF ISSUE, DEMONSTRATING PROGRESSIVE INCREASE IN THE PROPORTION OF PATENTS WITH TWO OR MORE INVENTORS WITH YEAR OF ISSUE.

Preliminary

Year of Issue of Sampled Patent	Patents With: One Inventor		Two Inventors		Three or more Inventors		Totals: Patents	Inventors	Mean Number of Inventors per Patent
	No.	%	No.	%	No.	%	No.	No.	No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1938.....	385	88.1	50	11.4	2	0.5	437	491	1.124
1948.....	229	79.5	49	17.0	10	3.5	288	359	1.246
1952.....	380	76.8	100	20.2	15	3.0	495	627	1.287

Despite the limited and exploratory nature of the Patent Utilization Study, an analysis of some of its elements [84] demonstrates the inappropriateness of patent

[83] *PTC J. Res. & Ed.* "The Economic Impact of Patents," Vol. 2, No. 3, (Sept. 1958), pp. 353-358, showing the dollar expenditures and net gains reported for sample patents. An alternate approach would be the study of overall expenditures for R&D of selected corporations and the eventual returns related to patented inventions. In such an analysis, inputs in terms of labor of varying qualification may be more easily susceptible to measurement than expenditures and profits. The latter are often held more confidential than information on manpower.

[84] One of the elements is the time lapse from the conception of an idea to its development to a stage where it is ready for patent application (man-years of input). Another is the time patented inventions are put into commercial use in relation to date of application for patent. There is a direct relation between the use of the invention prior to application and the number of patent applications filed. Another important economic aspect is the varying periods patented inventions remain in commercial use.

statistics per se as a measure of inventiveness. The study also accounts in some measure for the per capita decline in patent applications. We find in the Patent Utilization Study a significant increase over time in patents with multiple inventors. These results for assigned patents in our sample are summarized in Table V. A progressive increase in the proportion of patents with two or more inventors reflects the consequences of progressive specialization and the increased inventive time input per patent. Evidence of the wide disparity of patents and changes in patent practices which may underlie the apparent decline in the per capita number of American patents will be explored in greater detail in a report which will appear in a subsequent issue of this *Journal.*

A Brief Look at Foreign Licensing by European Companies

J. N. BEHRMAN, Principal Investigator *

SUMMARY

THE PROBLEMS OF LICENSING IN MAJOR AREAS OF THE WORLD are treated in a series of articles being prepared by the Foundation. This is the first report on what is being done within the Common Market by European companies and on emerging problems in unifying the patent and trademark systems and the anti-monopoly laws of the separate countries. The particular contribution of this article is its assessment of the motives and attitudes of the European country in licensing both in Europe and other countries. While a quantitative assessment cannot now be made of the European scene similar to Foundation analyses of U.S. licensing abroad, some data are available and future quantitative studies seem feasible.

AS PART OF ITS PROGRAM OF INVESTIGATION OF U.S. FOREIGN LICENSING, the Foundation has recently published a study of the flow of licensed rights from foreign companies into the United States. During a recent trip to Europe, the author took the opportunity to talk with a number of persons interested in licensing so as to compare policies of European companies with those of their U.S. counterparts. The developments of the Common Market make predictions uncertain, but a general picture of the situation is discernible. Caution is in order in generalizing, however, for not only do the normal difficulties of aggregating small and large companies and different companies exist, but it must be recognized that there is no such thing as a "European company" as distinct from one that exists and operates under national laws.

Where specific information on a given industry or size of company was obtainable, this is noted. Otherwise, the description relies more on the "general impressions" of a number of different people in different countries of Europe, including the United Kingdom. Even so, it was surprising to discover an extensive agreement as to licensing policies as was shown by those interviewed. No attempt was made, because of the short time available, to make a quantitative analysis as has

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been done by the Foundation in its many studies. It was found, however, that such a study might well be done through interviews, despite the qualms of some that European businessmen would be reluctant to talk of policies and procedures. The changes stimulated by the Common Market make such a study highly desirable as the base for appropriate public policy both here and abroad.

IMPACT OF THE COMMON MARKET

The rapid growth of licensing from the U.S. into Europe, the stimulus to European research and development activities, and the more recent potential expansion of the market within Europe have combined to encourage recent consideration by European companies of the technique of licensing. Most companies have been thoroughly familiar with licensing in the domestic market of their countries and some have licensed in other European countries and overseas. But recent developments have caused a new interest to arise. The interest takes different forms and directions depending on the industry and size of company concerned. The remaining reluctance stems from expected developments in antitrust regulations and in the area of unification of the patent and trademark laws.

Patent and Trademark Laws

The long-run impact of the Common Market, presuming that there is in fact a close economic integration of the countries, will undoubtedly result in harmonization of the patent and trademark laws of the Six. But there are strong impediments to a rapid unification. In the first place, the Six are already members of the Berne Union, which permits ready filing in several countries simultaneously and provides some similarity of treatment. Thus, pressure for a European patent or trademark is somewhat relieved. In addition, the national laws of each country are firmly supported by the groups interested—the inventing company, the government, and the public—making fundamental changes difficult through a basic reluctance or lack of interest in change on the part of any major group involved.

Another major difficulty is the degree to which the legal systems differ. The ease of obtaining a patent in France is much greater than in Germany or the United Kingdom, and Italy does not have patent protection for pharmaceuticals while others do. Differences exist also in the treatment of trademarks and the degree of court protection given them. These differences may not have been so important when trade was the major means of commercial exploitation of a market, but when licensing expands, the nature of the rights extended and their protection are significantly altered by the patent and trademark systems. For example, the lack of protection of pharmaceuticals in Italy has dampened licensing in the country through pirating of developments by Italian companies. This makes many desirable drugs either unavailable (kept through secrecy) or available in poorer quality—a result no longer desired by the Italian government at least.

Pressure to bring the systems into line will arise, in the long run, from the gradual reduction of commercial barriers imposed by the six governments. Once these barriers are removed, the private barriers to trade will become relatively more im-

portant. Greater attention will then be paid to the means by which technical improvements are transmitted from one economy to another within the Common Market. The form of such harmonization is not currently predictable.[1]

Antitrust Considerations

Articles 85 and 86 of the Rome Treaty prohibit decisions or agreements which directly or indirectly fix prices and other trade conditions among companies within the Common Market; which limit or control production, markets, technical developments or investment; which divide or share markets or supply sources; which discriminate between parties in equal transactions; or which require tie-in sales or arrangements. A general exception to this prohibition is offered in some cases, notably those involving "concerted practices which contribute to the improvement of the production or distribution of goods or to the promotion of technical or economic progress while reserving to users an equitable share of the profit resulting therefrom."

The Articles explicitly refer to agreements within the Common Market and would seem, therefore, to exclude agreements only between a company in the European Economic Community (EEC) and one outside, but the question has not been determined. Nor is it clear whether an agreement between an EEC firm and an outsider which related to business within EEC would be covered by the Articles.

More specifically with reference to licensing, the first regulations of EEC under the Articles explicitly exclude from the requirement of notifying the EEC of relevant agreements any agreement which is only between two companies and which has as its only effect one of the following:

> "imposition of limitations on the acquirer or user of patents, designs, and models or trademarks in the exercise of those rights";
>
> "requirement that a supplier furnish certain goods exclusively to one client";
>
> "requirement that a client buy certain goods exclusively from one supplier."

It would seem, therefore, that restraints such as price fixing or requirements of purchases of raw materials or components from the licensor would be permissible and licensing agreements in general, other than those extending only know-how, would not be covered by the Articles.

The place of a know-how agreement is uncertain but could be exempted under the overall clause excepting those agreements which promote "technical or economic progress." Although the European business community is striving to make certain that all licenses are excluded from the regulations under Articles 85 and 86, it is not at all certain that they will succeed. The uncertainty may be a current impediment to the growth of licensing with the Common Market, but other factors are also at work to alter licensing policies.

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[1] Stephen Ladas has assayed some predictions in *American Enterprise in the European Common Market* (reviewed in *PTC J. Res. & Ed.*, Vol. 5, No. 1 (Spring 1961), pp. 84-87).

Trends in Common Market Licensing

The widening of the market in the Six and the opening of commercial opportunities through growth and lower trade barriers will alter the relative advantages of licensing versus export or investment. The movement will not be all one way, however. It seems the general view that licensing by one company to another within the Common Market will be less interesting to the larger companies; they will be able to expand direct sales to meet the growing demands within the EEC. In many cases, this is not true of industries whose members have a general practice of transmittal of industrial information to enable all to produce competitive items. In these, licensing will continue, permitting growth of all firms. But, with closer attention to the Common Market, less attention may be possible in overseas markets, and with rising competition licensing may become desirable abroad. This is especially so compared to investment which may not be possible for lack of capital for export.

In fact, within the Common Market, European companies appear to be getting more interested in joint ventures—not only among themselves but with U.S. and other companies. A stimulus to these associations arises from the inducements offered by the countries trying to relieve distressed areas (France, Italy, Belgium). The benefits in lower taxes, low interest rates, ready facilities and labor supply, and the possibility of sharing risks and the drain on scarce personnel make such ventures quite attractive. Licensing may, therefore, become closely tied to investment among companies within the Common Market.

The smaller European companies have neither the capital nor manpower to contribute to joint ventures. Thus, within the Common Market, it is expected that they will seek licensees to profit from their developments. The growth of the local market will bring conditions similar to those within the United States which have led to a considerable volume of domestic licensing between small and large companies and among smaller ones.

The inducements to licensing and investment within the Common Market are also available to the United Kingdom and the United States. The movement of U.S. companies has been documented in this *Journal* and in statistics of the Department of Commerce. The movement of British industry has been noticed but not carefully studied. It is the impression of some observers that United Kingdom companies are becoming equally interested in licensing and investing in the Common Market, partly on the grounds of tariff and trade differentials, but also for the longer run (even if a "bridge" is built from EFTA [2] to the Common Market) on the ground that cost differentials will remain for a sufficient length of time and the long-run growth of the market in continental Europe warrants independent producers in that market.

CORPORATE ORGANIZATION FOR LICENSING

In U.S. companies, the foreign licensing operations are most frequently in the hands of the office in charge of foreign business (exports or investment) or under

[2] European Free Trade Association.

the legal department. In Europe, since the companies have long been in foreign operations—i.e., at least those within Europe—there is not such a sharp distinction between domestic business and foreign business, and foreign licensing is usually under the control of the official handling domestic licensing. While there may be a separation of international functions from domestic in a few of the very large companies, in the main, European corporations are a few years behind the developments in the United States. There is no general movement to establish international departments or corporations and to train personnel specifically for that responsibility.

The medium-sized European company is frequently family-owned and tightly controlled within; it is less likely to be interested in licensing and will not readily assign personnel to push this activity. There is, apparently, a basic lethargy on the part of the small and medium-sized European company; even if there is some interest aroused, there is an absence of initiative. While many of these companies are interested in obtaining licenses from abroad, especially the U.S., they are not so concerned to disseminate their own developments. This attitude is evidenced in negotiations on licensing arrangements. There is often an unwillingness to divulge sufficient information to a potential licensee to induce him to undertake the agreement. Small and medium-sized European companies are apparently fearful of being "taken" by the U.S. licensee.

The small and medium-sized European company is also handicapped in licensing by the fact that many do not have patents to license nor a trademark asset worth much. The lack of capital with which to enter a joint venture under which licensing might be important is also a deterrent. In addition, companies which might be potential licensees often tend to discount the value of any assets *offered* them under a license; this puts the small company at a disadvantage even if it has a good development. This weakness is being slowly remedied by the formation of a number of consulting firms offering promotional services in licensing.

Another feature distinguishes the company pattern in Europe from that of the U.S. companies, i.e., the closer ties among many European companies of different national situs. The ties may be either through family, interlocking directorates, marketing agreements, or other reasons; they form the basis for cooperation in other matters as well. The fact that these companies will license each other, and exclude others, means that the opportunity to receive or extend licenses may be limited.

Some ties between European companies are formed under the "technical exchange agreement" which is not a license but an arrangement to exchange information on developments and an offer of first refusal of a license to the other party. Its existence tends to preclude others not party to the agreement from entering certain important fields of production. Any one European company may have several such agreements with different companies, not usually in the same field, however.

Neither U.S. licensors nor licensees seldom have such broad "fishing" agreements, and the pattern of licensing and search for developments is more open. Still, a few U.S. companies in the pharmaceutical field have such agreements with European companies, and one such arrangement was reported between Republic Steel and Colvilles in the United Kingdom as the first of its kind between British and

American steel concerns. The official statement indicates the nature of the agreement: ". . . under the agreement technical information and experience about special processes which either company possesses or controls can be exchanged for the purpose of using such knowledge to improve and develop either company's steel products. The agreement also opens the way for the use under license by either company of patents and trademarks belonging to the other, and for the exchange of advice, assistance, and information in the exploitation and marketing. . . ." (*Financial Times,* London, Feb. 3, 1961.)

PATENT AND TRADEMARK POLICIES

The policies of European companies in obtaining foreign patent and trademark rights are similar to those of U.S. companies which have no substantial interest in licensing. They are more concerned over protection of the export market than the possibility of licensing. There are apparently few if any companies which have altered their policies on trademark registration and patent filing abroad because of the possibility of licensing.

Further, there seems to be less attention paid to foreign trademark registration by European companies than by their U.S. counterparts. This is partly a result of the lack of funds to equal or surpass the intensive advertising campaigns which U.S. companies base on trademarks. European companies tend to hold trademarks within the other continental countries and frequently in the British Commonwealth, but elsewhere only if there is a fairly certain market. Thus, a U.S. company will register in Europe, but the European company does not register as readily in the U.S., reserving its registrations for important export markets.

Patenting abroad is done more systematically, but again dictated by the desire to protect the foreign market for exports or production by associated companies. The countries in which patenting is done are mainly those in which the market is substantial, which also happen to be those in which patent regulations are most stringent—Germany, the United Kingdom, and the United States. European companies seem to file in fewer foreign countries than do U.S. corporations—they seldom filed in more than six countries abroad compared to an average of six countries recorded for a sample of U.S. companies in an earlier study by the Foundation (J. N. Behrman and W. E. Schmidt, "New Data on Foreign Licensing," *PTC J. Res. & Ed.,* Vol. 3, No. 4 (Winter 1959), pp. 357-388).

A study by the French Ministry of Industry and Commerce provides aggregate and country data for 1957 showing that foreign filings in the United States amounted to 14,000, with 16,000 in France and Germany separately (30 percent of each was from the United States), and 18,000 in the United Kingdom (40 percent of which was from the United States). Italy dropped to 11,000 (30 percent from the United States), with Belgium, Switzerland and others at 8,000 or below. ("La protection des inventions en france et a l'etranger," Paris, 1960, Tableau A.) The lower figure on foreign-source patents in the United States results from the fact that the United States is the largest single source of patent "imports" in European countries. If the U.S. is removed from all data, the results show that it is one of the first countries chosen by Europeans. France, in 1957 filed more

patents in Germany and the United Kingdom than in the United States, but Britain filed considerably more in the U.S., followed by Germany and then France. Germany, on the other hand, filed more in France, followed closely by the United Kingdom with the U.S. at some distance. Switzerland is the fourth country for Germany but is further down the list for Britain and France.

Part of the reason for the lower level of filings in the U.S. by France, Germany, Italy, Switzerland, the Netherlands, and other European countries is, of course, that there is a high level of intra-European trade. But of some importance also is the fact that the cost of litigation in the United States, especially high when carried on across the ocean, militates against attempting to defend against a patent or infringement suit. If the patent cannot be cheaply and readily defended in the courts, the advantage of having it is lessened in the eyes of some Europeans. Not having the patent, the opportunity to license in the country is reduced.

In both the U.S. and Europe, patent policy of the most active licensing companies is being reexamined, particularly with a view to the growing markets in the Common Market itself and less developed countries. Although it is difficult to establish patent and trademark positions once the initial filings have been secured, many are looking more closely at the desirability of establishing broader and sounder positions from which they may better exploit the markets either through export licensing or direct investment.

MOTIVES TO LICENSE

The Foundation's studies on U.S. foreign licensing developed substantial data on the motives to license. Efforts were made to uncover similar motives by European companies. Though no sampling was possible on a statistical basis, it is clear that motives similar to those of U.S. companies have arisen only recently for European companies.

European companies, like their U.S. counterparts, prefer first to export, then to invest directly, and last, to license. Some of the U.S. companies have used licensing, however, to test the foreign market; whereas most European companies have already tested the markets through exports and investment is the next step if exports are cut off for any reason. The United Kingdom is an exception; the reasons for a United Kingdom company to license in the Common Market are similar to those of U.S. companies. With exports likely to be reduced through greater competition and differentially high trade barriers, either investment or licensing is required. If the former, licensing frequently accompanies the investment; if there are insufficient capital funds, licensing is a suitable alternative. But the preference for export is still so strong in the United Kingdom as a result of the postwar drive to right the balance of payments that the small and medium-sized companies simply are not licensing abroad to any significant extent. Estimates were obtained that probably only 100 of the largest United Kingdom companies have any significant licensing; the low figure is partly accounted for by the fact that many of the largest United Kingdom companies are U.S. subsidiaries; these are given no rights to license, though they are often encouraged to export.

The attitude toward licensing on the part of both United Kingdom and European companies has been dominantly that of a potential licensee—eager to obtain know-how and proprietary rights, which would enable them to export, but not eager to create a competitor for themselves by extending such rights. Only recently, however, has the U.S. attitude that the licensor can and should keep ahead of the licensee been adopted by some European companies and licensing programs been created. Even so, licensing apparently remains a third-best approach and is usually coupled with direct investment.

The attitude of potential licensors which downgrades this technique has forced the initiative in negotiations on the licensee. The licensee is more likely to approach a large company than to ferret out the developments of a small or medium-sized company, unless knowledge of developments arises from some fortuitous circumstance or normal commercial dealings. There seems to be no movement on the part of smaller companies to develop licensing policies within the Common Market, despite the high potentials.

The more active interest of some of the larger companies is a result of the fact that many of the older corporate ties were broken by the war, and licensing provides a means of re-establishing these associations. In particular industries, licensing is the means of providing each company with the ability to compete in the market. No company wants to be left out by the discovery of some new item or process; thus, all license one another on a non-exclusive basis, permitting all to bid on government or large contracts. Without such licensing, the future of a company would depend on possibly fortuitous developments rather than on economic efficiency.

One marked difference between the stimuli to licensing between U.S. and European companies has been the fact that under NATO arrangements, the U.S. companies have been induced to license Europeans, but the Europeans have only infrequently licensed American companies. The pattern has been set in favor of U.S. licensing. Also, the larger outflow of U.S. capital investment has carried with it the necessity of suppliers of the U.S. investors to license foreign companies to make the accessory or component needed by the U.S. foreign subsidiary; in time, this same motive may increase European licensing abroad.

EXTENT AND TYPES OF LICENSING

The assets licensed under European agreements are apparently different from those licensed by U.S. companies mainly in that the licensing of trademarks is insignificant among Europeans. U.S. companies tend to spend much more on advertising and building the trademark reputation, and thus they have something of value to license. The European spends relatively less and is much more wary of letting anyone else have custody of the mark even under license. Although the U.S. and European licensor face precisely the same legal difficulties in the Common Market with reference to different trademark laws, the former is more enterprising than the latter in this regard.

With the qualification, again, that generalization is inaccurate when speaking of Europe rather than as individual countries or industries within countries, a few

descriptive snapshots may be tentatively offered on the extent of licensing. It should be borne in mind, however, that the most active industries in licensing are chemical and pharmaceutical, electric and electronic, and the machinery and automotive groups. Observations therefore rest heavily on information relating to activities by these industries.

Know-how is reportedly the most important asset licensed by the United Kingdom in the Commonwealth countries, but it has been frequently licensed along with patents. Though the patents may not have much value, they provide legal protection and are desired by licensees. However, on the Continent, it appears that the patents themselves are more important in some industries than know-how. The difference lies in the fact that among some industries, e. g., electronic, the various companies licensing each other are at approximately the same level of technical competence. They need only the legal right to produce generally. Contrarily, when a European company is licensing in the less developed regions of Europe or in South America, the know-how extended appears more important, for the licensee requires considerable instruction in how to produce the items.

Apparently European companies also rely more heavily on cross-licensing than do U.S. companies. They are more willing to extend rights to existing patents and know-how in exchange for that of the licensee than are their U.S. counterparts. Possibly because of a greater difference in technical levels of production or an unjustifiable feeling of superiority, U.S. companies do not want to have a future, highly profitable development tied up in an existing license; nor have they felt that existing assets of licensees could compensate for the rights they were extending. European companies, on the other hand, have engaged in a significant number of patent pools and licensing agreements that tie up the rights to future developments in a given field. These are frequently related to the cartel arrangements which remain within Europe, and which are being redeveloped in the Common Market. Licensing by European companies of their own subsidiaries is also a common practice, as by their U.S. counterparts; a formal agreement is written for both legal and tax justifications. These subsidiaries may also use the trademarks of the parent company, but licenses so permitting are apparently less frequent. Subsidiaries are sometimes permitted to sublicense the assets—a practice not frequently employed by U.S. parent companies.

DIRECTION OF LICENSING

The nature and extent of licensing is also tied up with the direction of licensing—i.e., the geographic location of recipients. While there is no study which provides a statistical analysis of the direction of flow, the study made by the United States Department of Commerce gives some feeling for the nature of the inflow into the United States from Europe, both in volume of royalties received and industrial categories.[8] The general impression gained from talking with a few European officials is that there is a substantial amount of licensing directed within Continental

[8] See Comment in "U.S. Companies As Licensees Under Foreign-Owned Patents, Trademarks, and Know-How,", *PTC J. Res. & Ed.*, Vol. 5, No. 1 (Spring 1961), p. 24.

Europe and an additional important outflow to the British Commonwealth, including the United Kingdom. There has been a continuing small outflow to South America, but no real spurt of activity; licensing to Japan has expanded within the past decade. Increasing attention is being paid to the United States as a market into which exports are difficult, capital sums required are large, and licensing provides an adequate alternative to either. But, to date, the volume of licensing to the U.S. is not large relative to the flow from the United States into Europe—probably a ratio of one to ten.

Licensing by the United Kingdom abroad is apparently almost wholly to the Commonwealth and Europe, with a gradually increasing volume in the United States. Interest in licensing into the U.S. by small companies especially has been deterred by general fear of risking too much in so large a market. The same fear does not seem to exist for German companies, who are becoming interested faster than other European producers. German industrial activity is also the reason why United Kingdom companies seem first to consider German companies as potential licensees; the Germans have a reputation for drive and greater efforts at research and development which might put the licensed assets to good use or improve on them.

The United Kingdom has quite recently turned special attention to licensing in the Common Market. Without sufficient capital to build new plants or to buy into existing continental companies, and with a growing feeling that the Common Market will contain companies producing at costs lower than can be achieved in the United Kingdom, several of the major companies are turning to licensing. It is, of course, only within the past five years or so that the United Kingdom was able to consider or become interested in foreign operations other than export. The U.S. is still viewed as a difficult market to enter—while Canada, Australia, and South Africa remain enticing for exports and some licensing. Licensing is also beginning in India. Spain's nationalistic legislation may lead to licensing in that country. The movement into Scandinavia under licensing is comparatively slow, not stagnant.

It has been observed on occasion that European companies are freer to license into the Iron Curtain countries than their U.S. counterparts. European companies have certainly received invitations from the Soviet agencies for the purchase of several hundred items of some equipment if know-how and patent rights were also extended under license. While United Kingdom companies are permitted to license rights related to non-military items, the negotiations with Russians have generally led quickly to a whittling down of the purchase offer to the point where the package is unattractive. Negotiations tend to drag on indefinitely until the United Kingdom or European party becomes uninterested. Although there have been such licenses concluded, they are apparently quite few in number.

Scant statistical data are available to provide more precise clues as to the geographic direction of licensing, but some figures provided by the United Kingdom Board of Trade for 1959 on licensing royalties along with management fees, head office expenses, technical service charges are at least relevant to the question. The data relate to charges for services rendered by United Kingdom companies on behalf of their overseas subsidiaries and associates (thus excluding independent

licenses, apparently) and by foreign companies on behalf of their U.S. subsidiaries and associates. The data give only *net* debit positions between the parent company and subsidiary or associate; gross movements or charges are not provided, nor are net credit positions with other companies subtracted (credits would reflect net services extended the parent by the subsidiary or associate, but it is presumed that little of this, if any, would be licensing). The United Kingdom is a debtor on these accounts, and predominantly to the U.S., but in Europe, Switzerland and the Netherlands are most important. The greatest outward flow of such services and assets is to the Sterling Area, then Europe, and finally, the United States.

Area and Country	Net Debits by U.K. Companies	Net Debits by Foreign Companies
	(*In Thousands of Pounds*)	
U.S.A.	1667	12,359
Canada	687	477
Latin America	514	4
Western Europe	2403	7123
France & dependencies	513	815
West Germany	455	766
Belgium & dependencies	213	109
Netherlands & dependencies	152	2041
Switzerland	30	2315
Other Non-Sterling Areas	488	—
Sterling Area	6337	47
Australia	1640	—
South Africa	1024	—
India	952	—
Total—All Areas	12,096	20,241

Source: Board of Trade, Statistics Division.

The flow from continental Europe to other countries within Europe and to the United States should shift in favor of the latter as trade expands within Europe and as research efforts increase and U.S. companies wake up to the developments made by European companies. Also, some European companies in industries such as pharmaceuticals and electronics and aeronautics find it impossible to get into the U.S. market other than by licensing. Since they do not have enough capital to begin production, and competition is generally rather stiff, licensing is a good alternative.

The major direction of German licensing seems to be first to the United States, if possible, then to the United Kingdom, and only later to Latin America, with Japan just beginning to be of interest. Relative inattention to Latin America arises from the distaste for the World War II expropriation of German properties and rights, and the slowness in Japan results from inadequate patent protection in the eyes of some German companies.

Only France has made a statistical study of the direction and volume of licensing, and this in connection with an examination of the direction of foreign patenting. Although know-how assets were undoubtedly included in the licenses reported on, royalties were recorded only for those in which patents were licensed. A compilation was made of the payments to and by France under licenses covering patents, showing that the largest returns were from licensees in the United States (mostly pharmaceutical companies), followed at some distance by Great Britain, Italy, Germany, Belgium-Luxembourg, and Spain. Almost no licensing was shown for Latin America and other less developed regions. A small amount in Czechoslovakia represented the only licensing behind the Iron Curtain. Data are as follows:

PAYMENTS AND RECEIPTS UNDER LICENSE AGREEMENTS

(Millions of Francs)

Countries	1957		1958		1959	
	Receipts	Payments	Receipts	Payments	Receipts	Payments
U.S.A.	3,149,020	13,007,260	4,428,480	15,587,460	5,939,331	17,069,529
Other non-sterling area	32,690	205,590	33,600	118,440	34,559	318,443
Great Britain	1,678,348	2,677,752	2,433,144	3,303,384	2,895,290	3,929,026
Sterling Area	212,072	20,171	22,344	22,344	33,168	22,112
Germany	1,185,441	1,480,001	1,337,700	2,087,400	1,725,398	2,526,031
Austria	79,931	80,709	70,107	112,081	59,970	113,598
Canada	180,310	101,835	148,482	276,816	216,645	705,990
Denmark	28,383	220,549	43,229	181,853	59,685	296,856
Egypt	—	—	—	8,442	—	53,410
Spain	487,593	30,045	666,975	46,369	1,091,783	53,658
Finland	57,025	2,006	37,098	2,984	35,437	6,003
Greece	19,785	4,146	31,759	5,536	45,744	8,899
Italy	1,418,224	576,199	1,461,236	725,771	2,711,987	1,535,718
Japan	113,930	32,757	266,879	15,912	337,239	9,413
Norway	82,868	78,302	97,608	41,571	157,317	74,304
Netherlands	327,779	787,367	523,027	907,340	492,916	1,575,799
Portugal	18,249	6,499	77,424	8,585	129,135	20,535
Sweden	234,614	544,940	214,341	630,440	225,238	515,853
Switzerland	436,441	6,069,779	606,624	6,991,776	894,732	7,844,743
Czechoslovakia	18,383	5,346	23,973	7,408	20,708	4,868
Turkey	12,689	4,228	6,644	6,943	—	6,097
Belgium	780,242	1,243,417	1,039,021	1,133,439	1,373,726	1,048,253
Yugoslavia	362	1,419	200	2,060	27,439	1,296
Total	10,554,379	27,180,317	13,569,895	32,224,394	18,507,447	37,740,434

Source: Ministère De L'Industrie—Institut National De La Propriété Industrielle, "La protection des inventions en france et a l'étranger," Paris 1960.

France is a net licensee in its balance of payments on the order of 2:1 according to this tabulation for 1959. She is in the position of a net licensor, by value, with 10 of the 23 countries listed. Her deficit position is especially large with the U.S. and Switzerland; the ratio is strongly against her also with Canada, the Netherlands, and Denmark. She serves Italy and Spain, the less-developed countries in Europe, with considerably more than she gains from them. She also extends more to Japan by a large margin.

If it can be guesstimated that the countries which were major licensors to France were also major licensors within Europe, we would have to rank Great Britain above any of the Common Market countries as a licensor abroad, and possibly Switzerland above them all. If, as suggested by these data, Switzerland is the top licensor, it would be because of her pharmaceutical industry, which has a very active interest in licensing throughout the world.

CONTRACT PROVISIONS

The Foundation has made extensive and intensive studies of the provisions of licensing contracts, and no comparison of each provision is attempted here. It should suffice to point out that the royalty provisions of European contracts are quite similar to those of U.S. foreign licenses, except for the emphasis put on equity participation, which is just beginning to enter into European contracts; also, because of past currency restrictions, payments in local currencies have been permitted at rates higher than those remitted in foreign exchange. Almost all other provisions—legal situs, termination, duration, arbitration, definition of rights transferred, grant-backs, etc.—are identical. However, significant differences exist in two areas: exclusivity and restraints upon the licensee.

As to restraints other than territorial, whereas U.S. licenses will often impose strict quality control because of the extension of trademark rights, the fact that trademarks are seldom licensed by European companies removes this interest. But, European licensors may include provisions fixing prices of the licensee and requiring purchases from the licensor of components or raw materials without any fear of anti-monopoly action such as faces the U.S. licensor. As a result, where it is in the interest of the European licensor to do so, these restraints are included, thus effectively increasing the return from the license (where purchases are made by the licensee) or reducing the competition from the licensee.

As to territorial restraints, the U.S. licensor relies almost wholly on the monopoly rights under the patent or trademark to define the territory of the licensee. He is most reluctant to positively preclude manufacture or sales in third countries not covered by patent or trademark rights. The European licensor entertains no such reluctance. The European licensor will usually restrict the licensee to his own country, but a license extended to a United Kingdom company will frequently include the Commonwealth. And, Swiss companies are looking with greater favor on extension of licensing covering the entire Common Market, but this move has not yet become extensive. A U.S. licensee is usually given only the U.S. market.

Exclusivity is a greater problem for the U.S. licensor than for his European counterpart. While an exclusive grant is not at all illegal for the American, its

origin must stem from the patent or trademark right; it cannot be granted only on the basis of know-how rights. The U.S. licensor, therefore, is often careful to extend exclusive rights to manufacture, but non-exclusive rights to sell in third countries, and he will often reserve the right to himself to sell in the country of the licensee.

The European licensee is under no such constraint. He has historically extended exclusive rights and does so readily. Exclusivity is generally extended to the U.S. licensee of a European company. If additional territory other than that of the country of the licensee is requested, it is usually not given exclusively, however. The desire for exclusive licensing is breaking down in some European industries for the same reasons that similar industries in the U.S. have abandoned the practice. That is, it is more profitable to license the entire industry to produce the item on a non-exclusive basis; this is usually the case when the item concerned is a component part of a larger product rather than a consumer item which might best be tied into the advertising and sales of one company.

One final note on the contract and its experience is significant—i.e., on the results of the grantback provision. Both U.S. and European licensors tend to provide that all improvements on the rights extended the licensee will be returned to the licensor (usually royalty-free). But, in practice, neither seems to take advantage of this provision. Although there are exceptions, the usual feeling is that the licensee cannot really have much to offer as a grantback, and the practice is not to seek out his developments. Since the licensor does not want to know all that the licensee is doing (it takes too much time to survey it), it becomes the duty of the licensor to *request* the return of those specific developments he considers within the contract and useful. If he does not so request, they are not returned. Thus, there are undoubtedly a sizeable number of developments made by licensees which do not return as part of the flowback of ideas and rights. As European research accelerates, however, this should become more important for U.S. licensors than it has been in the past.

Persistence of the Sole Inventor*

IRVING H. SIEGEL, Principal Consultant **

SUMMARY

AN ANALYSIS OF TRANSISTOR PATENTS, patents released by the Atomic Energy Commission, and patent grants made to company employees reveals the outstanding role of individual inventors on today's technological frontier and in the modern corporation.

A Neglected Fact

A CURSORY EXAMINATION of recent patent grants discloses the continuing predominance of the sole inventor,[1] even on the technological frontier and in the corporation. More specifically, most new patents are credited to single individuals despite (1) the vast growth of team research; (2) the inevitable economic pressure on research administrators to adopt the principles of specialization that have proved conspicuously successful in commodity production; and (3) the common erroneous belief that the nation's economic evolution has entailed displacement of a self-reliant, inventive genius of yore by a hired "organization man" who works phlegmatically on a small segment of a routine and sure development program.

With respect to the first of these three points, it should be observed that the members of any kind of team are not equal in responsibility or performance, so that credit for group accomplishment may, by common consent, also be distributed unequally. In every project or joint undertaking, an administrative hierarchy is introduced initially for command, control, and systematic communication; and, as the work progresses, additional or alternative "pecking orders" become established, according to the inner requirements of the mission and the capacities of the team members. Thus, rank is conferred by competent higher authority, established by competition, or determined by the judgment of colleagues; and the qualities pertinent

* Interim report on a study concerned with the review of published and unpublished information on company patent and research activities.

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[1] This term is used here, as in patent application forms, in contradistinction to the term "joint inventors."

to leadership may be administrative, personal, or technical. Often, the few individuals that for one reason or another stand out become identified with the group products to which they contribute in a distinctive fashion. A recent study significantly notes that much of the research done on "small groups" (such as research teams themselves) is really concerned with individual behavior: "The group is looked upon not as a system of behavior about which generalizations or theories are to be developed, but simply as a context within which the individual acts." [2]

As for the second point, certain circumstances limit the optimum size of groups designed to accomplish exacting technical tasks and, accordingly, the degree to which administrative responsibility may be diffused and the manner in which credit for achievement may be allocated. Thus, the relatively small span of effective personal supervision restricts the reasonable number of individuals to be assigned to a well-defined project in the first place; and it also forces the organization of a large, centrally directed research program into a pyramid of tiers or echelons. According to a close student of economic and scientific administration in western and Soviet societies who has also had experience as a physical chemist, the span of effective direct control is confined to three or five subordinates, and it is necessary to subdivide broad missions into specialized subtasks or units of work: "Poetry and painting, invention and discovery, are essentially one-man jobs." [3]

The third point refers to an unfortunate popular juxtaposition of overdrawn images of the self-employed inventor of yesteryear and the captive inventor of today. Romantic or heroic theories of yesteryear's inventions still have journalistic appeal although they should have been undermined by the strong reaction of sociologists, anthropologists, and other social scientists who stress (or even overstress) the cultural sources of creativity. But this reaction, with its disparagement of the amount of novelty actually contributed by any inventor and its emphasis on the frequency of simultaneous invention, may in turn have hindered a proper appreciation of the continuing importance of single individuals in creative achievement. The issuance of about three-fifths of all new patents to corporations and the government,[4] the latent public suspicion of the quality of work done in large organizations, the oversimple

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[2] J. S. Coleman, "The Mathematical Study of Small Groups," in Herbert Solomon, ed., *Mathematical Thinking in the Study of Behavior*, Free Press, Glencoe, 1960, pp. 13-14.

Mention should be made of another common tendency observed in the study of group phenomena: use of the technique of "methodological individualism." (See Ernest Nagel, *The Structure of Science*, Harcourt, Brace and World, New York, 1961, pp. 535-546.) This term applies to the familiar practice of assigning individual qualities, such as creativity, to a group. Although a group may not actually possess the characteristics of single persons, it provides a social environment that affects individual tasks and individual productivity; one group may, for reasons of morale, organization, and management as well as personal composition, achieve a higher output (in terms of either collective or individual objectives) than another group.

[3] Michael Polanyi, *The Logic of Liberty*, University of Chicago Press, 1951, pp. 112-114. The quoted sentence recalls the insistence of another chemist—Liebig, the pioneer of organic chemistry—on the essential similarity of scientific and artistic creation. (See Ernst Mach, "The Part Played by Accident in Invention and Discovery," in his *Popular Scientific Lectures*, Open Court, La Salle (Ill.), 1943, 5th ed., especially pp. 278-280.)

[4] *Distribution of Patents Issued to Corporations (1935-1955)*, Study No. 3, Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U.S. Senate, 84th Cong., 2nd Sess. 1957, p. 12.

view that corporate invention has been reduced to a controllable and predictable system, and the habit of regarding the individual and the corporation as natural antagonists have likewise tended to obscure the persistence of the sole inventor.[5]

The rest of this paper is devoted to illustration of the continuing leadership of single inventors on the technological frontier and in the modern corporation. For this purpose, use is made of some patent information that has been published in convenient form.

On the Technological Frontier

Two compilations of patent information are presented here to show the active role of individual inventors in advancing contemporary technology. The first refers to transistors and related devices, which have in a few years gained wide acceptance in the design and production of military and civilian electronic equipment. The second refers to a heterogeneous assortment of materials, processes, and products developed in connection with the nation's atomic energy program.

The first compilation was published in an earlier issue of this *Journal.*[6] Of the 203 patents on transistors and related devices found in the U.S. Patent Office files in May-June 1960 (Class 330, Subclasses 12-40), almost four-fifths (160) are credited to single inventors. Most of the remainder (39) are credited to pairs of inventors, and less than a handful (4) to trios. Almost all the patents (195) were recorded as assigned to companies or to the government. The role of individuals is even more impressive when it is considered that a few large corporate laboratories have led the field in semiconductor development and that a trio of transistor inventors employed by one large company jointly won the 1956 Nobel prize for physics.

The second statistical compilation, prepared especially for this report, covers half of the 2500 patents released by the U.S. Atomic Energy Commission for royalty-free, non-exclusive licensing by the end of 1960. Specifically, it refers to the 1266 patents listed in seminannual and annual Commission reports to the Congress and the public for the period extending from the second half of 1957 through 1960. Although all the inventions presumably relate to a common government interest, they represent a very wide range of technologies and future economic opportunities. They include, for example, the formulation of new alloys and the production of new radioisotopes; the design of nuclear reactors, components, auxiliary apparatus, remote handling tools, sensing and control instruments, and particle accelerators; and the development and improvement of techniques of chemical and physical separation of substances, of processing and reprocessing nuclear fuel elements, of stainless-steel cladding and nonferrous-metal fabrication, of radioactive waste control, and of high-temperature heat transfer. The patents covering these inventions likewise originated in a wide variety of circumstances in many different environments—in academic institutions, government laboratories, and industrial firms.

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[5] In connection with this paragraph, the reader may find of interest another paper by the present writer, on "Scientific Discovery, Invention, and the Cultural Environment," *PTC J. Res. & Ed.*, Vol. 4, No. 3 (Fall 1960) pp. 233-248.

[6] Edgar Weinberg and I. H. Siegel, "Analysis of 203 Transistor Patents," *ibid.*, p. 207.

The following distribution table shows that single inventors are credited with more than half of the 1266 released AEC patents (56 percent), while paired inventors account for fewer than one third and groups of three to six inventors have contributed about one-eighth:

	Released AEC Patents	
Inventors	Number	Percent
Sole	714	56.4
Joint	552	43.6
Two	391	30.9
Three	119	9.4
Four	33	2.6
Five	8	.6
Six	1	.1

A closer inspection of the AEC patent data reveals some additional facts deemed worth reporting here. Included in the total of 1266 patents are 77 grants to British citizens; and, of this smaller number, sole inventors account for 43, or 56 percent. This proportion is the same as that shown for the whole group of released AEC patents in the above table. Furthermore, an examination of the still smaller number of Canadian patents included in the 1266 again shows the same ratio: single inventors account for 12 patents out of 21, or 56 percent.

The AEC data also afforded an opportunity for examining the patent contribution of some of the great living and departed figures of the world of atomic physics. Their patterns of collaboration vary and also differ sharply from those already-observed. The variation in degree of collaboration doubtless reflects differences in personality, skills, main research interest, kind of problem under study, organizational connection, and access to large-scale or specialized equipment. The name of G. T. Seaborg, present Chairman of AEC and former member of the Advisory Council of The Patent, Trademark, and Copyright Foundation, appears on 25 patents—as sole inventor in six instances, with one collaborator in nine, with two collaborators in eight, and with three collaborators in two. E. P. Wigner is listed on eighteen patents—as sole inventor on four occasions, with two collaborators on six, with three on four, and with four colleages on four additional occasions. E. O. Lawrence and Leo Szilard have eight credits each, but the distribution patterns are dissimilar; the first is sole inventor in six instances, the second in only two. The pattern for Enrico Fermi, who has seven credits, is like that of Szilard; he was the sole inventor in one case, worked with one colleague in five cases, and is listed with two colleagues in another case.

In the Corporation

The persistence of the sole inventor in the modern corporate environment is readily confirmed by published lists of new patent grants to employees. Such lists appear, for example, in the quarterly *Journal of Research and Development* of International Business Machines Corporation, a company which has been operating successfully on the boundaries, as well as in the more stable interior, of infor-

mation technology. A summary prepared for the entire file of this publication, from the first issue of January 1957 to the most recent one available (for April 1961) at the time of writing, shows that individual inventors account for almost 70 percent of all the 896 reported patents:

	IBM Patents	
Inventors	Number	Percent
Sole	623	69.5
Joint	273	30.5
Two	197	22.0
Three	57	6.4
Four	14	1.6
Five	3	.3
Six	1	.1
Seven	1	.1

Two of the patents included in this table are credited to an unusually large number of collaborators. Six joint inventors of a "data coordinator" were reported in 1960; and seven were listed on a patent for a "high-speed electronic calculator" in the same year.

The complete file of another company periodical, *Western Electric Engineer,* indicates a slightly lower contribution rate for sole inventors. The company concerned is the manufacturing and supply unit of the Bell System, a large organization identified with numerous major advances in communications technology. From the first issue reporting patent grants to employees (July 1958) through the issue for April 1961, the total count is 563. Two-thirds of this number, or 375, are credited to sole inventors, as the following distribution shows:[7]

	Western Electric Patents	
Inventors	Number	Percent
Sole	375	66.6
Joint	188	33.4
Two	144	25.6
Three	38	6.7
Four	5	.9
Five	1	.2

Among the other corporate publications from which employee patent information may readily be gleaned is *Electrical Communication,* a quarterly magazine of the International Teletype Corporation. A glance at three issues for 1960 indicates a score of 235 out of 375 patents for sole inventors. This ratio (63 percent) is slightly below that computed for Western Electric Company but higher than that shown for AEC released patents. Among the joint inventors, pairs dominate, as usual; they account for 104 patents (28 percent), far less than half the number credited to single inventors. Trios accounted for only 34 patents (9 percent); teams of four inventors contributed four more patents, and a group of five accounted for one.

[7] The table also includes patent grants to employees of Teletype Corporation, a wholly owned subsidiary of Western Electric Company.

Need for Further Study

This paper, like the findings of the Foundation's study on Patent Utilization,[8] indicates a need for systematic study of the circumstances contributing to the persistence of the sole inventor. The professional literature on "group dynamics" and creativity is voluminous, but relatively little is concerned with the interrelationship of environment and invention in the modern economic and technological settings.[9]

It may confidently be anticipated that any deeper inquiry into the causes of persistence of the sole inventor would reveal the central preoccupation of research management with the individual. The group is still a "format" for the deployment of personal skills; it is just a device of organization. The challenge to nurture creativity in the corporation is not met simply by the combination of people into teams but requires the proper handling of the team members as individuals.[10]

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[8] See, for example, the *Digest* of findings, "How American Patents Are Used."

[9] Several themes that merit investigation are suggested by the present writer's own limited inquiry. One relates to the organization of research and development programs in corporations, government laboratories, and large institutions. (To what extent are projects designed for conduct by single individuals? How are the multiple tasks of complex projects apportioned among individuals?) A second theme involves company policy and individual motivation with respect to patent application. (Is patenting generally encouraged by firms and extensively pursued by employees? Are "claims" per patent more numerous for applications made by joint inventors?) A third theme concerns the benefits and deterrents of the group environment to creativity. (Does intragroup or intergroup competition provide a significant spur to accomplishment? Are opportunities for the cooperation of specialists adequately used? Does the relationship with the supervisor become a decisive factor in promoting or retarding individual productivity?)

D. W. Taylor refers, in an essay on "Thinking and Creativity," to an unpublished study that "would seriously question . . . the use of patents as a measure of creativity even among individuals in the same general area." He mentions an instance in which a man with over 200 patents was rated "less creative" by his colleagues than another person in the same laboratory who held only two patents. See *Fundamentals of Psychology: The Psychology of Thinking (Annals of the New York Academy of Sciences,* Vol. 91, Art. 1, December 23, 1960), pp. 109-110.

[10] For example, J. B. Fisk, of Bell Telephone Laboratories, stated in a talk on "Basic Research in Industrial Laboratories" that: "The principal ingredients for successful research in an industrial laboratory are: people, purpose, and environment. People obviously come first. . . . Successful solution of . . . human problems determines the vitality and conditions the technical performance of a research organization." (See *Symposium on Basic Research,* American Association for the Advancement of Science, Washington, 1959, p. 162.)

R. B. Mears, Assistant Vice President for Applied Research, U.S. Steel Corporation, notes the importance of supervisory encouragement of creative people. Such people "must be protected from severe, destructive criticism. . . . Since creativity consists in a new approach to a problem or a novel way of expressing a relationship, it is inherently a lonely occupation." (See "Stimulating Creativity in Research and Development," *Research Management,* Summer 1961, pp. 151-152.)

Legal Guide to the European Common Market

GERARD J. WEISER *

SUMMARY

This is a review of volume II of a two-volume comprehensive study, entitled AMERICAN ENTERPRISE IN THE EUROPEAN COMMON MARKET: A LEGAL PROFILE.** Volume I was reviewed in a previous issue of this *Journal* (Vol. 5, No. 1 (Spring 1961), pp. 84-87).

These two books are primarily designed for the American business counselor who is confronted with his clients' problems arising from doing business with the European Economic Community. This undertaking of considerable magnitude is a notable literary contribution.

ORGANIZING FOR BUSINESS

THE CHAPTER ON ORGANIZING FOR BUSINESS BY ALFRED F. CONARD should be of considerable interest to the lawyer who will be called upon to advise in the organization and management of a business enterprise in the European Common Market. American companies which have not yet maintained a European organization may now consider developing one; those which have European organizations would be well advised to review critically their operations in the light of the emerging Common Market. In attaining these objectives, a study of this chapter is most helpful.

Initially, Conard points out that it is feasible for an enterprise to do business with the Common Market without serious involvement with European law. To do this, the enterprise must own no assets, tangibles or intangibles, in the Common Market.

The consequences of increasing involvement to ultimate establishment by the American enterprise in Europe are examined from three different aspects: commercial registration, tax liability, and liability to suits in European courts. For the enterprise which has resolved to establish itself in Europe, this chapter offers a

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** Edited by Eric Stein and Thomas L. Nicholson. Ann Arbor: University of Michigan Law School. 1960. (Vol. II, 732 pages.)

thorough analytical study of the formation of the European enterprise, its structure and its management.

In the initial selection of the state of incorporation, the enterprise has no freedom of choice. The author suggests that incorporation must take place in the state where the "central office" of the business will be located. But, as to the form of the business, the enterprise may be organized as a subsidiary or a branch. Generally, a single subsidiary organized in one Common Market country with branches in the other countries is favored because of the substantial advantages—primarily in the field of taxation—that this arrangement offers. In forming the subsidiary, essentially two forms are available which approach that of an American corporation: the stock company and the limited liability company. The limited liability company has a number of distinctive features: its shares are non-negotiable and financing cannot come from public issue of stocks and bonds but originates from private sources. If these are disadvantages, there exists also a number of advantages for such an organization. These principally revolve around the simplicity of the organization; public participation in the company is minimized by the restrictability of the shares, the limitation on the number of shareholders, and the simplicity of the management structure. The description of the limited liability organization provided by the author partially fills a lack of understanding generally existing here concerning this type of organization. The author then follows with an analysis of the requirements to be met by the incorporators and for the articles of incorporation. Sources for European company laws are given.

An area which significantly differs from its American counterpart is the question of the capital for the enterprise and its payment. Moreover, there are substantial differences between the legislative provisions in the various member countries regulating the payment of consideration for shares.

Probably one of the most intricate and elusive areas to discuss and to deal with in actual practice is the management of a European subsidiary. This is probably because it is in this area that the human element permeates all activities so pervasively. But, the author has handled this subject with dexterity. He has not only pointed out the similarities and the differences between European and American management in certain specific areas, but he also has indicated how the American investor can turn these differences to his advantage. The areas examined include: the governing boards; executives, their compensation and liabilities; and the participation of shareholders and of labor in management. This section could do much to improve meaningful communication between the American company and the European enterprise in matters concerning management. The chapter concludes with an examination of the problems involved in financing a European subsidiary. On this subject, principal reliance should probably be placed on the circles of international banking and finance.

The reader will be interested to find out that there is no exact single counterpart for the American term of "lawyer" in Europe. This term is generic to numerous members of the legal profession ranging from advocates and solicitors to "avoués" and notaries. The author's discussion will assist the American investor in making a judicious selection of a suitable foreign associate.

Of special value to the reader is the uncovering by the author of the business trends which appear to be taking shape in the planned evolution of the European Economic Community. He brings out the reasons for preferring, for long-range planning, a single European subsidiary with branches in the other countries, the unlikelihood of uniform company laws and the expected long term continuance of the present diversity of the measures and policies regulating financing and capital. The emergence of the Common Market, with its attendant keener competition, offers to the American enterprise abroad a challenging opportunity for reaching its fullest potential. To the astute American businessman and to his counselor, this chapter offers sound and pragmatic advice on reaching this goal.

SIGNIFICANCE OF TREATIES TO THE ESTABLISHMENT OF COMPANIES

The chapter on the SIGNIFICANCE OF TREATIES TO THE ESTABLISHMENT OF COMPANIES by Thomas L. Nicholson draws attention to the meaning and interrelationship of the various international treaties that may affect the American enterprise doing business in the European Economic Community. The author focuses his discussion on one treaty of commerce, the Convention of Establishment between the United States and France. He brings out the potential importance of such a treaty and he suggests some practical implications for the American enterprise. The topics discussed include: the protection of the establishment of an enterprise, the type of company protected, the employment of non-nationals, the ownership of real property, the right to sue, voluntary termination of business activity, and expropriation.

Focus then shifts to a discussion of each one of these topics in the light of the interrelationship between the provisions of the Convention with France and their counterpart in the Treaty establishing the European Economic Community. Several views are advanced regarding the qualifications which companies must have to be entitled to protection under the treaties. It is predicted that the companies will enjoy greater flexibility in organizing in the Common Market than has been feasible in the past. Moreover, the author suggests some liberalization of the regulations affecting the employment of non-nationals limited, however, only to the area where these regulations affect commerce. It is pointed out that the basic right of establishing an enterprise is probably accompanied by that guarantying the ownership and exploitation of real property. Moreover, the author indicates that inchoate in the basic right of establishment, there should be read the right of voluntary termination of business activity except as the latter may be subject to the impact of exchange control restricting capital movements. Yet, it appears clear that these controls cannot be artificially manipulated if the Common Market is to function properly. Moreover, compensation for expropriation is guaranteed to the foreign enterprise to the same extent as to an enterprise of a Member State. Finally, the rights derived under the treaties are coupled with the right to seek judicial protection.

In connection with the voluntary termination and withdrawal of a business, a

number of distinctions are suggested: capital assets from earnings, distinctions regarding their origin and the direction of the withdrawal of the business funds, i.e., back into a Member Country or to the United States.

There are some situations where the most-favored-nation treatment in a treaty of commerce between the United States and a Common Market country applies. Yet the author believes that an American Corporation would be most unlikely to succeed in taking advantage of the benefits of the Common Market Treaty, hence, taking on Community status, by way of the intermediary of such a most-favored-nation clause.

Other aspects of doing business within the Community under the Common Market Treaty are reviewed. The author examines provisions looking to the protection for carrying on "services," i.e., carrying out the performance of any contract without establishing a business in the other state. A number of proposals for harmonization of the laws of the Member States are suggested. They are: a Community Companies Register for establishing enterprises; a Common Market Securities Exchange Commission accompanied with a Common Market stock company law and a Community Arbitral Tribunal.

The question of availability of concurrent protection under several treaties to the Common Market enterprise of an American company is touched upon by the author. This question deserves further critical scrutiny, and so does the subject of possible conflicts of laws under the Treaty establishing the Common Market and treaties of the member nations amongst themselves and with the United States.

PROTECTION OF COMPETITION

The chapter on the PROTECTION OF COMPETITION by Stephan A. Riesenfield is a scholarly and rational discussion of this important subject. The author's approach has enhanced the understanding and the significance of this very complex topic, thereby facilitating its practical application by the business counselor.

First, the author has pulled together into a meaningful and coherent whole the pertinent provisions dealing with the protection of competition from the various portions of the Treaty wherein they are dispersed. In particular, this is helpful for a better understanding of their coaction. He has then provided, in miniature, a treatise of the national laws of the Community Members concerning the protection of competition. This is important for a number of reasons. Without such a study the articles of the Treaty are essentially meaningless; in particular, they were written with a concern for the status of national legislation. A major aim of the articles is to minimize the distortions of the competitive process resulting from repercussions from divergencies in the National Laws and in their application. Moreover, a study of the National Laws throws considerable light on the exact type of restrictive practices falling within the purview of the Treaty regulations. Also, the pernicious question regarding the present status of these practices cannot be resolved, in vacuo, without regard to the National Laws. After this treatise, the

author studies the protection of competition in the European Coal and Steel Community. Again, this is important to the thorough understanding of the Treaty provisions because basically the European Economic Community is an extrapolation of the Coal and Steel Community. Yet, the two Communities are characterized by significant differences. And, the interpretation of the provisions of the Treaty is, therefore, most intelligible in the light of both the National Laws and the provisions of the Coal and Steel Community on this subject.

It must be appreciated that one of the basic tenets of the Common Market is "the achievement of a market order which is free from 'falsifications' due to discriminatory or otherwise unduly restrictive practices whether imposed by governmental mandate or initiated by private action." Exceptions, of course, are provided. Noteworthy is that concerning regulations pertaining to industrial and commercial property providing they "do not constitute a means of arbitrary discrimination or a disguised restriction on the commerce among the Member States." Articles 85-90, the core of the Treaty provisions, are provided in the text as a helpful adjunct for the reader who does not have the text of the Treaty.

In his study of the four Community Members which have legislation on the protection of competition, the author develops their historical evolution to recent legislation. The current situation is evaluated in the light of court and administrative decisions, whenever available. For Germany, the four principal classes of restrictive practices are reviewed: cartels, vertical restrictions, abused exploitation, and other discriminatory practices. Exceptions and dispensations are discussed. Of special interest to attorneys concerned with industrial property rights are the provisions of the law applicable to restrictions attached to the transfer or licensing of patents, other rights of industrial property or technological know-how. Regulations concerning abuse of dominant market power are also reviewed. Some trends are discernible from a discussion of the initial administrative and judicial experience.

In France, the picture appears much less clear cut. The policy seems to be a balance of equities. Practices without ultimate advantages to the consumers and to the national economy are prohibited; practices which, even though restrictive, tend to result in some improvement of the market structure or technological progress are condoned. In the Netherlands, the provisions of the recent act provide: (a) compulsory extension of cartels to outsiders, (b) invalidation of cartel agreements violative of the general welfare and (c) the regulation of enterprises occupying dominant market power. In Belgium, the discussion of the recent law underscores its concern with abuse of economic power. Provisions aimed at harmonizing the Belgian Law and the policy of the European Economic Community are noted. In Italy, the law generally condones restrictive agreements. Several proposals for more extensive legislation for the control of anti-competitive practices are discussed.

From this review of National Laws, the author then offers a study of the protection of competition in the European Coal and Steel Community. After discussing its historical background, structure, and organs, he points out that it is characterized by economic integration directed to a segment of commerce only—that relating to coal and steel. Essentially, protection is afforded against "collective restraints or adulterations by enterprises," economic concentration and misuse of dominant market power, and against government interference.

The author proceeds to a study of the protection of competition in the European Economic Community, per se. Apart from a number of basic similarities, institutionally and functionally, the Economic Community and the Coal and Steel Community differ markedly. A noteworthy aspect is that, because the Economic Community is less subject to built-in regulatory powers, the Common Market is a more adaptable and dynamic system of organization. Its legal characteristic is the achievement of a gradual European integration on a predominantly economic—rather than primarily on a political—level. Hence, the Common Market is concerned not so much with establishing new overriding and regulatory powers, but rather with removing obstacles and conflicts capable of adversely affecting the commerce between the Member States. To achieve this, primary reliance is placed on a system of self-development within the ambit of two broad provisions. The first provides for the protection of competition against anti-competitive conduct of enterprises. It is generally accepted that under the provision the type of collective action which is prohibited includes not only purely vertical arrangements, but also those of horizontal character. The second form of protection provided under the Treaty is that against misuse of dominant market power. Under both provisions, specific categories of anti-competitive conduct are designated. This raises the interesting question as to whether a conclusive presumption of proscription is created by the mere fact of singling out these types of conduct or whether it must be further shown that such conduct is capable of adversely affecting commerce between the States, Members of the Common Market, before being prohibited. This, according to the author, is an open question.

Another vexing issue which demands clarification is that of the exact status—enforceability and illegality—of anti-competitive agreements until the issuance of regulations. Even greater uncertainty surrounds the issue of the possible tort liability of enterprises which actively participate in collective restrictive practices. Copious references to literature and to cases of the German Cartel Office are provided, thus permitting the profession to draw its own conclusions on these questions.

An important qualification which overrides the entire area of the protection of competition in the European Economic Community is that the injunction against the prohibited practices only applies when it is "capable of adversely affecting the commerce among Member States." Moreover, in achieving commercial integration of the Community, the Common Market is to evolve by a policy of unification without uniformization, whereby the individual Member States retain their separate, though attenuated, jurisdictions. To the American lawyer, this relationship may suggest the situation arising under the power of Congress under Article I, Section 8 of the United States Constitution to regulate commerce and its restraining effect on the power of the States of the Union to control in the same area. Whether this apparent analogy is more than academic remains to be seen.

In conclusion, the following may be said. To some, the European Economic Community may appear as an unpredictable puzzle, perhaps especially because of the general absence of regulatory directives which will have to be adopted in the future by the institutions of the Community and particularly when compared with the Coal and Steel Community. For others who are developing a keener understanding

of the basic policies of the European Economic Community, it may offer an opportunity for exercising increasing discernment and judiciousness in advising their clients in their business with the Community. In attaining these ends, the author is of immeasurable help to the American counselor.

TAXATION

The chapter on TAXATION by J. van Hoorn, Jr. and L. Hart Wright is a very comprehensive study of the foreign and United States tax implications encountered by American enterprises in providing services and/or products in the European Common Market. The study is organized into six parts, in a sequence geared to generally follow the evolutionary stages through which an American enterprise might logically develop its foreign operations. A very valuable aspect of this article is that the consideration of each important European taxation aspect is followed by its integration into the American tax pattern.

This chapter first reviews, in a country by country study, the tax systems of the Member Countries. Each country's tax structure is examined in detail following a similar pattern. It provides a background for a fuller understanding of the remainder of the chapter. The tax treatment favoring an American company establishing a foreign subsidiary, in contrast to a branch, is examined. The author then proceeds to a functionalized comparative study starting with an analysis of the overall tax effects on an American enterprise whose business is limited to direct exports to customers in the Common Market. The authors discuss the extent to which promotional and sales activities can be carried on in the Common Market countries without subjecting the export profits to their income taxes. Turnover taxes of the Member Nations are compared. These taxes are then integrated into the American tax structure.

Of special interest to patent attorneys is the study of tax problems accompanying licensing and "know-how" agreements between an American exporting company and a European firm concerning the manufacture of products abroad. The reasons for preferring such licensing agreements, including their comparative simplicity, are reviewed. Also discussed are the more sophisticated sales and licensing agreements into which the American enterprise might be drawn as it expands its operations from an exporting status to establishing a permanent foreign facility. This discussion, together with the chapter by Stephen P. Ladas in Volume I and relevant portions in the chapter on PROTECTION OF COMPETITION discussed previously in this review, provides patent attorneys with a very valuable study of the management of Industrial Property in the European Common Market.

The authors then proceed with a comparison of the total direct tax load which each country would impose if it were selected as the sole locale of a facility serving only one Member Nation. This is followed by an integration of American taxes. The foreign and American tax considerations are then examined for an expanding facility exporting to other Member Countries. Considerations for the location of

such a facility are examined. From here, the author discusses the tax ramifications arising for an enterprise which further expands by establishing other facilities—branches or a subsidiary—in the Member Countries. Attention is then given to a foreign "holding" company. And, finally, the chapter touches on the tax implications encountered by a foreign facility in the Common Market exporting to customers outside the Community.

After developing this integrated tax story of an expanding and evermore penetrating foreign operation, the author moves into two related areas: the conversion of foreign profits into American dollars and the tax loads on American employees abroad.

In conclusion, the authors have reviewed the future of the tax situation as it may affect doing business in the Common Market. Interestingly, it is brought out that harmonization of indirect taxes—the only type of taxes for which there are specific provisions in the Treaty establishing the Common Market—appears unlikely and unsatisfactory. In contrast, with respect to direct taxes—a matter not specifically dealt with by the Treaty—there can be noted some tendency towards greater uniformity. Moreover, rather than originating directly from the European Economic Community, this movement is mostly influenced by another organization, the Organization for European Economic Cooperation (now in the process of transformation into the Organization for Economic Cooperation and Development), working on a multilateral tax treaty. The effect of harmonization on American enterprises may be both adverse and favorable. The future of American taxation of foreign income is reviewed with emphasis on the prospects of a reduction in and deferral of American taxes on income earned in the Common Market. The discussion of recently proposed legislation may provide useful background for any new legislative development in this field. The authors have provided a detailed orientation which should permit the formulation of tentative plans and identification of questions which should be referred to a tax specialist.

THE ASSOCIATION OF THE OVERSEAS COUNTRIES AND TERRITORIES

The chapter on THE ASSOCIATION OF THE OVERSEAS COUNTRIES AND TERRITORIES by Peter Hay is concerned with the relationship between the European Economic Community and the overseas territories. This chapter outlines the legal, political, and economic status of the territories, the relevant provisions of the Treaty, and some of the legal and economic problems which association with the Community creates. The Treaty recognizes that integration of the Overseas Territories into the Community would have been disastrous for the less developed countries. Therefore, it extends to them most of the trade advantages and encourages capital investment, while protecting them from the harmful impact of European competition by allowing for the retention of certain trade barriers. The discussion recognizes the need for a re-examination of certain provisions as a result of the independence achieved by so many of the territories. For the American business-

man, the association of the Overseas Territories with the European Economic Community may eventually offer opportunities for investing development capital and using local raw materials for domestic and foreign consumption.

An ANNEX to Volume II provides the text of the Convention establishing the European Free Trade Association.

In conclusion, it should be noted that both volumes are painstakingly and profusely footnoted, thus being of great assistance to the lawyer in further probing into any one of these subjects.

FORUM

Although the primary purpose of this *Journal* is to communicate the research work of the Foundation, it also serves as a vehicle to exchange information and stimulate additional study.

We have been interested in expanding our coverage of industrial property areas. In this connection we have sought to give more attention to trademarks and copyrights. In earlier issues we have published articles and notes on these properties. In view of the hearings scheduled for the summer of 1961 on design legislation, it seems desirable to include the following paper by Mr. William Blaisdell, an economist formerly on the staff of the Copyright Office.

This paper is a previously unpublished study and is based upon the returns from a questionnaire sent in 1960 to a sampling of industrial companies interested in protection for ornamental designs. At the request of the Copyright Office, the study is printed verbatim in toto.

The paper was reviewed like other contributions by the Editorial Committee of the *Journal* and questions were raised concerning the adequacy of the sample and the analysis. However, the paper is offered because it is timely, and treats a subject that is of importance to our readers.

Facts Concerning Ornamental Industrial Design

WILLIAM M. BLAISDELL

I. INTRODUCTION

IN ORDER TO OBTAIN FACTS CONCERNING CERTAIN ASPECTS OF THE CREATION AND UTILIZATION OF ORNAMENTAL INDUSTRIAL DESIGNS by American business firms, it was decided to prepare and distribute a questionnaire to business firms. After conferences with a number of individual business men and attorneys interested in the problems of ornamental industrial design, the questionnaire was prepared to secure information about

(1) The general attitudes of business men toward this problem.

(2) The knowledge of business men concerning specific legislative design proposals.

(3) The type of products involving ornamental industrial design.

(4) The methods of design creation and the cost of ornamental industrial designs.

(5) The extent and frequency of copying of ornamental industrial designs.

II. SUMMARY

THE STUDY AND ITS MAJOR RESULTS MAY BE SUMMARIZED AS FOLLOWS:

1. From a mailing of 1781 questionnaires dispatched to firms in ten standard industrial classification groups of ornamental design industries, 489 replies were received; of these replies, 382 were usable for compilation purposes. No statement can be made concerning the representativeness of the group of usable replies. (See Section III, *infra.*)

2. About half of the respondents believe additional statutory protection for ornamental industrial designs would be desirable; about a quarter believe that the existing statutory protection is adequate; and about a quarter have "no opinion" on the problem. (See Section IV, *infra.*)

3. Less than a third of the respondents were aware of the existence of the Willis and O'Mahoney Bills before receiving the questionnaire. Less than a quarter were acquainted with the provisions of the two bills. Knowledge of the O'Mahoney Bill was somewhat greater than that concerning the Willis Bill. (See Section V, *infra.*)

4. Of 334 respondents reporting the size of their 1958 sales of ornamental industrial design products, 236 had sales of less than $3 million each, and 51 had sales of $10 million or more. (See Section VI, *infra.*)

5. Producers with 1958 sales of ornamental industrial design products of not less than $10 million each, gave more support to the enactment of additional statutory design protection than did the entire group of respondents. (See Section VI, *infra.*)

6. All the respondents reported having numerous competitors, but there is no consistent pattern of competition. (See Section VI, *infra.*)

7. Respondents consider that the most important source of ornamental industrial designs is "creation within each firm"; of second importance are "the purchase of designs from designers," and "adaptation of designs from within the industry." Following these three, "copying of designs within the industry" is of next importance. (See Section VII, *infra.*)

8. Ninety percent of the respondents reported expenditures for ornamental industrial designs. These expenditures are made mostly for the maintenance of design departments and the payment of retainers to independent designers. (See Section VIII, *infra.*)

9. Among 229 respondents reporting the necessary data, it is calculated that expenditures for designs average 0.67 percent of sales of ornamental industrial design products. (See Section VIII, *infra.*)

10. About two-thirds of the respondents report unauthorized copying of some of their ornamental industrial designs. (See Section IX, *infra.*)

11. Respondents who had been copied supported additional statutory design protection more than twice as frequently as respondents who had not been copied. (See Section IX, *infra.*)

12. Respondents who had been copied reported copying by from one to fifty copyists each. Also, 227 copied respondents reported copying by domestic

firms and 49 reported copying by foreign firms. Copied respondents reported from one to 200 designs having been copied, each. (See Section IX, *infra.*)

13. Sixty-six respondents who reported copying of their designs obtained legal advice as to remedies in not less than 194 instances, and suit was instituted in not less than 54 cases on one or more of several legal bases. (See Section IX, *infra.*)

14. Twenty-nine respondents reported obtaining not less than 49 out-of-court settlements; also, four final judgments were reported and four judgments were reported "pending." (See Section IX, *infra.*)

15. Respondent producers who were copied consider that the motivation for copying arises primarily from the competing manufacturer, and secondarily from retailer sellers of the product. (See Section IX, *infra.*)

16. Less than ten percent of the respondents reported having a problem of copying in connection with the design of containers in which their products are packaged. (See Section X, *infra.*)

Variations among the industrial groups of respondents are shown with respect to most of the above items, in the following detailed material concerning the responses to the questions.

III. THE QUESTIONNAIRE MAILING AND RETURNS

From the Standard Industrial Classification Manual [1] the major (two-digit) manufactured products which are believed to involve ornamental industrial design were chosen. These groups are as follows:

SIC Number	Description of Group
22	Textile mill products.
23	Apparel and other finished products made from fabrics and similar materials.
25	Furniture and fixtures.
26	Paper and allied products.
30	Rubber and miscellaneous plastics products.
31	Leather and leather products.
32	Stone, clay, and glass products.
35	Machinery, except electrical.
36	Electrical machinery, equipment, and supplies.
39	Miscellaneous products.

Sixty-six trade associations representing producers of these products were requested to submit membership lists. Acceptable lists, some of which were not complete but believed to be representative, were received from 26 associations, and these lists furnished the basis for the questionnaire mailing list. A total of 1781 questionnaires were mailed to firms named on these 26 lists, and 489 questionnaires, or 27.5 percent of the mailing, were returned.

As detailed further at a later point, Question No. 3 of the questionnaire asks the respondent to name the products he produces which involve ornamental industrial design. The responses to this question are shown, in representative form, and classified into the appropriate industrial group, in the following compilation:

[1] Executive Office of the President, Bureau of the Budget, 1957 edition.

Group 22. Textile mill products: printed textiles, woven textiles, drapery fabrics, dress fabrics, rugs and carpets, laces and embroideries, plastic films and plastic-coated fabrics.

Group 23. Apparel and other finished products made from fabrics and similar materials: sportswear, scarves, handkerchiefs, swimwear, hosiery, sweaters, skirts, sports uniforms and jackets and emblems, table cloths and doilies, stencilled garments, knitted outerwear, shirts, foundation garments, brassieres.

Group 25. Furniture and fixtures: all types of furniture.

Group 26. Paper and allied products: wallpaper, paper products.

Group 30. Rubber and miscellaneous plastics products: tires, housewares, containers and closures, toys, notions, hair goods, plastic jewelry, packaging materials, injection-molded plastics, buttons.

Group 31. Leather and leather products: footwear, handbags, belts, small leather goods.

Group 32. Stone, clay, and glass products: glass containers and closures, decorated dinnerware.

Group 35. Machinery, except electrical: office and business machines and equipment.

Group 36. Electrical machinery, equipment, and supplies: control systems, data communications systems, stoves and ranges, heaters, large and small home appliances, radio and TV receivers and components and equipment, tape recorders and equipment, phonographs and equipment, coin-operated phonographs and merchandise vending machines, hearing aids, loudspeakers, home intercom units and systems, telephone instruments.

Group 39. Miscellaneous manufacturing industries: stainless and precious metal flatware, hollow ware, novelties, jewelry, dinner ware and ecclesiastical ware, costume jewelry of precious and other metals, watch bands, precious metal emblems, hobby kits, athletic goods, toys.

The 489 responses were divided into the above industrial groups, based upon the products reported by the respondent. However, 107 of the respondents could not be so classified, because of the following reasons:

1. Respondent stated he produces no items having ornamental industrial design	53
2. Respondent did not reveal any items he produces, and gave no other significant information	33
3. Respondent answered Question 1(a) only, expressing no opinion [2] on the problem of ornamental industrial design	21
Total	107

Deduction of these 107 returns leaves 382 returns as the basic number of responses to be compiled in the body of this study. In a number of cases, respondents reported products in more than one industrial group; in such cases, it was necessary to exercise judgment as to the industrial grouping.

[2] See discussion of responses to Question 1(a), infra.

Table I shows the industrial groupings of 382 returns together with information about the total number of questionnaires mailed to each group, the total number of responses from that group, and the percentage relationship between distribution and response.

The largest relative number of returns was received from the two groups to which the mailings were relatively small: groups 26 and 32. Returns in Group 26 were largely from wallpaper producers; returns in Group 32 were largely from producers of glass containers and closures. The lowest relative number of returns was in Group 31; these returns were predominantly from manufacturers of ladies' handbags.

The overall return of 489 responses (27.5 percent of the mailing) and the return of 382 usable responses (21.4 percent of the mailing) can be considered as satisfactory. Nothing can be affirmed about the representativeness of the returns, either for particular industry groups or for all the groups together.

IV. QUESTION 1

Question 1 requested information about the general attitudes of the respondents as follows:

1. *General Attitudes.*

(a) Please check (V) one of the following statements:

(1) ..... This firm considers that the existing system of legal protection for ornamental designs is adequate.

(2) ..... This firm considers that additional statutory protection for ornamental designs should be enacted.

(3) ..... This firm has no opinion on the problem of the need for additional statutory protection for ornamental designs.

(b) If you have checked either part (1) or part (2) of Question 1(a) above, please state briefly the reasons in support of your firm's position.

(c) If you have checked part (2) of Question 1(a) above, please state briefly the type of additional statutory protection you believe to be required.

Only Part (a) of this question is subject to numerical compilation. Of the 382 responses which were compiled, 379 answered Question 1(a). One hundred and one, or 26.6 percent, considered that the existing system of legal protection for ornamental industrial design is adequate; 191, or 50.4 percent, consider that additional statutory protection for ornamental design should be enacted; 87 respondents, or 23.0 percent have no opinion on the problem of the need for statutory protection for ornamental industrial designs. These totals are broken down into the 9 industrial groups in Table II.

Of 379 responses to Question 1(a), just over half favor the enactment of additional statutory protection for ornamental industrial designs. A little over one-quarter of the respondents favor the existing system of protection, and a little less than one-quarter have no opinion on the problem.

The greatest relative support for the existing system of protection comes from the producers of glass products and furniture; the least support from the producers of rubber and leather products. The greatest relative support for additional statutory

protection of ornamental industrial designs comes from the producers of leather products, textile mill products, and rubber products. Machinery producers and paper producers lead relatively in failure to express an opinion on the problems of ornamental industrial design. In four groups—stone, clay, and glass producers; paper producers; machinery producers; and furniture producers—less than half of the respondents favor additional legislative protection; in the other five groups, the percentages favorable to additional legislative protection vary from a low of 54.1 percent to a high of 75 percent.

Questions 1(b) and 1(c) were designed to elicit the arguments and proposals re additional design protection. The responses reveal no pattern which can be objectively presented. Many of the answers were superficial and offhand; alternately, a number of responses indicate thought and consideration by the respondent, both in direct response to the questionnaire and as a result of longer-term study. Probably all the arguments and proposals which have been used over several decades appear in one form or another among the responses. However, any effort to give a resume of them would necessarily introduce subjective judgments which would render the results suspect.

V. QUESTION 2

Question 2 has to do with the extent of the knowledge of respondents concerning two legislative proposals which have been introduced into the Congress at the time when the questionnaire was dispatched. The wording of the question follows:

2. *Legislative Proposals.*

(a) Previous to the receipt of this questionnaire, were you aware of the existence of the following Congressional bills proposing additional protection for ornamental designs? (Check as appropriate.)
Willis Bill (H.R. 8873, 85 Cong., 1st Sess.) Yes.... No....
O'Mahoney Bill (S. 2075, 86 Cong., 1st Sess.) Yes.... No....

(b) Are you acquainted with the provisions of the same two bills? (Check as appropriate.)
Willis Bill (H.R. 8873, 85 Cong., 1st Sess.) Yes.... No....
O'Mahoney Bill (S. 2075, 86 Cong., 1st Sess.) Yes.... No....

Part (a) of the question has to do with the awareness by respondents of the existence of the Willis and O'Mahoney Bills. Of the 382 responses which were compiled, 356 answered this question, 100 of them indicating that they were aware of the existence of the Willis Bill prior to receiving the questionnaire, and 256 said they were not aware of its existence. With respect to the O'Mahoney Bill, 355 respondents answered, 111 of them expressing an awareness of this proposal, and 244 of them saying that they were not aware of its existence.

The second part of the question requests information about closer acquaintance of the respondents with the provisions of these two proposals. With respect to the Willis Bill, 346 of the 382 respondents answered Question 2(b); 70 respondents said they were acquainted with the provisions of the Willis Bill, and 276 said they were not acquainted. Only a slightly different response was elicited with respect to the O'Mahoney Bill; 342 of the 382 respondents answered this question, and 75 of

them were acquainted with the provisions of the O'Mahoney Bill, while 267 of them were not acquainted.

Thus, about two out of seven respondents were aware of the existence of the Willis Bill, and not quite one out of three were aware of the existence of the O'Mahoney Bill. About one out of five respondents were acquainted with the provisions of the Willis Bill; about one out of four were acquainted with the provisions of the O'Mahoney Bill. In both cases, the O'Mahoney Bill was relatively somewhat more familiar to the respondents than the Willis Bill. Table III, shows the distribution of the responses to Question 2 among the various industry groups.

This table indicates clearly the industry groups which know of, and are acquainted with the provisions of, the two legislative proposals named. The producers of textile mill products, apparel, and furniture know of the two bills and are somewhat acquainted with their provisions. The producers of machinery and miscellaneous products rank next highest in their familiarity with the bills, but relatively few of them claim such familiarity. Among the producers of paper; leather; and stone, clay, and glass products; very few are familiar with the bills. In no group are more than half of the respondents consistently aware of and familiar with the provisions of the two bills. On the average, about thirty percent of the respondents are aware of the existence of the two bills; and twenty-one percent are familiar with the provisions of the two bills.

VI. QUESTION 3

Question 3 has to do with the items produced by the respondent, respondent's annual dollar sales, the percentage of annual dollar sales included in the items having ornamental industrial design, and the number of competitors of each respondent. The wording of the question is as follows:

3. *Producers and Products.*

(a) Please list immediately below the major *categories* of products produced by your firm in which you consider ornamental design, as defined in the covering letter, to be a significant competitive sales factor.

(b) What were the total dollar sales of all your products in 1958? $.....

(c) Estimate the percentage of your total sales for 1958 which consisted of the categories of products listed in Question 3(a) above. .....%

(d) How many producers do you estimate to be your competitors in the production of the categories of products listed in Question 3(a) above? .....

Column 3 of Table I, *supra,* p. 10, shows the percentage distribution of replies received from producers of various categories of products, and the comment on that Table list representative products for each of the categories.

Part (b) of Question 3 was designed to obtain a rough indication of the size of the respondents in terms of their dollar sales. It was possible to use the answers to this question in 334 cases which are tabulated in Table IV. This Table is based on the dollar sales of products involving ornamental industrial designs, i.e., the percentage figure shown in responses in Question 3(c) were used as multipliers to determine the dollar volume of such products. It will be noted that the first ten size classes cover $1 million each; they are followed by two size classes of $50 million

each; the last size class includes all cases above $100 million. As would be expected, there is a distinct break in continuity of the distribution at the first size class including more than $1 million, i.e., the size class from $10 million to $50 million.

Firms having sales of more than $10 million of products involving ornamental industrial designs appear in relatively significant numbers in four categories, namely, textile mill products, apparel, machinery, and stone, clay, and glass products. In four groups, namely, rubber products, machinery, stone, clay, and glass products, and miscellaneous products, do any respondents report selling more than $100 million each in 1958? Machinery is one group in which a relatively large part of the producers reported sales of more than $10 million annually; of 41 cases in this group, 14 or 35 percent are of such size. The small number of respondent producers of stone, clay, and glass products moderates the significance of that group as a whole; but 4 out of 10 respondents, or forty percent, had sales of more than $10 million, one of which was above $100 million. Perhaps of more significance is the fact that 236 respondents out of 334 or about 70 percent had sales of $3 million or less in 1958.

Parts (b) and (c) of Question 3 are helpful in obtaining an answer to the question whether the large producers support or do not support additional statutory design protection. The producers reporting more than $10 million annual sales of ornamental industrial design items in 1958 are considered to be the "large producers."

From Question 1(a) it is known that about 27 percent of all respondents consider the existing system of legal protection for designs to be adequate; about 50 percent consider that there should be additional legal protection; and about 23 percent have "no opinion." However, among the 49 large producers of design items, about 30 percent consider the present system to be adequate; about 62 percent consider that additional statutory protection is desirable; and about 8 percent have no opinion. Without further statistical refinement, it may be said that large producers separately report even greater support to additional statutory protection than the total group including both large and small producers.

Part (d) of Question 3 was designed to discover the size of the competitive field of each of the categories. However, the responses indicate clearly that producers either do not know the number of their competitors, or that the definition of a "competitor" is quite different in the mind of each producer. In the case of textile mill products, the body of respondents said they have from 6 to 100 competitors, but two of them reported 150 competitors each; one reported 250 competitors; one reported 300 competitors; and one reported 500 competitors. Among producers of apparel the range of competitors is reported to be from 15 to "infinite"; but 15 of 39 respondents reported the number of competitors to be over 100 in this field.

Among the producers of furniture and fixtures, respondents reported the number of competitors to be from 6 to 5000, 3 respondents naming the latter figure. One respondent said the number of competitors is "countless" and another reported the number to be "unlimited."

Thirty-one producers of rubber products reported the number of competitors in the field to be between 12 and 200. But one such producer reported he has 300 com-

petitors, another says he has from 2000 to 3000, and another says the number of his competitors is countless.

Among 20 producers of leather and leather products the number of competitors reported is between 10 and 600.

Most of the respondent producers of stone, clay, and glass products report that they have between 10 and 30 competitors, but one small producer says he has over 500.

In the area of machinery most of the respondent producers report the number of their competitors to be between 6 and 200, but one small producer says he has 500 competitors.

Among producers of miscellaneous products, most of them report that they have between 15 and 200 competitors, but one small producer says he has 500, and another small producer says he has 1500. One respondent says that he has "thousands" of competitors.

The responses to this question, 3(d), are so diverse that it is impossible to tabulate them. However, it is probable that the responses give a fairly accurate picture of the ways in which American producers view the numbers of their competitors.

VII. QUESTION 4

This question was designed to elicit information about the sources of ornamental industrial designs which are used by American producers. The question is worded as follows:

> 4. *Ornamental Design Sources.*
>
> *NOTE:* The following question seeks your considered opinion about the sources used by *all* the firms in your industry for their ornamental designs; it does *not* seek information about the ornamental design sources of any individual firm.
>
> There follows a list of suggested sources for ornamental designs. Please read the list and insert any unlisted source, if any, on the last line; then insert an "x" in front of each source which is *not* used by the firms in your industry. Then, among the methods which are still unmarked, please place a "1" in front of the source which you consider the industry uses most; then place a "2" in front of the source you consider to be of second importance to the firms in your industry; a "3" in front of the third most important source; and continue with additional ascending numbers until all spaces in front of the items are filled.
>
> .... Creation of designs within each firm.
> .... Purchase of designs from independent designers or design firms.
> .... Purchase of licenses for use of designs owned by others.
> .... Adaptation of designs from sources within the industry.
> .... Adaptation of designs from sources outside the industry.
> .... Copying of designs from sources within the industry.
> .... Copying of designs from sources outside the industry.
> .... Public Domain
> .... Other (Specify) .....

The responses to the question vary greatly in nature. Some respondents misun-

derstood the question and inserted check marks or crosses without any indication of importance. Some respondents used the figures indicating importance on only a few of the possible sources. However, a tabulation of the classifiable responses has been made and is shown in Table V. In each category the individually-reported figures indicating the importance of each source of designs were added up and divided by the number of responses, thus giving an average figure for the rating of each source by those who rated that particular source; these ratings were then tabulated.

Considering the entire group, which is shown by the weighted averages at the bottom of the Table, the respondents as a whole report that the most important source of ornamental industrial designs is by creation within the firm; following this, purchase of designs from independent designers, and adaptation of designs from within the industry are rated to be of equal importance. Of next importance is copying of designs from sources within the industry.

Of least importance is the purchase of licenses to use designs owned by others. Also rated as being rather insignificant are three other "outside" sources, namely, copying outside the industry, public domain, and adaptation outside the industry.

Considering only the ratings of greatest importance, while the entire group averaged out to show creation within the firm to be most important, among textile producers purchase of designs from designers is rated as being most important; among producers of paper and allied products purchase of designs is rated first; among the producers of leather and leather products both adaptation from sources within the industry and copying from sources within the industry are rated as more important than creation by the individual firm.

In general, it may be said that the respondent producers report that the most significant source of ornamental industrial designs is creation within the individual firms, but there are important variations from this central tendency. Public domain is not considered to be a dominant source of designs by producers in any industry group.

VIII. QUESTION 5

This question was designed to obtain information about the extent of expenditures by individual firms for ornamental industrial designs and the forms taken by such expenditures. The question reads as follows:

5. *Cost of Ornamental Designs.*

(a) Does your firm spend any funds as creator, purchaser, or licensee of ornamental designs for use in its products? Yes.... No....

(b) There follows a list of ways in which a firm may expend funds to get ornamental designs for its products. To the left of each item in the list please enter a figure reflecting the estimated or recorded amount your company spent in 1958 for that item.

$..... Separate ornamental design unit within your firm. (Include salaries, other direct costs, and an appropriate share of overhead.)

$..... Ornamental design costs within your firm, but not for a separately-organized unit.
$..... Retainers and related payments made to independent designers and design firms.
$..... One-time fees for independent designers and design firms.
$..... License fees paid to others for use of designs.
$..... Other (Specify) .....

As to the number of firms responding to this question, Table VI reflects the results. The first two figure columns of the Table indicate the scope of expenditures for ornamental industrial designs by the respondent firms. Out of 363 firms responding, 330 reported that they expend funds for ornamental industrial designs, and 33 reported that they do not expend any such funds.

The last six figure columns of the Table show the number of firms which expended design funds in various ways. The totals of these six columns do not agree with the totals of the first two columns because many firms reported expenditures for ornamental industrial design purposes in several different ways.

Considering the totals, the reporting firms indicate that they spend funds for ornamental industrial designs most frequently in the form of a separate ornamental industrial design unit within the firm, or through payment of retainers and other similar types of payment to organizations not a part of the producing firm. Of second frequency is the expenditure of funds within the producing firm without a separate organizational unit for the purpose of creating ornamental industrial designs. Of somewhat less frequency is the utilization of payments to independent designers on a one-time basis rather than on a continuing basis. The payment of license fees for use of ornamental designs is relatively rare, only about 8 percent of respondents reporting payment of such license fees.

Another question arising out of Question 5 is the relationship between the amount of funds spent in obtaining ornamental industrial designs as a percentage of the total sales value of the products which use those designs. By combining the responses to Question 3(b) and (c) and Question 5, it has been possible to secure an answer to this question. All the cases in which it was possible to compute both (a) the dollar sales of ornamental industrial design products from Question 3(b) and (c), and (b) the amount spent for ornamental industrial designs used in those products are tabulated in Table VII. The number of respondents covered in this Table is considerably smaller than the number of respondents to the component parts because all three of the necessary requisite figures were given by a smaller number of respondents. The Table shows the results for 254 respondents.

Over all, Table VII shows that sales of nearly $2.2 billion worth of ornamental industrial design products are related to design costs of nearly $15.5 million or 0.71 percent of the sales. However, the percentage of expenditure varies widely among the industry categories from a high of 1.63 percent among 15 producers of leather and leather products to a low of 0.05 percent among 6 producers of stone, clay, and glass products. In general, the Table shows that producers tend to expend not more than about 1.5 percent of their sales value on design costs, and the average of such expenditures tends to be about two-thirds of one percent of the sales value.

However, these generalizations must be tempered in two respects. First, the average percentage design expenditure for each industry group is a single figure representing higher percentage figures for some individual firms and lower percentage figures for others. Second, the reported figures do not include expenditures for promotion of unusual or unique designs; the argument has been made that the competitive loss of such expenditures is much more important than the competitive loss of funds expended in obtaining the design.

IX. QUESTION 6

This question was designed to elicit information about the extent and sources of copying of ornamental industrial designs and the extent to which firms used legal means to prohibit such copying. The question is worded as follows:

6. *Copying of Ornamental Designs.*

(a) Since January 1, 1958, to your knowledge, has any unauthorized producer copied any of your ornamental designs? (Check one) Yes.... No....

(b) How many producers were involved in such copying? ....

(c) Were the copying producers (check one or both) domestic?.... foreign?....

(d) How many different designs were copied? ....

(e) In how many cases of unauthorized copying did your firm

(1) Obtain legal advice recommending legal action? ....

(2) File suit? ....

Under the Design Patent Act? ....

Under the Copyright Act? ....

In unfair competition? ....

Other (Specify) .....

(3) Make an out-of-court settlement? ....

(4) Obtain a judgment? ....

(f) Who, in your opinion, motivated the unauthorized copying by the producer? (Check one or more)

.... Retailer

.... Wholesaler or jobber

.... Processor

.... Manufacturer

.... Other (Specify) .....

.... No opinion

Tables VIII, IX, X and XI have been compiled from the responses to this question. The responses to parts (a), (b), (c), and (d) of the question, relating to the existence and extent of copying, are tabulated in Table VIII. It will be noted from the first two figure columns in the Table that 359 respondents answered Part (a) of this question, only slightly less than two-thirds of them reporting that they have knowledge of unauthorized copying of some of their ornamental industrial designs during 1958 and the early part of 1959. Only among the producers of paper and allied products and machinery did a majority of the respondents report that they

have not been copied; in all other groups not less than a majority reported unauthorized copying of their designs; in the case of stone, clay, and glass producers 5 respondents reported on each side. In no industry classification was "no copying" reported.

It may be asked whether the support for additional statutory design protection, as shown in the responses to Question 1(a), *supra,* was drawn primarily from those respondent producers who reported that their designs had been copied. The responses to Question 1(a) and Question 6(a) were cross-classified in order to answer this question. Of a total of 382 usable replies, three respondents did not answer Question 1(a), and twenty-three respondents did not answer Question 6(a); of these twenty-six respondents, one answered neither question.

In the total statistical universe of 382 usable replies, 50 percent considered that additional statutory protection is needed. Among the 235 respondents who were copied, 64 percent supported additional statutory protection; and among the 124 respondents who were not copied, 28 percent supported additional statutory protection. Hence, the support for additional statutory protection is more than twice as strong among copied producers as among non-copied producers.

Among the 382 usable replies (total universe), 26 percent considered the present statutory situation of design protection to be satisfactory. Among the 235 respondents who reported that they had been copied, 25 percent supported the present statutory situation; and among the 124 respondents who reported that they had not been copied, 27 percent supported the present statutory situation. Hence, support to the present statutory situation was about equally significant in each of the two groups.

In Question 1(a), respondents were also given the option of expressing "no opinion" on the matter of additional statutory design protection. In the total universe of 382 usable replies, 23 percent of the respondents expressed "no opinion." However, ten percent of the 235 copied producers, and 45 percent of the 124 non-copied producers, expressed "no opinion." Hence, the "no opinion" option was more than four times as significant among non-copied producers as among copied producers.

It may be concluded that, relative to the statistical universe, (1) copied producers supported additional design legislation more than twice as frequently as non-copied producers, (2) copied producers and non-copied producers supported the existing statutory design situation in about equal proportions, an (3) non-copied producers expressed "no opinion" on the problem of additional design legislation more than four times as frequently as copied producers.

The responses to Question 6(b) are tabulated in the third figure column of Table VIII. For the entire group of respondents those who reported copying of their designs said that from one to 50 producers were copyists of such designs. This range of the number of copying producers varies widely among the industrial classifications, from one extreme of 3 to 5 copyists among the producers of paper and allied products to the other extreme of 1 to 40 copyists reported by the producers of textile mill products and furniture and fixtures, and a range of 2 to 50 copyists reported by the producers of leather and leather products.

Question 6(c) was designed to indicate the division of copying between domestic and foreign copyists. As shown in the fourth and fifth figure columns of Table VIII, a total of 227 respondents reported copying of their designs by domestic firms and 49 respondents reported copying of their designs by foreign firms; there is some overlapping between these two figures. Only in the case of stone, clay, and glass producers was there no report of copying by foreign firms. In no industry classification is a predominance of copying by foreign firms reported, although about 35 percent of the incidence of copying reported by respondent producers of rubber products was by foreign firms.

Part (d) of Question 6 was designed to elicit information concerning the number of designs which each respondent knew had been copied by another producer. The sixth figure column in Table VIII tabulates the results of the responses to this question. It shows that the respondents reported individually that from 1 to 200 of their designs had been copied by other producers ranging from a low of 1 to 4 designs copied from stone, clay, and glass producers to a high of 1 to 200 designs copied from producers of leather and leather products.

The responses to Question 6(e)(1) and 6(e)(2) concerning the institution of legal action against copyists are compiled in Table IX. Of the 236 respondents who reported copying of their designs, 66 reported that they had obtained legal advice concerning the possibility of action against the copyists. Of these 66, 15 did not report the number of cases in which they obtained legal advice, but the number of cases could be not less than one each, or a total of fifteen. Fifty-one of the respondents reported that they had obtained legal advice in not less than 179 cases of which 40 cases were reported by 3 individual respondents. Thus, in a total of not less than 194 cases did 66 respondents who had been copied obtain legal advice concerning possible remedies.

The responses to Question 6(e)(2) on Table IX show the extent to which the copied producers acted upon the legal advice which they obtained. The last column in Table IX shows that 20 respondents filed a total of 36 suits as a result of the legal advice which they obtained; of these, 6 respondents filed eight suits under the Design Patent Act; 4 respondents filed 5 suits under the Copyright Act; and 12 respondents filed 23 suits based on unfair competition. In addition, at least 18 suits were filed, 12 of them by 6 respondents on a combination of legal bases or without stating the basis of suit, and 6 suits by 6 respondents without any statement as to whether more than one suit was filed by each.[8]

Therefore, it may be said that as a result of the legal advice obtained by 66 respondents in a total of at least 194 cases, suit was instituted in at least 54 cases on one or more of several legal bases.

The responses to Question 6(e)(3) and Question 6(e)(4) are tabulated in Table X, which shows the number of reported settlements and judgments obtained in the 54 instances in which suit was entered. The responses to Question 6(e)(3) show that 25 respondents reported out-of-court settlements in 45 instances, and 4 re-

[8] See Note 8 attached to Table IX.

spondents reported settlements without stating the number.[4] Hence it may be said that 29 respondents obtained at least 49 out-of-court settlements.

The responses to Question 6(e)(4), tabulated in the last two figure columns of Table X, show that those respondents who obtained legal advice and entered suit against alleged copyists, reported two final judgments, at least two additional final judgments, and four "pending" judgments.[5]

Considering Tables VII, VIII, IX, X together, the situation as to the extent of copying and the application of legal remedies to such copying, it may be said that 236 respondents reported that they were copied by from 1 to 50 copyists and that from one to 200 designs were copied from each respondent. As a result of this copying, 66 respondents obtained legal advice in at least 194 cases; at least 32 respondents filed at least 54 suits and obtained at least 49 out-of-court settlements and 4 judgments, with 4 additional judgments still pending.

The responses to Question 6(f), which was designed to elicit information concerning the sources of motivation for copying, are tabulated in Table XI. A number of the 236 respondents who reported copying indicated more than one source of motivation for copying; hence the total cases of motivation exceed the number of respondents. It will be noted that those producers who were copied consider that the motivation for copying arose primarily from a competing manufacturer; 192 of them so reported. Less than half as many producers reported that motivation arose from retailers, presumably from those retailers who found a design selling well and asked a producer to copy it at a lower price. Wholesalers and processors are considered to be relatively unimportant "prime movers" of copying. In 8 cases out of the 236 respondents who reported copying, the respondent expressed no opinion on the matter of motivation for the copying.

X. QUESTION 7

This question was designed to discover whether the producers of ornamental industrial design products have design problems with respect to the packaging of their products. Information was obtained only with respect to those industry categories which were considered to be of importance in the area of ornamental industrial design and were circulated in the course of this study. It must be recognized that there may be other categories of producers among whom packaging design problems may be of greater importance than among the groups covered here. The question included in the questionnaire was worded as follows:

7. (a) Do you have any problems relating to protection of ornamental designs of the packages or containers in which your products are sold? (Check one) Yes.... No....
   (b) If "Yes," please summarize below the nature of these problems.

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[4] See footnote (c), Table IX.

[5] The two final judgments reported among the responses to Question 6(e)(4), Table X, are augmented by two more final judgments obtained by two respondents who reported final judgments but did not state the number of judgments, as indicated in footnote (d) to Table X.

The responses to Part (a) of the question are tabulated in Table XII. It is shown that 305 out of 336 firms responding to this question reported that they had no design packaging problems. Only 31 or 9.2 percent of the respondents reported such problems. The respondent producers of paper and allied products and leather and leather products were unanimous in reporting that they have no design packaging problems. Such problems are reported most frequently by the producers of rubber products and stone, clay, and glass products.

The responses to Part (b) of Question 7 are inconsequential.

TABLE I

MAILING AND RETURNS BY INDUSTRY CLASSIFICATIONS

SIC Number	Industry Classification	Number Mailed	Number Returned	Percentage of Returns
22	Textile mill products	212	47	21.9%
23	Apparel, etc.	147	37	25.2
25	Furniture and fixtures	588	135	22.9
26	Paper and paper products	29	15	51.7
30	Rubber, etc., products	202	31	15.3
31	Leather and leather products	166	20	12.1
32	Stone, clay, and glass products	40	11	27.5
35–6	Machinery, electrical and other *	208	49	23.6
39	Miscellaneous products	189	37	19.6
	Totals	1781	382	21.4%

* For purposes of this study, SIC major groups 35 (Machinery, except electrical) and 36 (Electrical machinery, equipment and supplies) have been combined.

TABLE II

RESPONSES TO QUESTIONS I(a).

SIC Number	Industry Classification	Number of Responses	Favor Existing System		Favor Additional Legislation		Have No Opinion	
			Number	Percent	Number	Percent	Number	Percent
22	Textile mill products	47	9	19.1%	34	72.4%	4	8.5%
23	Apparel, etc.	37	9	24.3	20	54.1	8	21.6
25	Furniture and fixtures	134	49	36.6	57	42.5	28	20.9
26	Paper and allied products	15	4	26.7	5	33.3	6	40.0
30	Rubber, etc., products	30	3	10.0	19	63.3	8	26.7
31	Leather and leather products	20	3	15.0	15	75.0	2	10.0
32	Stone, clay, and glass products	11	5	45.4	3	27.3	3	27.3
35–6	Machinery, electrical and other	48	10	20.8	17	35.4	21	43.8
39	Miscellaneous products	37	9	24.3	21	56.7	7	19.0
	Totals	379	101	26.6%	191	50.4%	87	23.0%

TABLE III

RESPONSES TO QUESTION 2.

SIC Number	Industry Classification	Number of Respondents Aware of Existence of				Number of Respondents Acquainted with Provisions of			
		Willis Bill		O'Mahoney Bill		Willis Bill		O'Mahoney Bill	
		Yes	No	Yes	No	Yes	No	Yes	No
22	Textile mill products	23	20	24	19	20	21	20	21
23	Apparel, etc.	11	22	12	21	10	23	11	24
25	Furniture and fixtures	40	86	48	78	21	103	24	98
26	Paper and allied products	1	14	1	14	0	15	0	14
30	Rubber, etc., products	4	25	5	24	3	25	4	22
31	Leather and leather products	1	17	1	17	1	15	1	15
32	Stone, clay, and glass products	1	10	1	10	1	9	1	9
35–6	Machinery, electrical and other	12	34	12	34	7	38	8	37
39	Miscellaneous products	7	28	7	27	7	27	6	27
	Totals	100	256	111	244	70	276	75	267

TABLE IV

RESPONSES TO QUESTIONS 3(b) AND (c)

SIC Number	Industry Classification	Number of Firms Reporting Sales Value * of											
		$1 million or less	More than $1 million—$2 million	More than $2 million—$3 million	More than $3 million—$4 million	More than $4 million—$5 million	More than $5 million—$6 million	More than $6 million—$7 million	More than $7 million—$8 million	More than $8 million—$9 million	More than $9 million—$10 million	More than $10 million—$50 million	More than $50 million—$100 million	Above $100 million	Totals
22	Textile mill products	15	3	5	3	1	0	1	2	0	1	8	3	0	42
23	Apparel, etc.	11	3	5	1	2	1	0	0	1	0	7	0	0	31
25	Furniture and fixtures	49	38	16	3	2	2	3	4	0	0	7	0	0	124
26	Paper and allied products	6	4	1	0	1	0	0	0	0	1	0	0	0	13
30	Rubber, etc. products	15	3	3	0	0	1	0	0	1	0	1	0	2	26
31	Leather and leather products	8	6	3	0	0	0	0	0	0	0	1	0	0	18
32	Stone, clay, and glass products	2	2	0	1	0	0	1	0	0	0	3	0	1	10
35–6	Machinery, electrical and other	8	7	1	1	6	3	0	1	0	0	7	2	5	41
39	Miscellaneous products	14	4	4	1	0	0	0	0	1	1	3	0	1	29
	Totals	128	70	38	10	12	7	5	7	3	3	37	5	9	334

* Sales value includes only sales value involving products having ornamental industrial design, i.e., the answer to question 3(b) multiplied by the answer to question 3(c).

TABLE V

RESPONSES TO QUESTION 4.*

SIC Number	Industry Classification	Sources of Ornamental Industrial Designs ** Creation Within Firm	Purchase from Designers	Purchase of Licenses	Adaptation: Within Industry	Adaptation: Outside Industry	Copying: Within Industry	Copying: Outside Industry	Public Domain
22	Textile mill products	2.46	2.33	6.54	2.72	4.23	2.97	5.24	5.72
23	Apparel, etc.	2.24	3.36	4.95	2.76	4.64	2.71	5.84	5.19
25	Furniture and fixtures	2.34	2.38	5.45	2.47	5.46	3.15	6.14	5.29
26	Paper and allied products	4.00	1.00	7.60	2.66	3.75	4.00	5.13	6.40
30	Rubber, etc., products	1.48	3.68	6.33	3.14	5.00	3.53	4.75	5.92
31	Leather and leather products	2.43	5.20	4.50	2.00	3.75	2.11	3.33	5.50
32	Stone, clay, and glass products	1.75	4.28	7.00	2.75	5.75	3.00	6.50	3.00
35–6	Machinery, electrical and other	1.44	2.35	5.65	2.84	5.08	3.72	5.62	5.14
39	Miscellaneous products	1.88	3.18	5.40	2.75	4.66	2.92	5.39	4.56
	Weighted averages	2.16	2.66	5.69	2.66	4.89	3.15	5.59	5.26

* The figures in the table are averages of individual ratings reported by respondents; the lower the figure, i.e., the closer to the figure 1 (representing first choice or highest rating), the more important the source of designs in the opinion of the respondent. See instructions accompanying the question, quoted in the text.

** Comparisons within each industry group, i.e., reading from left to right, are more significant than comparisons among industry groups, i.e., reading from top to bottom.

TABLE VI

RESPONSES TO QUESTION 5.

SIC Number	Industry Classification	Any Funds Spent for Ornamental Designs? Yes	No	Number of Firms Reporting: Separate Ornamental Design Unit	Ornamental Design Costs Not Separated	Retainers and Related Payments	One-Time Fees for Independent Designers	License Fees Paid to Others	Other Ornamental Design Costs
22	Textile mill products	42	3	29	11	17	15	3	1
23	Apparel, etc.	30	5	13	14	8	4	7	0
25	Furniture and fixtures	119	10	49	38	75	24	6	0
26	Paper and allied products	12	3	5	3	3	6	0	0
30	Rubber, etc., products	23	4	8	10	11	10	4	0
31	Leather and leather products	15	3	11	8	6	1	2	3
32	Stone, clay, and glass products	8	2	4	2	6	3	1	0
35–6	Machinery, electrical and other	46	3	21	18	23	20	2	0
39	Miscellaneous products	35	0	25	14	17	13	2	1
	Totals	330	33	165	118	166	96	27	5

TABLE VII

DESIGN COSTS AS PERCENTAGE OF SALES

SIC Number	Industry Classification and Number of Respondents	Producers' Sales of Items Involving Ornamental Industrial Design (Thousands of dollars)	Design Cost (Thousands of dollars)	Design Cost as Percentage of Sales
22	Textile mill products (29)	$ 280,939	$ 3,790	1.35%
23	Apparel, etc. (21)	160,816	1,517	0.94
25	Furniture and fixtures (100)	323,949	3,686	1.17
26	Paper and allied products (9)	22,517	362	1.61
30	Rubber, etc., products (18)	47,560	731	1.54
31	Leather and leather products (15)	29,469	484	1.63
32	Stone, clay, and glass products (6)	349,008	159	0.05
35–6	Machinery, electrical and other (31)	856,837	3,061	0.36
39	Miscellaneous products (25)	114,751	1,629	1.42
	Totals (254)	$2,185,846	$15,419	0.71%

TABLE VIII

RESPONSES TO QUESTIONS 6(a), 6(b), 6(c), AND 6(d)

SIC Number	Industry Classification	6(a) Have Respondent's Designs Been Copied? Yes	6(a) No	6(b) Number of Copying Producers per Respondent (Range)	6(c) Number of Respondents Reporting Copying by Domestic Firms	6(c) Foreign Firms	6(d) Number of Designs Copied per Respondent (Range)
22	Textile mill products	35	8	1–40	33	9	1–40
23	Apparel, etc.	23	14	1–20	23	7	1–20
25	Furniture and fixtures	90	38	1–40	87	5	1–50
26	Paper and allied products	6	9	3–5	6	2	1–25
30	Rubber, etc., products	15	12	1–10	15	8	1–12
31	Leather and leather products	17	2	2–50	16	3	1–200
32	Stone, clay and glass products	5	5	1–4	5	0	1–4
35–6	Machinery, electrical and other	20	26	1–20	17	8	1–10
39	Miscellaneous products	25	9	1–30	25	7	1–50
	Totals	236	123	1–50	227	49	1–200

TABLE IX

RESPONSES TO QUESTIONS 6(e)(1) AND 6(e)(2)

SIC Number	Industry Classification	Question 6(e)(1) Respondents Who Obtained Legal Advice But Did Not Report Number of Cases	Question 6(e)(1) Reported Number of Cases: Number of Respondents	Question 6(e)(1) Reported Number of Cases: Number of Cases	Question 6(e)(2) Number of Suits Filed * Design Patent Act	Copyright Act	Unfair Competition	Other	Totals	
22	Textile mill products	2	8	26	3(2)	4(3)	5(4)	0	12(7)	Note 1
23	Apparel, etc.	1	6	11	0	1(1)	0	0	1(1)	Note 2
25	Furniture and fixtures	3	8	29 [a]	3(2)	0	1(1)	0	4(3)	Note 3
26	Paper and allied products	0	1	2	0	0	1(1)	0	1(1)	
30	Rubber, etc., products	2	6	12	1(1)	0	6(1)	0	7(2)	Note 4
31	Leather and leather products	1	6	20 [b]	0	0	0	0	0	Note 5
32	Stone, clay, and glass products	0	2	5	0	0	1(1)	0	1(1)	
35–6	Machinery, electrical and other	5	7	20 [c]	0	0	1(1)	0	1(1)	Note 6
39	Miscellaneous products	1	7	54	1(1)	0	8(3)	0	9(4)	Note 7
	Totals	15	51	179	8(6)	5(4)	23(12)	0	36(20)	Note 8

For footnotes, see following page.

FOOTNOTES TO TABLE IX

[a] Twenty of the twenty-nine cases were reported by one respondent.

[b] Ten of the twenty cases were reported by one respondent.

[c] Ten of the twenty cases were reported by one respondent.

* Numbers in parentheses show the number of respondents who filed the suits.

Note 1. In addition, one respondent reported filing two suits but did not state the bases; and two respondents reported filing suits under the Copyright Act but did not state the number of suits.

Note 2. In addition, one respondent reported filing a suit based on both the Copyright Act and unfair competition; and one respondent reported filing on the basis of unfair competition, but did not state the number of suits.

Note 3. In addition, one respondent reported filing a suit based on both the Copyright Act and unfair competition; and one respondent reported filing under the Design Patent Act but did not state the number of suits.

Note 4. In addition, one respondent reported filing three suits based on both the Design Patent Act and unfair competition.

Note 5. One respondent reported filing under the Copyright Act, but did not state the number of suits.

Note 6. In addition, two respondents reported filing one suit each based on both the Design Patent Act and unfair competition.

Note 7. In addition, one respondent reported filing three suits based on both the Copyright Act and unfair competition; also one respondent reported filing on the same bases, but did not state the number of suits.

Note 8. Notes 1-7, above, may be summarized as follows:

Seven respondents filed twelve suits on combined legal bases, or without stating the basis.

Six respondents filed suits without stating the number of suits; four filed under the Copyright Act and one each under the Design Patent Act and unfair competition.

Hence, at least eighteen additional suits are reported in Notes 1-7.

TABLE X

RESPONSES TO QUESTIONS 6(e)(3) AND 6(e)(4)

SIC Number	Industry Classification	Question 6(e)(3) Out-of-Court Settlements: Number of Settlements	Question 6(e)(3) Out-of-Court Settlements: Number of Respondents	Question 6(e)(4) Number of Judgments: Final	Question 6(e)(4) Number of Judgments: Pending
22	Textile mill products	12	6	0	2
23	Apparel, etc.	4	4	0	0
25	Furniture and fixtures	5[a]	4	0	0
26	Paper and allied products	1	1	0	0
30	Rubber, etc., products	1[b]	1	0	0
31	Leather and leather products	3	1	0	0
32	Stone, clay, and glass products	4	1	0	0
35–6	Machinery, electrical and other	2	1	0	1
39	Miscellaneous products	13[c]	6	2[d]	1
	Totals	45	25	2	4

[a] In addition, two respondents reported two "pending" settlements.
[b] In addition, one respondent reported one "pending" settlement.
[c] In addition, four respondents reported settlements without stating the number.
[d] In addition, two respondents reported final judgments without stating the number.

TABLE XI

RESPONSES TO QUESTION 6(f)

SIC Number	Industry Classification	Number of Respondents Who Consider Unauthorized Copying To Be Motivated By: Retailer	Wholesaler or jobber	Processor	Manufacturer	Other	No Opinion
22	Textile mill products	9	11	5	32	3	1
23	Apparel, etc.	8	3	0	18	0	2
25	Furniture and fixtures	48	8	1	79	4	1
26	Paper and allied products	3	4	0	4	0	0
30	Rubber, etc., products	2	8	2	8	2	2
31	Leather and leather products	11	2	1	15	1	0
32	Stone, clay, and glass products	0	0	0	2	2	0
35–6	Machinery, electrical and other	4	4	1	15	3	2
39	Miscellaneous products	5	15	3	19	3	0
	Totals	90	55	13	192	18	8

TABLE XII

RESPONSES TO QUESTION 7(a)

SIC Number	Industry Classification	Number of Respondents Reporting: Design Packaging Problems	Number of Respondents Reporting: No Design Packaging Problems	Percent Having Problems
22	Textile mill products	4	36	10.0%
23	Apparel, etc.	4	31	11.4
25	Furniture and fixtures	4	113	3.4
26	Paper and allied products	0	14	0
30	Rubber, etc., products	7	18	28.0
31	Leather and leather products	0	19	0
32	Stone, clay, and glass products	2	8	20.0
35–6	Machinery, electrical and other	7	36	16.3
39	Miscellaneous products	3	30	9.0
	Totals	31	305	9.2%

EDUCATIONAL ACTIVITIES

Thomas Alva Edison Fellowship Awarded

THE THOMAS ALVA EDISON FELLOWSHIP FOR GRADUATE STUDY of the patent and related systems during the 1961-62 academic year has been awarded to Miss Mary A. Holman, candidate for the degree of Doctor of Philosophy in Economics at The George Washington University.

The government owns thousands of patented inventions and only a scattering of information is available on their uses. Miss Holman's year-long study, as a fellow in The Patent, Trademark, and Copyright Foundation, will find out how these government-owned, patented inventions are utilized. She will examine government patent policies and their implications for economic growth and technological development.

The $3,000 Thomas Alva Edison Fellowship, established in 1961, is supported by the Thomas Alva Edison Foundation. Special assistance from the McGraw Foundation made the fellowship possible.

Foundation Produces Movie

The Foundation has inaugurated another dimension of its educational program, the production of a color motion picture entitled "Fuel to the Fire." The purpose of this film is to provide a clear and memorable impression of what our patent system is, how it came to be, why it is important, and what it means to the individual. It will also vividly illustrate that this nation's unprecedented progress and prosperity took place under the American patent system. The film has special timeliness in view of the international climate, and the increase in the number of people who must now have contact with the patent system. The film is intended to be an educational service for citizenship. The picture is being prepared so that it might also be used for television.

Digest on Federal Patent Policies Published

A nontechnical summary of the Foundation's findings on federal patent policies in R&D contracts has been published in *Digest* form. The new issue of the *Digest* is being distributed to members of the Foundation, executives, government officials, educators and laymen generally, as well as to those with a professional interest in the patent and related fields.

The first *Digest* reported the Foundation's findings on the commercial use of patented inventions and the second summarized Foundation research on foreign licensing.

Foundation Research Guide Distributed

The Foundation has distributed a fourth guide in its *What Do You Know About . . .* series, entitled, "Patent Policies in Government Contracts for Research and Development." These guides are intended as an easy reference aid to patent and related information in the Foundation's published sources. This new research guide is a key to the Foundation's study, Federal Patent Policies in Research and Development Contracts, which was undertaken in response to a request by the Executive Branch of the Federal Government. The results of this study were published in Vol. 4, No. 4 (Winter 1960), of this *Journal.*

Tape Recordings of 1961 Conference Available

Highlights of the fifth Annual Public Conference were broadcast over a nationwide radio network. Proceedings of the Conference were tape recorded, edited and condensed to an hour broadcast. The recording is available for the use of individuals and organizations at a nominal fee.

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REPORTS AND HEARINGS

Annual Report of the Commissioner of Patents, Fiscal year 1960, Vol. 43, No. 6, June, 1961, 389-417.
Resources of patent search, new information aids and exhibit program are included under Patent Information provided for the public. Brief sections are devoted to the Patent Examining Operation, the Board of Appeals, Research and Development, Trademark Operation, Trademark Trial and Appeal Board, International Activities and a statement of Operating Cost and Income. A series of tables conclude the report.

Copyright Studies (With Comments

and Views) prepared for the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate, 86th Congress, 2nd. Session, pursuant to S. Res. 240.

No. 27. Strauss, *Copyright in Architectural Works,* 1959.

No. 28. Varmer, *Copyright in Choreographic Works,* 1959.

No. 33. Berger, *Copyright in Government Publications,* 1959.

No. 34. Varmer, *Copyright in Territories and Possessions of the United States,* 1959.

Investing in Scientific Progress, 1961-1970. National Science Foundation, 1961).

This report "puts forth a national goal for scientific progress and shows what it will take to reach this goal in the next ten years."

Report of the Committee on the Judiciary, U.S. Senate, made by its Subcommittee on Antitrust and Monopoly, pursuant to S. Res. 52, 87th Cong., 1st Sess.

Administered Prices Drugs, June 27, 1961. 374 pp.

Fourth report on "administered prices" by the subcommittee. Majority report is composed of five parts: (1) "The reasonableness of price," (2) "The control of the market," (3) "Patents and research in drugs," (4) "Advertising and promotion of drugs," (5) "Generic names versus trade names." The minority report consists of the individual views of Senator Dirksen and Hruska, and the views of Senator Wiley reported separately. The minority report contains an eleven-point analysis of the majority's charges.

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NOTES

New Research Format Adopted

AREAS OF FOUNDATION INTEREST

The research and educational activities of the Foundation are concerned with all aspects of patents, trademarks, and copyrights—their legal characteristics; their relationship to other intangibles; their statistical description; and their personal, social, economic, and technological implications. More precisely, the Foundation's areas of interest include the following:

I. INDIVIDUAL (e.g., from the standpoint of creativity, incentives, etc.)

II. INDUSTRIAL (e.g., from the standpoint of economic growth, research and development activity, diversification of firms, intercompany relations, executive decision-making, and antitrust)

III. GOVERNMENTAL (e.g., from the standpoint of legislation, administrative regulations and procedures, terms of contracts with private firms, judicial actions, and taxation)

IV. PUBLIC (e.g., from the standpoint of the general state of opinion or knowledge, as reflected in polls and news media)

V. INTERNATIONAL (e.g., from the standpoint of foreign licensing and other transactions)

The interests of the Foundation were presented in issues previous to the Foundation's 1961-62 *Bulletin* as falling into eight broad categories. The five areas listed above cover essentially the same scope. The change signals the growth of our staff's experience in these areas and the development of a large common fund of information from the various specialties.

FOUNDATION STUDIES

As a result of continuous examination of our research projects, the program is now organized around smaller study units, having a shorter production cycle, covering a relatively wider range of topics and permitting greater flexibility in arrangements for collaboration among researchers. This new treatment of the research program also will increase the flow of reports to the *Journal* and other outlets.

In addition to individual and group endeavor, the staff continues to collaborate in larger joint projects as required and in the review of completed studies and work in progress.

MINOR SUBJECTS

In addition to the above mentioned studies, graduate students of unusual promise and ability are carrying on a continuing series of relatively minor studies under the auspices and direction of the Foundation.

Publications, Research and Education Subcommittee Designated

At the seventh annual meeting of the Advisory Council on April 12, 1961, it was decided to designate two subcommittees for the Executive Committee of the Advisory Council. These subcommittees will advise and guide the Executive Committee in determining publications, research and education policy and programs.

The following members of the Advisory Council will serve on the Publications Subcommittee: Harry R. Mayers, Chairman; Joseph W. Barker, Lee J. Gary and Max McGraw.

The following members of the Advisory Council will serve on the Research and Education Subcommittee: Earl P. Stevenson, Chairman; Carl E. Barnes, J. King Harness, David C. Minton, Jr., and Virgil E. Woodcock.

1961 Conference Number Published

The proceedings of the fifth Annual Public Conference will be published shortly, in Volume 5 (Conference Number), of this *Journal.* An innovation in the Conference program this year was the theme of the Current Issue Session entitled, Industrial Property, Enterprise, and Government. The session on the first day of the Conference was organized as a panel discussion of research findings and new studies by Foundation representatives and research staff. The session on the second day consisted of a panel discussion of current issues by experts from the fields of industrial research, government, science, finance, small business, trademarks, and the patent bar.

Book Contributions Invited

With the increasing requests for information and use of the Foundation library, we believe we should bring to the attention of our readers, once again, the need for additional reports, periodicals, books and manuscripts. This material is being arranged and indexed for the use of students, researchers and professional people. We ask you to contribute second copies, from your personal collection, of publications related to the Foundation's fields of interest.

Tax Experience of American Corporations Owning Numerous Patents*

ROBERT B. BANGS, Principal Investigator
JOHN F. CREED, Research Associate

SUMMARY

This interim report gives results of a questionnaire survey addressed to American corporations that in 1955 each owned 150 or more patents. Detailed replies were received from corporations that owned more than 50,000 U.S. patents and more than 43,000 foreign patents at the end of 1959. The report deals primarily with the tax experience of these reporting corporations owning numerous patents. Problems of obtaining capital-gains treatment from sale or exclusive licensing of owned patents are reported. Such sales or licensing are not typical of large corporation practice. Experience in qualifying research and development costs as current tax deductions are also examined. The report makes rough estimates of income from patent licensing accruing to all U.S. corporations, and contrasts the tax experience of large corporations owning patents with that of individual inventors.

What tax problems do American corporations that own extensive patent assets most frequently encounter? How do tax considerations shape their administration of these assets, if at all? Is there uniformity of tax experience among American corporations with regard to earnings from their intangible industrial property, or diversity? Are transactions in patents and related industrial property frequently or only rarely tax-motivated? Does experience indicate any need for change in our income-tax rules as they apply to patents and knowhow? These and similar questions are typical of those asked by people who have thought deeply about our tax and patent systems and their interrelationship.

Such questions as these touch important issues about which much has been written and spoken and about which, as with all complex issues, there may be differences of opinion among reasonable men. The questions themselves emerge from the circumstances that we have, on the one hand, formal income-tax rules that are intended to apply uniformly to all comparable situations. These rules derive from statutory language, from regulations amplifying this language, and from litigated cases. We have, on the other hand, individual taxpayer experiences with

* This research report was written by Dr. Bangs. Dr. Bangs and Mr. Creed are members of the Foundation's Research Staff.

tax rules that may appear harsh or inequitable in special situations, or that do not appear to follow either the letter or the logic of the statute.

In the welter of controversy about taxation, the special area selected for study in this Foundation—within the general field of interaction between the tax and patent systems—is actual, representative tax experience. This area needs to be distinguished from the subject matter of the usual legal or accounting studies of taxation; these latter are concerned primarily with the precise boundaries of existing law. Witness the typical article in any of the better known tax law journals.[1] These articles review the leading cases, which establish the marginal applications of particular tax rules stated in general language. The characteristic question is whether a given type of transaction falls under rule A or rule B. Is it capital gain or ordinary income? Business expense or capital investment? Taxable or not?

Our concern in the tax studies of the Foundation is less with the marginal than with the modal or typical tax situation. We seek answers to such questions as: how do corporations ordinarily handle their patents for tax purposes? Do tax considerations influence business policies with regard to patent licensing, and if so to a great or merely a minor extent?

To answer these and related questions requires more than the usual study of tax law. It requires the accumulation of a body of empirically based knowledge that may be treated statistically. To begin building such a store of knowledge the Foundation, in 1960, addressed a detailed questionnaire to all American corporations that, in 1955, had owned 150 or more patents. We reasoned that by dealing first with substantial blocs of patents, we might accumulate useful and broadly based experience more quickly than by querying corporations generally. Many corporations own few if any patents, and consequently have only limited experience with the tax problems that accompany patent ownership.

Our questionnaire focused primarily on experience under the U.S. federal income tax; but it also called for details about foreign patenting, and for problems encountered under foreign income taxes because of patent ownership or use.

Since 1954, patents owned by corporations have, for U.S. income tax purposes, been classified as depreciable property used in trade or business. This is a special sort of property. Patents are by definition not capital assets, although treated as such for certain purposes. Patents share this classification as depreciable property with business structures and machinery.

The tax treatment of depreciable property is as follows: If the property is sold for a loss, that loss is a business loss; it may be offset against business income of any kind and, if unrequited, carried over to other years. If sold for a profit after book depreciation, this profit is treated as though it were a long-term capital gain, and taxed at lower effective rates than ordinary income. Whether the depreciable property can be sold for a profit or a loss depends on whether tax depreciation corresponds well or ill with actual depreciation, and on such other factors as the general trend of prices over the life cycle of the depreciable property.

[1] Cf. the bibliography appended to J. A. McFadden and C. D. Tuska, *Accounting and Tax Aspects of Patents and Research*, New York, Van Nostrand, 1960.

In contrast to the gain or loss from outright sale of a patent, or other depreciable property, income from use of such property, earned either in direct commercial operations or by licensing the patent, is typically ordinary income; however, in special cases, when an exclusive licensing arrangement transfers all substantial rights in the patent, the transaction may be viewed by the tax authorities as the equivalent of a sale—so that capital gain or ordinary loss may result.

DESCRIPTION OF THE UNIVERSE OF STUDY AND OF THE RESPONSES RECEIVED

Questionnaires were mailed to the 252 American corporations that owned 150 or more patents according to a 1955 list.[2] Completed questionnaires were received from sixty-two of these, forming the main body of information available for analysis. Letter replies were received from twenty-seven corporations that were unable, for various reasons, to supply all the details requested but who wished nevertheless to supply some information. These letter responses vary in completeness and in the nature of the information they supply; but a considerable number contain statements of company policy with regard to licensing, foreign patenting, or other transactions in industrial property that have tax implications. The letter replies thus add useful detail to that supplied by the completed questionnaires.

Because the questionnaires were directed only to corporations that were known to have title to substantial numbers of patents, the coverage represented in our responding group is quite broad. Slightly more than 50,000 U.S. patents and nearly 44,000 foreign patents were owned on Dec. 31, 1959, by corporations who returned questionnaires. Of all the U.S. patents estimated to have been owned by American corporations at the end of 1959, we can account for about sixteen percent among our respondents.

Since the number of U.S. corporations that file income-tax returns is about 180,000, and since a substantial fraction of these corporations may own at least one patent, a large sample would have been required to obtain sixteen percent coverage of corporate patent ownership, had the sample been selected in some other manner.

Because we surveyed only corporations known to have large numbers of patents, our results are not necessarily typical for all corporations, nor representative of those that own only a few patents; but, by and large, the tax problems of such corporations arising from administration of their patent assets will be minor in comparison with those of corporations that have large patent portfolios. Our interest, after all, is primarily in tax problems and tax experience. We sought to locate it in the most accessible place.

The number of patents owned by companies filing completed questionnaires is shown in Table 1. Tables 2 and 3 give frequency distributions of reporting companies by number of U.S. and foreign patents owned, respectively. The average

[2] *Distribution of Patents Issued to Corporations* (1939-55). Study #3 for the Subcommittee on Patents, Trademarks, and Copyrights, Senate Judiciary Committee Print, 84th Congress, 2nd Session, Dec. 29, 1956.

TABLE 1

Number of Patents Owned by Corporations Completing Foundation Questionnaire
(Dec. 31, 1959)

Company Number	U.S. Patents	Foreign Patents
1	227	248
2	[1]	[1]
3	75	75
4	1250	450
5	397	300
6	196	208
7	626	491
8	1451	738
9	542	526
10	2339	2993
11	1100[2]	400[2]
12	520	800
13	750[2]	400[2]
14	183	176
15	1950	3280
16	385	262
17	634	[1]
18	83	30
19	1853	286
20	5000[2]	3000[2]
21	1188	784
22	513	46
23	250	600
24	1132	895
25	1082	120
26	450	179
27	578	450
28	380	750
29	292	488
30	1150	2010
31	250	200
32	524	136
33	190	58
34	220	91
35	298	197
36	265	147
37	406	246
38	292	488
39	[1]	[1]
40	564	200
41	[1]	[1]
42	480	108
43	269	127
44	151	0
45	[1]	[1]
46	200[2]	250[2]
47	355	176
48	600	228
49	403	95
50	400[2]	100[2]
51	3000[2]	4750[2]
52	437	0
53	142	27
54	936	558
55	114	200[2]
56	7600[2]	8500[2]
57	481	1500[2]
58	297	448
59	184	376
60	3527	1151
61	775	2425
62	250[2]	50[2]
Totals	50,186	43,817

[1] Not reported.
[2] Estimated by respondent.
Source: Replies to Foundation Questionnaire.

TABLE 2

Distribution of Reporting Companies by Number of U.S. Patents Owned
(Dec. 31, 1959)

Number of U.S. Patents Owned	Number of Companies
Less than 100	2
100-399	23
400-699	16
700-999	3
1000-1499	7
1500-1999	2
2000 and over	5
No report	4
Total	62

Source: Table 1.

number of U.S. patents owned by each reporting company was 865, but the median was only 443. This latter average is less affected by the very large patent collections in the sample.

In four cases the number of U.S. patents owned was not reported, while in five cases the number of foreign patents owned was not reported. Generally, the number of foreign patents ran below the number of U.S. patents, although in sixteen cases it was higher. The number of foreign patents does not correspond with the number of inventions, as a single invention may be patented in ten foreign countries, and thus count as ten foreign patents.

A number of companies reported that it was their practice to take out foreign patents only in those countries and for those products or processes which they believed would be productive of some income. In a few cases it was apparently the policy to patent a basic invention in the principal foreign industrial countries for defensive or protective reasons.

The reporting companies covered a broad range but by no means a complete classification of industrial groups. Chemical and electrical manufacturing companies are well represented, as are petroleum refiners and distributors and also machinery manufacturers. Transportation equipment manufacturing, apart from aircraft, is poorly represented. Several manufacturing companies in this field reported by letter that patents are relatively unimportant to their operations although they owned substantial patent portfolios.

The preponderant sources of these large collections of patents represented in

TABLE 3

Distribution of Reporting Companies by Number of Foreign Patents Owned
(Dec. 31, 1959)

Number of Foreign Patents Owned	Number of Companies
Less than 100	10
100-399	22
400-699	11
700-999	5
1000-1499	1
1500-1999	1
2000 and over	7
No report	5
Total	62

Source: Table 1.

Table 1 were the company's own research programs or their own employees. In nearly every case it was reported that well in excess of ninety percent of all patents owned had been assigned to the company by employees. For at least half of the reporting companies, employees are the sole source of patented inventions. The remaining companies acquire a few patents from outside individuals or by purchase from another corporation, usually when they take over the assets of that other corporation in a merger.

It appears, however, that large corporations do not ordinarily treat patents as articles of commerce, to be bought and sold, but as operating business assets, primarily for their own use. This corresponds with our findings from responses of individual inventors, who in an earlier survey reported that they had few opportunities to sell their patents outright to corporations, and thus obtain capital gains treatment for themselves.

The number of patents not owned but licensed for their own use by the reporting corporations typically ran well below the number of patents owned. In the relatively few cases where the licensed patents were more numerous than the owned patents, they were often far more numerous. Three companies, for example, reported that they licensed more than ten times as many patents for their use as they themselves owned. These three companies were in three different industries, so this sort of relationship is not specific to one branch of technology. Evidently the explanation in these cases was that access to certain methods the companies wished to use required the licensing of large blocs of patents owned by others. The others were typically other corporations, although six corporations reported that one-third or more of the patents they licensed came from individuals.

The basic data on number of patents licensed for the use of our reporting corporations are given in Table 4. Tables 5 and 6 give distributions of reporting corporations by number of patents licensed from others.

Extensive use of licensing is customary in certain industries, but not in others. Likewise, custom varies as between licensing individual patents and blocs of them covering an entire field of technology. In the petroleum industry, for example, field licensing is usual. One letter received, in lieu of a completed questionnaire, puts it this way:

> "It has been customary in our business, for a great many years, to both issue and accept patent licenses on a basis of defined fields rather than individual patents. This practice is so prevalent that it makes it a virtual impossibility for us to enumerate the patents we have licensed to others or the patents under which we have accepted licenses from others."

In other industries, field licensing is also common and cross-licensing arrangements more prevalent. One manufacturer of optical equipment reported as follows:

> "Most of the patent licensing arrangements into which we have entered are cross-licensing agreements which involve the exchange of nonexclusive licenses in certain fields, usually a field or fields which are of little interest to the licensor and considerable interest to the licensee. These licenses are generally fully paid, the consideration being the grant of a corresponding license from the other party."

Such a barter system of exchanging patent licenses may be appropriate when there are several firms in an industry all with intangible industrial property in

TABLE 4

Number of Patents Licensed for Own Use by the Reporting Corporations
(Dec. 31, 1959)

Company Number	Licenses under U.S. Patents	Licenses under Foreign Patents
1	0	0
2	[1]	[1]
3	5	[1]
4	13,500	1500
5	2	2
6	2	1
7	20	2
8	211	[1]
9	7500[2]	7500[2]
10	500 [2]	100[2]
11	30	6
12	8	100[2]
13	25	[1]
14	75	5
15	50	[1]
16	0	0
17	[1]	[1]
18	1	0
19	57	[1]
20	[1]	0
21	[1]	[1]
22	5	2
23	30	60
24	149	62
25	271	155
26	655	96
27	400[2]	300[2]
28	30	8
29	31	0
30	150[2]	100[2]
31	3	[1]
32	[1]	[1]
33	54	12
34	91	7
35	30	50
36	20	0
37	7	0
38	31	0
39	[1]	[1]
40	100	20
41	[1]	[1]
42	[1]	[1]
43	10	0
44	[1]	[1]
45	[1]	[1]
46	40	35
47	75	0
48	49	2
49	89	0
50	10	5
51	15,500	50
52	4	[1]
53	2	0
54	[1]	0
55	72	11
56	800[2]	350[2]
57	60	0
58	25	10
59	2	0
60	[1]	[1]
61	[1]	[1]
62	10	0
Totals	40,791	10,551

[1] Not reported.
[2] Estimated by respondent.
Source: Replies to Foundation Questionnaire.

TABLE 5

Number of U.S. Patents Licensed for Own Use by the Reporting Corporations
(Dec. 31, 1959)

Number of Licenses	Number of Reporting Corporations
None	2
1-9	11
10-49	15
50-99	9
100-249	4
250-999	5
1000 and over	3
No report	13
Total	62

Source: Table 4.

about equal amounts. Barter systems break down or are not suitable when the exchanging corporations are not similar in assets or complementary in technology. For this reason such arrangements are probably not widespread.

On the general subject of the sources from which licenses used by American corporations are derived, the distribution of licenses obtained from foreign corporations is quite interesting. Among the sixty companies reporting, twenty said they obtained no licenses whatever from foreign corporations, but only from U.S. corporations and individuals. Those corporations which did obtain licenses from abroad frequently obtained a relatively high proportion of their licenses from this source. Thus seven companies stated that fifty percent or more of their licensed patents were from foreign corporations, and three additional companies put the proportion at from thirty to fifty percent. The explanation is, of course, to be found in the relative state of the industrial arts as between the U.S. and other countries in specialized fields of manufacture. In chemicals and drugs foreign technology is quite advanced; American corporations license many product and process patents for use in this country. In automobiles and heavy machinery, on the other hand, few if any licenses are obtained from foreign companies.

Additional summary information on the sources from which licenses granted to American corporations are derived is given in Table 7.

The international patent-licensing pattern has been explored in other studies

TABLE 6

Number of Foreign Patents Licensed for Own Use by the Reporting Corporations
(Dec. 31, 1959)

Number of Licenses	Number of Reporting Corporations
None	16
1-9	10
10-49	5
50-99	5
100-249	4
250-999	2
1000 and over	2
No report	18
Total	62

Source: Table 4.

TABLE 7

Sources from Which U.S. Patents Licensed for Own Use by the Reporting Corporations Were Derived

Source of Licenses	Number of Reporting Corporations
Solely from other U.S. corporations	10
90-99% from other U.S. corporations	15
50-89% from other U.S. corporations	22
10-49% from foreign corporations	8
10-49% from individuals	23
Over 50% from individuals	2
No report	7
Total	87[1]

[1] As the source categories in Table 7 are not mutually exclusive, the total is greater than the number of reporting corporations.

of the Foundation;[3] It is not the intention here to supplement those studies. The point to be made is simply that a diversity of practice does exist; a range of practice is represented in our reporting sample, and this variety of practice does produce some special tax problems, which will be explored in detail later.

TYPICAL TAX SITUATIONS—SALE OF PATENTS

Present law allows a U.S. corporation to sell patents outright, or to grant exclusive licenses conveying all substantial rights to the patents and to treat the proceeds from such sales, in large part, as capital gain—subject to a maximum tax rate of twenty-five percent. The gain is, of course, the excess of the proceeds over the cost or other basis of the patent. If the patent has been developed in the selling company's own laboratory, the research and development cost will have been expensed—as the tax law allows. The patent itself will be capitalized only for the filing fees and legal expenses that sometimes cannot be taken as tax deductions; alternatively it may be carried at only a nominal value—such as $1. Virtually all the proceeds will therefore be capital gain. If the patent has been purchased rather than developed, it may have a substantial unamortized cost basis, and the gain may be only a fraction of the proceeds realized.

In our sample, twenty-seven corporations reported that they had, on some occasion, sold patents outright. About half of this group said they did so rarely. The typical sale situation was either one in which some portion of the business assets were sold (including the patents) or one in which the company by chance developed a patent that had no foreseeable application in the company's own business. Therefore they sold the patent to some other operator more likely to use it. The other operator was typically another corporation.

Twenty-nine corporations reported they had never, on any occasion, either sold patents outright or licensed them exclusively. Six companies failed to reply to this question.

In every case where patents had been reported sold, the reporting companies indicated they had experienced no difficulty in qualifying these transactions for capital-gains treatment. It is impossible from this evidence to conclude otherwise

[3] Cf. this *Journal*, Vol. 2, No. 2 (June 1958); Vol. 3, No. 3 (Fall 1959); Vol. 3, No. 4 (Winter 1959); Vol. 5, No. 1 (Spring 1961).

than that the law in this area is well understood and uniformly administered. The reporting companies are, of course, relatively large corporations, served in nearly all cases by competent tax counsel. Smaller corporations may have less consistent experience. In marked contrast to this experience of large corporations we found in an earlier survey [4] that a substantial fraction of individual inventors who sold patents were unaware they could claim capital-gains treatment for the proceeds.

Among the companies that had sold patents, the majority had made sales of both U.S. and foreign patents. In only four cases had foreign patents been sold but no U.S. patents. In another four cases, U.S. patents had been sold but no foreign patents. The remaining nineteen companies had sold both U.S. and foreign patents. What this distribution suggests is that company policy in most cases tends to be fairly uniform with regard both to U.S. and foreign patents; broadly similar practice is usually followed with regard to all patent assets, in whatever country based. However, the present evidence is too slender to be conclusive.

The mere fact that nearly as many corporations reported they had sold patents as reported they had not does not mean that such selling is common or usual corporate practice. The question as worded asked whether patents had *ever* been sold; in other words, a single sale out of possibly 1,000 patents under administration called for a "yes" answer. The information given by our respondents regarding the circumstances surrounding sale, however, clearly indicates that patent sales by corporations are atypical or unusual. By and large, major corporations treat patents as business assets for their own primary (often exclusive) use; they only sell them when they do not fit into their regular operations or as part of a package made up largely of other assets. The typical sale results when a division or some other administrative segment of a business is sold. In such sales the proceeds are often not allocated as between the patents and the other business assets. The capital gain, if a gain results, is simply the difference between the sales price and the adjusted basis of all the assets in the package.

When patents are sold, it is not necessary that the proceeds be received either in a lump sum or in a single taxable year in order to qualify for capital-gains treatment. An exclusive license, calling for a running royalty based on production or use, can also be a sale for tax purposes, provided all substantial rights in the patent are transferred. In an exclusive license with a running royalty we have a rarity in tax law—one of the few situations where a stream of recipts, extending over a number of years and varying from year to year, becomes capital gain instead of ordinary income. The transaction is not analogous to an installment sale, but rather is a sale for an unknown amount—to be finally determined only after the invention has ceased to be of any use to the licensee.

Selling a patent by giving an exclusive license for a periodic royalty can be a highly advantageous arrangement for an individual inventor. In such a sale he spreads his income over several years, thus deferring part of his tax liability and perhaps lessening its total amount. Buyers may also prefer such terms since their initial investment in an invention of uncertain commercial success may be minimized.

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[4] "Tax Problems of the Individual Inventor," this *Journal*, Vol. 3, Conference Number, pp. 35-47.

For a corporation, the tax advantages in a patent sale by the exclusive license, running royalty route are less obvious than for an individual inventor. The corporation income-tax rate is basically flat rather than progressive, as is the rate on individuals. Nevertheless exclusive licenses may still be advantageous to a corporation—if only in postponing tax liability and permitting the use of and income on the funds equal to the tax postponed. By giving exclusive licenses the seller also retains basic legal title and can provide for termination of the exclusive license in case royalty payments are defaulted. This gives some measure of protection which is an advantage over an outright assignment.

To determine corporate practice concerning the form in which proceeds are taken in the relatively rare cases when patents are sold, we included a question on this point. The three possibilities are sale for a fixed sum (ordinary sale), a sale for fixed installments (installment sale) and a sale for a running royalty (exclusive license). The replies are summarized in Table 8.

It is plain from this distribution that the running royalty is by far the most popular form of taking proceeds, outweighing both other forms by a substantial margin.

Table 8 should not be interpreted as indicating that tax considerations dictate the method of taking payment for patent sales. While there is a temporary tax advantage in the running royalty, its use is probably determined more by prudent business practice than by tax saving. When a patent is sold there is often considerable uncertainty about its commercial value in the minds of both buyer and seller. The fairest arrangement to both parties may well be the running royalty. It is also in a sense the least speculative form of payment, since it is directly related to the value of the patent in actual use.

LICENSING PRACTICE AND TAX CONSIDERATIONS INVOLVED

Although corporations do not sell patents frequently, they do a much more extensive business in non-exclusive licensing, both in this country and abroad. To gain some insight into the licensing pattern and the tax problems involved therein, several questions were asked in the present survey. The first was calculated merely to establish the extent of licensing and whether the pattern differed as between licensing in this country and abroad. A classification of patents as between chemical, mechanical, and electrical was also called for to check the representativeness of

TABLE 8

Form in Which Payment Was Taken When Patents Were Sold or Licensed Exclusively by Reporting Corporations

Form of Payment	Percent of Companies Reporting	
	U.S. Patents	Foreign Patents
Running royalty exclusively	35	59
Running royalty in 51-99% of cases	31	22
Lump sum payment exclusively	10	4
Lump sum payment in 51-99% of cases	7	0
Fixed installments exclusively	7	4
Fixed installments in 51-99% of cases	10	11
Totals	100	100

the sample and whether practice varied significantly among the three classes of patents.

In our reporting group of sixty-two corporations, all but three gave information about licensing within the U.S. Sixteen gave no information about foreign licensing, either because they did none, or because details concerning this activity were not available. Some American companies assign their foreign patents to foreign subsidiaries and consequently have no direct information on the licensing activity of those subsidiaries.

Appendix Table A gives the basic data on patents, distributed percentagewise by chemical, mechanical, and electrical, that are owned by our group of reporting corporations. This table may be read in conjunction with Table 1, which gives the number of patents owned.

The distribution of patents owned, by classes, is summarized in Table 9.

All the reporting companies had the majority of their U.S. patents in one class, although twenty-eight companies owned some patents in all three classes. Company by company, the classes of foreign patents owned followed those of U.S. patents owned fairly closely. This reflects the fact that the underlying inventions are the same in both cases.

To determine the part played by tax considerations in company decisions whether to license its own patents to others on an exclusive or non-exclusive basis, a question was included on this point. We simply asked whether tax considerations *sometimes* influenced these decisions, not whether taxation was the sole or the determining consideration. As already noted, only the proceeds from exclusive licensing arrangements are eligible for capital-gains treatment.

The replies to this question were distributed as follows: With regard to U.S. patents

12 companies reported tax considerations did influence their decisions concerning the form of licensing for patents they owned;

44 companies reported tax considerations did *not* influence their decisions.

With regard to foreign patents, the results were broadly similar—

12 companies were influenced by tax considerations, while 24 were not.

The decision about how to license a patent to others is inevitably a complex business decision, dependent on many factors; these vary from case to case. There

TABLE 9

Classes of Patents Owned by Reporting Corporations

Class of Patent	Number of Companies Reporting	
	U.S. Patents	Foreign Patents
Chemical patents only	0	2
Mechanical patents only	5	6
Electrical patents only	0	1
51-99% chemical patents	19	13
51-99% mechanical patents	27	16
51-99% electrical patents	8	8
No reports	3	16
Totals	62	62

Source: Appendix Table A.

is always present, for example, the question whether it is better to have several licensees contributing incremental royalties than a single licensee making sole use of the invention. There may also be questions of trade custom, and of business policy concerning the maintenance or strengthening of competition.

Our evidence indicates that exclusive licensing is somewhat more common with regard to foreign than U.S. patents; but this may be a result primarily of the fact that potential markets are smaller in some other countries than in the U.S.; consequently, to have a minimum economic operation it may be necessary to license only one supplier in the foreign country. Additionally, a U.S. company may be willing to give an exclusive license on a foreign patent when it has determined not to operate directly in the foreign country, whereas the grant of an exclusive license to the corresponding domestic patent would foreclose the U.S. company from its use in this country. These and other factors of economic advantage generally outweigh the tax factors in determining license policy; nevertheless corporations do unquestionably bear taxation in mind when calculating their market strategy in patent licensing.

When a license is given to other producers it very often carries with it considerably more than the unadorned right to use the patent rights in production. Frequently the patent disclosure must be supplemented with "knowhow" to enable advantageous use to be made of it. Trademarks may also be included as part of the license package. Among our reporting companies, forty-four (or seventy-one percent) stated that they customarily licensed some combination of patents, know-how, and trademarks—the most usual combination being patents and knowhow. Only twelve companies (or nineteen percent) said they regularly licensed patents only, not in combination with either knowhow or trademarks. Four companies said they had no customary policy but made decisions on a case-by-case basis. Only two companies failed to reply to this question.

In foreign licensing it is apparently more usual to include knowhow in the package than to license only the patent, as is sometimes done with U.S. patents. However, the practice varies less within a company, as between U.S. and foreign patents, than it does from company to company. Particular companies tend to follow the same general policy with regard both to U.S. and foreign licenses, if they have an established general policy—as many of those in our reporting group do.

The use of package licenses raises an interesting tax question. Proceeds from exclusive patent licenses can normally be reported as capital gains. It is less well established that proceeds from exclusive licenses to knowhow can safely be so reported. In an earlier article [5] we have examined this question at length, and cited precedents indicating that certain kinds of knowhow are industrial property and may be licensed exclusively for capital gains. Other forms of knowhow, particularly if capable of transmission only through personal services, are less palpably depreciable property within the meaning of the Internal Revenue Code. At the time this article appeared, it was plain that not all corporations were fully aware that knowhow-licensing proceeds might, on occasion, be taken as capital gains.

[5] "'Know-How' Licensing and Capital Gains," this *Journal*, Vol. 4, No. 2 (Summer 1960), pp. 93-108.

For further information on practice within this area, we inquired of our group of reporting corporations whether, when package licenses including knowhow were employed, it was usual to allocate some portion of the proceeds to the knowhow. Eight corporations said they did allocate the proceeds; thirty-six did not. Seventeen corporations had no experience with exclusive licensing arrangements of the sort where a division of the licensing proceeds might be important. Among the eight companies who did allocate the licensing proceeds, only four had claimed capital gains treatment for the proceeds attributable to the knowhow. In no case had these claims been denied by the International Revenue Service, although two corporations reported that audits for certain taxable years in which sales of knowhow were reported as capital gains had not been completed. This evidence, while too slender to be conclusive, does in a general way confirm our earlier impression that not all corporations are getting maximum tax advantage on their licensing proceeds.

Apart from tax saving, there may be other advantages in allocating the proceeds from package licensing. License fees may be set more accurately if account is kept of precisely what is being licensed; moreover, costs of furnishing the know-how may be compared directly with the income earned. A number of companies that do not now do so might well consider separating the proceeds from knowhow licensing, if only for purposes of better internal management control.

As already noted, licensing practice within a single corporation tends to be fairly uniform with regard to both U.S. and foreign patents, with perhaps a slightly greater tendency to grant exclusive licenses in the case of foreign patents. Further support for this general conclusion is available from the answers to a question reading, "Is your licensing practice and/or tax reporting substantially different in foreign than in domestic licensing?" Thirty-five companies (sixty-nine per cent of those reporting) stated it was not; they followed the same policies with respect to both kinds of patents. Ten companies said their practice was different. Seventeen companies either had no experience with foreign licensing, and hence could make no valid comparison, or for some other reason failed to respond to this question.

In the case of the ten companies reporting differences between domestic and foreign licensing practice, the reasons for the difference, which each was asked to give, are significant. One company included knowhow in its foreign licenses but not in those granted to other U.S. corporations. Four companies had assigned all their foreign patents to foreign-based subsidiaries; these subsidiary companies, located in low or non-income-tax countries, received the license income without any liability for U.S. tax being incurred. The device of foreign-based companies is a well known technique of tax postponement that is useful whenever there are foreign earnings that it is desired to shelter from U.S. tax. Patent proceeds, as well as earnings of any other type originating abroad, are amenable to this treatment. Four companies reported they granted exclusive licenses abroad, although none in this country. One company reported that, although its licensing practice was different as between foreign and U.S. patents, the tax treatment of the proceeds was the same.

These results, while not conclusive, indicate no sharp difference in licensing

practice within corporations, and no special tax considerations that would make for such a difference. There are, of course, differences in tax-base definition and in rates between the U.S. corporation income tax and foreign income taxes. These differences are too numerous to be examined in detail here. Use of foreign-based companies to shelter foreign earnings from the U.S. tax is a general technique, available to any U.S. company that has earnings abroad from any source, whether sales, manufacturing, or licensing. It is not a specific technique for treating earnings from patent licenses. It is recognized, of course, that valid business reasons, rather than merely tax incentives, often underlie the use of such foreign companies.

When patents are licensed out to others for their use, the proceeds may be taken in a lump sum, in installments, or as running royalties (perhaps with special limits). We have already seen in the case of patents licensed for intra-reporting-company use, that the running royalty is by all odds the most usual form of payment. The same might be expected for patents licensed to others.

That this is indeed the case is apparent from the data in Table 10, which classify the type of royalty (or other payment) received by type of patent and by number of corporations reporting income in this form. It is plain from this table that the running royalty is more common than any other form of payment.

It would appear that there is no significant variation among the different types of patents and that either straight or slightly modified running royalties are the rule.

The overwhelming proportion of these royalty receipts are reported as ordinary income for tax purposes. Only a small fraction, probably not more than one or two percent and certainly not more than five percent at the most, is reported as capital gain—in spite of the fact that running royalties, if from exclusive licenses, are eligible for capital-gains treatment.

That the general arrangements for payment on licenses received and on licenses granted are broadly similar is further confirmed by responses to another question included (largely to test consistency) in our questionnaire. Twenty-seven corporations reported that, in case of U.S. patents, the type of royalty paid and received was generally similar between licenses received and licenses granted. Nine companies reported differences. Concerning foreign patents, the results were consistent, namely twenty-three companies reporting similarity and six reporting difference.

TABLE 10

Form in Which Payment is Received for Patents Licensed to Others

Type of Payment	Number of Companies Reporting		
	Chemical Patents	Mechanical Patents	Electrical Patents
Lump-sum payment	9	8	4
Flat rate royalty	25	36	19
Flat rate royalty with minimum	14	16	10
Sliding scale royalty	12	11	7
Totals	60	71	40
No customary practice, varies with each license	2		
Take all types of royalty and non-royalty payments	4		
Cross-licenses only—no royalties paid or received	4		

INCOME FROM PATENT LICENSING

To get some picture of the income earned from patent licensing activities, questions were included that called both for the number of patents licensed to others and for the income resulting therefrom. In all, forty-two corporations with more than 19,000 patents (both U.S. and foreign) responded to these questions. From these responses it is possible to construct some rough estimates for all corporations. The aggregate income from licensing reported by the forty-two corporations was $38.5 million or just over $2,000 per license. There was considerable dispersion about this average in the earnings per license reported by the different companies.

The basic data on number of patents licensed to others and earnings from these licenses are given in Table 11.

TABLE 11

Number of Patents Licensed to Others and Income from Licensing

Company Number	Number of Patents Licensed	Income from Licensing ($ thousands)
3	112	10
4	193	800
7	45	500
8	131	42
9	21	85
10	799	1660
11	15	110
12	442	125
13	575	2500
14	46	50
16	326	2400
18	25	2
19	1056	0
20	1000	1752
22	102	378
23	133	500
25	248	183
26	219	227
27	15	15
28	15	2
29	140	4000
33	58	42
34	56	21
36	11	17
37	123	50
38	140	4000
40	38	5
42	57	390
43	11	60
44	11	1
46	245	495
47	18	200
48	30	24
51	1688	2250
52	218	2
54	511	350
55	6	12
56	9080	9500
57	58	1502
58	432	50
60	740	4200
62	8	12
Totals	19,197	38,524

The income figures in Table 11 represent company averages for the five-year period ending with 1959. The number of patents licensed is for the single year 1959. This may differ considerably from the average number of patents licensed during the five-year period and thus may help to explain some of the variation in average income per patent licensed from company to company.

This variation in income per license is readily apparent from Table 11 and may be summarized as follows:

2450 patents produced only $909,000 or less than $400 per patent licensed;
14,141 patents produced $20.2 million or nearly $1500 per patent licensed;
1149 patents produced $7.1 million or nearly $6200 per patent licensed;
261 patents produced $6.2 million or nearly $24,000 per patent licensed.

By company, license income ranged from zero to $9.5 million.

Additional parts of the variation in income per patent licensed are attributable to variation in the intrinsic worth of different patents, and to inclusion of more than the simple right to use the patent in many of the license arrangements. It is likely that many of the more valuable licensing contracts included in the summary above conveyed substantial amounts of knowhow in addition to the patent rights. Our available information does not permit a breakdown between simple licenses and package licenses so far as the income information is concerned.

On the basis of our reported information, it is possible to extrapolate rough estimates of the aggregate amount of patent license income earned by U.S. corporations. The calculation is as follows. In our reporting group we have 8,713 U.S. patents licensed, out of a total of 44,495 owned by those corporations that reported on their licensing arrangements, a licensing rate of just over eighteen percent.[6] For foreign patents the rate of licensing is considerably higher, namely 13,420 out of 32,207 patents owned, or nearly forty-two percent. This higher rate probably is attributable, in part at least, to the fact that foreign patenting is more selective; only those inventions which have a likely valuable use are protected by patents abroad.

If the corporations in our reporting group that did not report licensing activity had roughly the same rates of licensing as the corporations who did report, we can raise our figures of number of patents licensed to a full group coverage of about 9,200 U.S. and 18,200 foreign—or a total of 27,400 for all the corporations in our universe.

It will be recalled that our reporting group included about sixteen percent of all patents owned by U.S. corporations; on this basis the estimated total number of patents licensed by corporations may be projected at in excess of 171,000. It is probable that this figure is too high, since it is doubtful whether the licensing rate runs as high for small corporations owning only a few patents as for larger corporations owning numerous patents. Discounting for this lower rate of licensing among unsurveyed corporations, it is still probable that the number of patents licensed by all U.S. corporations falls somewhere in the range of 100,000-150,000

[6] This compares with a licensing rate of twenty-three percent obtained in the patent utilization studies of the Foundation. These studies cover all corporations on a sample basis and the reporting period is different.

We also know from our reporting group that licenses to 19,197 patents produced $38.5 million of income on the average during the five-year period 1955-59. Applying the same method used to extrapolate number of patents licensed, if the ratio of income per licensed patent in our group is applied to the estimated total of all patents licensed by corporations, the projected average annual income of all U.S. corporations from licensing works out to $200-$300 million. It is probable that the lower figure is somewhat nearer the truth since the patents owned by smaller corporations may be somewhat less valuable on the average than those owned by larger corporations. It should be emphasized again that the $200-$300 million is a five-year average, not an estimate for any single year. A current estimate would in all probability be considerably higher.

The extrapolations made above should, of course, be treated with every caution. They may well be fairly wide of the mark. Nevertheless, for what they are worth, they do indicate that patent licensing is a large and important activity and that substantial sums are paid each year for the industrial property represented by patents and related knowhow.

RESEARCH AND DEVELOPMENT COSTS

Since 1954, it has been well established that corporations may charge off as business expenses for tax purposes all annual costs of research and development work. This does not mean that outlay on permanent facilities for research and development work, *i.e.,* costs of constructing laboratories, may be expensed; but it does mean that all costs for specialized equipment, having no use apart from R and D, may be treated as expense. Prior to 1954, the law was somewhat unsettled on this point. The statute was silent as to whether R and D was an "ordinary and necessary" business expense, and also as to what costs could properly be allocated to R and D. In practice, expensing of R and D was generally allowed, but individual corporations were often required to capitalize certain R and D expenses. Enactment of Section 174 in the 1954 Revenue Code removed most of this prior uncertainty by establishing the principle of expensing as the general rule.

For information on actual tax practice concerning R and D costs, a number of questions were asked of our reporting corporations. The answers contained few surprises and tended to confirm our earlier impression that there are few problems in this area of income-tax law. To the question, "Do you expense all possible R and D outlays?" fifty-eight corporations reported that they did; none reported they did not, although four companies failed to answer this question.

Section 174 of the Code contains an option allowing R and D costs to be capitalized over a period of not less than five years in lieu of expensing. This option is of value chiefly to corporations (and other taxpayers) having no net income; such taxpayers would waste the tax value of the deduction if they expensed R and D currently. By capitalizing they can carry the deduction forward to subsequent years instead of wasting it. None of our reporting corporations was sufficiently unprofitable so that they stood to benefit from this option.

Few significant problems in qualifying research and development costs as tax

deductions were found. In our reporting sample, fifty-one corporations stated they had encountered no problems with the Internal Revenue Service in expensing R and D. Five corporations had met with some difficulty, but in four of these cases the problems had arisen prior to 1954, when the law was still not specific. Only one company had had a tax problem with R and D since 1954. The nature of this problem was not stated. Six companies did not reply to this question.

Although no tax question is directly involved, some interest may attach to company practice with regard to patentable subject matter discovered in the course of research. Among our questions about R and D, we asked whether it was usual to patent all results not in the prior art that was uncovered in the course of R and D. Twenty companies said this was their practice; two additional companies patented practically all eligible new discoveries from R and D. Thirty-five companies did not patent all eligible results from R and D, for reasons that are quite interesting. These are summarized below:

Reason for Not Patenting	Number of Companies Reporting
Probable market for invention too small	24
Cost of patenting greater than probable benefit	4
Unwilling to make disclosures necessary to secure patent	4
Doubted that patent would be enforceable against infringers	3
Total	35

On the question whether any unpatented inventions had been purchased from outsiders, fifty-four companies said they had never done so. Six companies had made such purchases. In five of the cases the purchase costs had been deducted as a current business expense. In only one case had the purchase been capitalized.

The primary reason for purchasing an unpatented invention, as far as the buyer is concerned, is probably the desire to maintain the invention as a trade secret. There is a minor tax advantage in that in practical terms expensing is probably easier than if the invention were patented. In that case strict adherence to tax rules would require capitalization. For the seller, disposing of an unpatented invention avoids the formalities involved in securing a patent. In any case, it was plain from our replies that transactions in unpatented inventions were rare occurrences.

EXPERIENCE WITH TAX ADMINISTRATION

In our survey of corporation tax experience, with special reference to patents and related industrial property, relatively few sources of friction in relations with the Internal Revenue Service were found. On the whole, it would appear that the law is well understood and quite uniformly administered. This is apparent both from our questionnaire replies and from letter replies received in lieu of completed questionnaires.

For example, one letter from a large manufacturer of transportation equipment states:

> "We do not have any substantial activities with regard to our patents which create tax problems. By and large our patents are developed and used by us; we have had no problems in qualifying research costs as current income deductions."

In reply to a specific question about whether problems had been encountered in dealing with the Internal Revenue Service on matters relating to patents and knowhow, fifty-two companies said they had encountered no problems. Only four had experienced problems. One of these problems related to the World War II excess-profits tax; two involved the question of offsetting expenses incurred in U.S. against income earned abroad from foreign licenses. One problem related to proper valuation in the case of a purchased patent. In none of these cases was sufficient detail either asked for or received to determine the merits of these particular controversies. It is significant, nevertheless, that their number was so small.

In reply to another question as to whether any unusual tax problems had been met in licensing foreign patents, forty-five companies replied they had had none. Nine companies had had no experience with foreign licensing, and three failed to report. Only five companies mentioned having any problems. Two of these problems concerned the allocation of royalty receipts among different foreign countries; two others concerned accounting relationships between the parent company and foreign subsidiaries; one involved a technical problem under the British income tax. It is evident from this summary that, although foreign licensing can give rise to some unusual tax situations, the number of problems arising in this area is actually small—less than we had anticipated would be the case.

While our study of tax experience has been oriented primarily toward problems and practice under U.S. federal income taxes, we sought also, when questioning corporations, to determine whether any significant difficulties had arisen under state income or property taxes—particularly in regard to patent valuation. In our reporting group, fifty-five companies stated they had experienced no difficulty with state or local taxation so far as their patents were concerned; in all cases where a reply on this point was given, the company's book value for patent assets had been accepted—even where these assets were carried at a purely nominal valuation. Seven companies gave no reply to this question; none reported specific tax difficulties with state or local governments.

In our earlier interviews with corporation executives, the question of inadequate depreciation of purchased patents had arisen on several occasions. Generally, the Internal Revenue Service takes the position that the useful life of a patent, for purposes of the annual depreciation rate, is its remaining legal life. Enough is known from Foundation surveys of patent utilization and from other sources to make clear that the economically useful life of patents is often shorter than the legal life. Subsequent inventions and other changes in technology or in market demands often make patents obsolete before they expire. In such cases the patent, while not actually abandoned, ceases to have any value.

The only recourse a company has, when faced with this problem, is to use one of the methods for accelerating depreciation that are permitted under the 1954 Revenue Code. These methods allow a greater write-off during the earlier years of ownership of depreciable property than does the straight line method. The methods, however, are generally available only for assets acquired in 1954 or thereafter.

In our reporting group we found (unexpectedly) that practically all corporations

used the straight line method of depreciating patent assets. Forty-five companies so reported. Only one reported use of the sum of the years' digits method—one of the permitted techniques of acceleration. Eight companies reported they had no accounting for patent depreciation—presumably because purchased patents were negligible. It will be recalled from a summary given earlier in this paper that the overwhelming majority of patents owned by corporations are either developed in their own laboratories or by their own employees rather than purchased. Eight companies failed to reply to the question concerning depreciation; but a number of letter replies contained statements on this point. For example, a manufacturer of electrical equipment wrote:

> "We do use the straight line method of depreciating patents, and our research and development outlays are expensed without any problems with the income-tax people."

CONCLUSION

It may be useful, by way of summary, to contrast the tax experience of large corporations having numerous patents with that of individual inventors, as revealed in one of our earlier surveys.

Both corporations and inventors have the privilege of selling patents outright, usually by giving an exclusive license, and of receiving capital-gains treatment on the proceeds. Inventors do this fairly frequently and would do it even more if they could more easily arrange exclusive licensing contracts that were advantageous to themselves. Many inventors, however, are poorly informed about income-tax law; large corporations almost never are.

Many individual inventors have great difficulty in obtaining tax deductions for their research and development costs. This is because many inventions are a product of spare time or hobby activities; no income can be shown against which R and D is a proper offset. Large corporations, on the other hand, have no difficulty in taking R and D costs as current tax deductions; they do this as a general practice.

The overwhelming proportion of patents owned by corporations are either developed in their own laboratories or assigned by their employees. Purchases of patent rights from individual inventors are a minor, but still important, source of new technology. Sales of patents by corporations are rare except when some part of a business is sold, or a patent accidentally developed that has no foreseeable application in the company's regular business.

Licensing of patents by corporations is extensive, both in this country and abroad. The bulk of these licenses is non-exclusive and produces ordinary royalty income; some, however, are exclusive and yield capital gains which corporations claim without undue difficulty. Royalty income is estimated to have totalled $200-$300 million annually for all U.S. corporations on the average during the period 1955-59.

Research is undertaken by most corporations in hope of improving their products and bettering their competitive position. As one letter from an oil company puts it:

> "Differences between the small after-tax-return from royalties, on the one hand, and the after-tax profit from manufacturing and sales operations, on the other hand, are especially

> great in technical fields where we are already established, and the manufacturing and sales costs are incremental. For this reason our basic research, development, and patent activities are most frequently directed to new products and processes in support of manufacturing and sales efforts rather than to create inventions for royalty income."

The great majority of corporate-owned patents, having been created by internal R and D which can be expensed, have a negligible cost basis. Often they are carried at a purely nominal valuation in corporate balance sheets. Purchased patents are depreciable property that must be written off over the remaining legal life, which often extends beyond the useful life. Few corporations use other than straight line depreciation for patent assets, although inadequate depreciation of purchased patents is sometimes a problem.

In general, corporate tax experience with intellectual industrial property is more uniform than is the experience of individual inventors with their patent assets.

Tax considerations play a role in corporate decisions about the manner in which they license patents they own, but rarely are these considerations a major or determining factor; they are merely a datum in the complex leading to the final decision.

In presenting the results of this survey of corporate tax experience, we believe the information is the first of its kind devoted to average or representative experience as opposed to individual cases that establish the marginal application of income-tax law. Our results are naturally tentative and limited; they await confirmation or disproof from other studies.

APPENDIX TABLE A

Patents Owned by Reporting Corporations, Percentage Distribution by Class

Company No.	U.S. Patents			Foreign Patents		
	Chemical	Mechanical	Electrical	Chemical	Mechanical	Electrical
1	0	90	10	0	95	5
2	98	2	0	98	2	0
3	0	95	5	0	95	5
4	5	10	85	2	6	92
5	5	85	10	..	..	..
6	1	77	22	0	97	3
7	70	30	0	70	30	0
8	2	98	0	..	..	..
9	0	20	80	0	20	80
10	85	10	5	85	10	5
11	0	100	0	0	100	0
12	30	65	5	40	58	2
13	..	..	..	..	..	..
14	0	99	1	0	99	1
15	..	..	..	..	..	..
16	80	..	..	70	..	..
17	20	60	20	..	..	..
18	0	100	0	0	100	0
19	3	95	2	..	..	..
20	9	11	80	..	..	..
21	10	20	70	10	20	70
22	80	15	5	90	10	0
23	95	5	0	98	2	0
24	90	9	1	95	5	0
25	2	93	5	1	99	0
26	5	62	33	32	38	30
27	1	19	80	0	20	80
28	91	7	2	..	..	..
29	54	44	2	65	35	0
30	60	40	0	60	40	0
31	1	99	0	..	..	..
32	61	23	6	100	0	0
33	1	97	2	0	100	0
34	0	100	0	0	100	0
35	0	95	5	0	97	3
36	0	98	2	..	..	..
37	0	5	95	0	5	95
38	54	44	2	65	35	0
39	90	10	0	90	10	0
40	99	1	0	100	0	0
41	5	95	0	..	..	..
42	90	5	5	94	3	3
43	0	50	50	0	50	50
44	92	6	2	..	..	..
45	..	..	..	..	..	..
46	20	80	0	20	80	0
47	98	2	0	..	..	..
48	5	90	5	..	..	..
49	0	90	10	0	90	10
50	0	80	20	0	0	100
51	0	100	0	..	..	..
52	1	99	0	0	100	0
53	25	75	0	25	75	0
54	0	99	1	0	99	1
55	7	5	88	7	5	88
56	35	60	5	35	60	5
57	11	89	0	29	71	0
58	0	100	0	..	..	..
59	75	15	10	95	3	2
60	67	33	0	40	60	0
61	0	10	90	0	10	90
62	10	80	10	10	80	10

INDUSTRIAL PROPERTY IN THE EUROPEAN COMMON MARKET: ITS SIGNIFICANCE TO UNITED STATES INTERESTS

The Foundation has been engaged in a continuing series of studies designed to obtain information on licensing operations abroad by American business, and on the relation of American patents, trademarks and techniques, including the effect of American owned foreign patents, to such licensing. We have also been studying arrangements for the reverse flow of information to the United States, antitrust aspects and the impact of the Common Market. In earlier issues we have published reports, articles, and notes on these topics.

In view of the imminence of a treaty or convention creating a European patent and a European trademark, an interim report by members of our staff is presented in conjunction with a paper by Leonard Robbins, a patent attorney specializing in foreign patents and trademarks. Mr. Robbins' paper is concerned almost exclusively with the European patent; we believe our readers will find it a significant addition to the spectrum of information provided in our interim staff report.

The staff report, written by Gerard J. Weiser (a patent attorney) analyzes recent developments in the field of the protection of Industrial Property in the European Common Market, the trend in national legislations, and the significance of these developments to United States interests. Mr. Weiser also comments on Mr. Robbins' paper.

The Proposed New European Patent

LEONARD J. ROBBINS *

1. INTRODUCTION

In the near or fairly near future it is highly probable that the Treaty of Rome (1957) establishing the European Economic Community or Common Market will produce a remarkable new offspring in the form of a separate Treaty or Convention creating European patents of a supranational character.[1] The conception, only a few years ago, and the subsequent gestation, have been surrounded by a dense atmosphere of official secrecy which is only now beginning to be dispelled. The organization and machinery of the Common Market are such that there appear to be few opportunities for any effective public discussion of new developments or open participation by interested groups until almost the parliamentary stage is reached—which in this instance will involve the presentation of the fully formulated drafts of the Treaties to the governments of the member states for ratification.

This innovation in the field of industrial property will clearly have far reaching effects. However in spite of the apparent suddenness, the basic idea itself is quite old and has a long history of projects which never gained acceptance. It may be helpful to review this history briefly to appreciate how a solution, to what has previously appeared to be an insuperable problem, will apparently now be achieved unless some unforeseen factor should intervene.

The protagonists of simplification of international patent protection have followed two related but separate paths. The first, which is more radical, leads towards common patents having automatic and indivisible territorial effect over a number of countries. The second is directed towards harmonization of individual patent laws so that a patent in one country could be extended to cover other countries at the option of the patentee.

2. PRIOR PROPOSALS FOR COMMON PATENTS

In 1909, Du Bois-Raymond of Germany first suggested a single world-wide patent.

During the first world war, uncompleted steps were taken for common patents in Germany and Austria.

In 1919, proposals for a single patent covering the British Commonwealth died in the discussion and conference stage.

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[1] Another separate Treaty creating European trademarks is also being formulated, to be followed later by a Treaty creating European designs.

On November 15, 1920, an Arrangement for an international patent was actually concluded in Paris and was signed by eleven countries. However it never went into practical effect.

During the height of the second world war, from 1941 to 1943, a number of detailed proposals for a single European patent were published in the German periodical *Gewerblicher Rechtsschutz und Urheberrecht.*

In 1946, Kucera of Czechoslovakia and in 1949, Longchambon of France offered proposals for the creation of a single European Patent Office.

Since 1952, the governments of the Scandinavian countries have been considering the possibilities of a common patent while retaining the national laws and patent offices. Draft proposals for this compromise solution may be made public in 1962.

These are a few highlights. During the last fifty years, many commentaries, analyses and modifications of these various proposals have been published. A complete compilation has been made by O. Bossung in *Grundfragen einer europaeischen Gerichtsbarkeit in Patentsachen* published in Munich in 1959.[2] Other useful information is available in various 1959 issues of the Belgian periodical *L'Ingènieur-Conseil.*[3]

3. PRIOR PROPOSALS FOR HARMONIZATION OF PATENT LAWS

The Treaty of Rome emphasizes the desirability of harmonization of the national laws of the member states in all fields. It is well known that Article 85 of the Treaty is exceedingly vague as regards patents, but it is generally agreed that the general principle of harmonization does apply to patent laws.

However, harmonization has been under consideration long before the Common Market came into being. In fact, the broad idea actually goes back to 1883 when the International Convention for the Protection of Industrial Property was established. Among the numerous countries adhering to the International Convention much conformity has been achieved since then by voluntary amendments of national patent laws, but basic differences still remain.

Since 1947, the governments of the Benelux countries—Belgium, Holland and Luxembourg—have been studying the possibility for uniformity of their three patent laws, without any definite results up to now. Also, in 1947, the Benelux countries and France established the Institut International des Brevets (International Patent Institute) at the Hague as a central agency for the novelty examination of patents. The purpose is to relieve the burden from national patent offices and avoid duplication of effort. This Institute is functioning and available to the public in any country for novelty investigations, but is not yet in actual use by any national patent offices. It stands ready for possible use by a common European patent office.

The Council of Europe, which includes the six Common Market countries and a number of others, has achieved a Convention for uniformity of formalities, which is of interest but does not involve any basic considerations.

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[2] Published by Ed. Wila Verlag fuer Wirtschaftswerbung Wilhelm Lampl, Muenchen.

[3] L'Ingènieur-Conseil, 1959, pages 1-26, 73-126, 193-206, 381-389.

In 1951, Dr. Reimer, the then President of the German Patent Office, proposed a single filing system using national patent offices, with extension to other countries, a centralized novelty examination, and various modifications of national procedures to take place over a period of years in successive steps.

In 1954, three other comparable proposals along generally similar lines were made by Dr. Reimer himself, by Mr. de Haan, President of the Dutch Patent Office, and by Dr. Was, a Dutch patent attorney.[4]

In 1958, the heads of various European patent offices, at a meeting in Vienna, produced the "Vienna Plan" for a so-called joint application. In the same year, CNIPA, a committee of European national patent associations, submitted a slightly different but comparable plan.

There have been still other proposals, all of them, like those previously mentioned, of a non-official or at best semi-official origin, and none of them under the aegis of an official international organization having the political power of action.

These varied proposals are of great professional and theoretical interest to patent lawyers everywhere. They represent the result of much thought, much analysis, much work, and much devotion in the disinterested pursuit of an ideal. But the subject matter is intractable and progress has been very slow.

The basis of harmonization is the preservation of national patent laws. But in the six countries of the Common Market (and in fact throughout Europe) there are two systems. In the civil law countries, France, Belgium, Luxembourg and Italy, patents are granted on the basis of simple registration by payment of a government fee ("Sans guarantie du Gouvernement" as explicitly printed on a French patent). In some of them there is an examination of certain formalities, but this is not of basic interest. The scope of patents in these non-examination countries can only be determined by the courts if the patents are litigated. On the other hand, in Germany and Holland, patent applications are submitted to a rigorous patent office examination for novelty, inventive height and advance in the art, followed by availability for opposition by third parties. In the German and Dutch Patent Offices, the sheep are separated from the goats before grant. There is an inference even if not a presumption of the validity of such patents and they are difficult to upset.

As a result, during the last 100 years or so, separate bodies of case law have been built up involving widely different attitudes towards interpretation, validity and infringement.

To find a middle ground between these opposed systems, a French proposal has been made for deferred examination, whereby a patent would be granted provisionally by simple registration, but examination—either for novelty only or on a complete rigorous basis—would only take place after a substantial time interval of the order of five years. The theory is that unsuccessful patents would be abandoned during this interim period, and that the heavy burden of patent office examination and opposition procedure would be relieved. A somewhat similar

[4] For an analysis and comparison of these plans, see *L'Ingènieur-Conseil*, 1955, pages 150-155 and 188-189.

revision to the Dutch patent law is contemplated. In both proposals an earlier examination could take place at the option of the applicant or patentee.

At the present time, there is a vast discussion of harmonization of patent laws, but no solution satisfactory to all countries has been presented.

4. THE ORIGIN AND PRESENT STATUS OF THE NEW PROPOSAL FOR EUROPEAN PATENTS

The management of big technological industry in Europe—that is, industry involved in mass production (so rapidly acquiring U. S. techniques) and particularly the steel and non-ferrous metals industries, the electrical industry and the chemical industry, led or at any rate urged on primarily by German interests—has become impatient with the basic problems, and the complexities of possible compromises involved in harmonization. It considers that some form of political and legal federation of European countries is not too far over the horizon, and when this comes it wants a strong autonomous patent system already in existence.

It might be hard to provide documentary evidence for the above statement. European industry is not renowned for publicizing its high level decisions. However I believe it is essentially correct. What has happened appears to be as follows.

Starting some time during 1959, the powerful and tightly organized inner group applied pressure at the governmental level and used the already established machinery of the Common Market to introduce a concept which is actually outside the provisions of the Rome Treaty—namely, an autonomous European patent to be established by a new Treaty or Convention and to extend throughout the territories of adhering states.

It is true that the powers of the governing and executive bodies of the Common Market are exceedingly broad. However, it is difficult to find a mandate in the Rome Treaty for creating a new supranational industrial property right. What is to be the status or fate of national patents? Numerous legal commentators have interpreted Article 85 of the Rome Treaty to mean that legitimate uses of national patents are excluded from the rules applying to restrictive business practices. Article 36 has been interpreted as sustaining national sovereignty over patents. Seemingly there is no authority whatever to suppress national patents. In any event, for obvious practical reasons, national patents could not suddenly be abolished. Therefore the new proposal includes the reservation that national patents should remain and coexist indefinitely with European patents. Presumably if and when political federation is achieved many national laws will be superseded by unitary laws. Thus, on this distant day, the proposed Convention for European patents may in fact become the single patent law of the new superstate.

At the end of 1959, the Commission of the Common Market started its machinery moving to put this plan into effect. The Commission is the executive body charged with ensuring the functioning and development of the Common Market.

The Commission controls a Committee of Coordination, which, as a first step in February, 1960, appointed Dr. Haertel, an official of the German Ministry of Justice, to prepare a report on the feasibility of the plan and to make proposals for its implementation.

5. THE HAERTEL REPORT

The lengthy Haertel Report was finished by the fall of 1960. It is rumored that much preliminary work had already been done, and that representatives of German industry were consulted.

If the European Patent Convention does go through, the Haertel Report may become a historic document, since most of his firm recommendations will probably be adopted. The following is a very brief summary.

He first considered three possibilities—

(a) A European patent obtained by extending a patent granted in one country to the others
(b) A European patent granted by any of the national patent offices having full examination
(c) A European patent granted by a new European authority under more severe conditions than any national patent.

In view of serious practical objections to the first two possibilities, Haertel considered his mission to be confined to the third possibility of creating an autonomous European patent, which would not be just the sum of national patents, but which would co-exist with the national patents. He emphasized that his task was not harmonization but the creation of a new right.

A. 1. EXTENT OF INVENTIONS TO BE PROTECTED

(a) Inventions against public order and good morals not patentable
(b) Inventions the exploitation of which would be contrary to specific domestic laws permissible (with reservations)
(c) Pharmaceutical process patents permissible
(d) Independent product protection for chemical and pharmaceutical products questionable, but generally approved
(e) Independent protection for food products approved
(f) Plant patents—possibly.

2. CONCEPT OF NOVELTY

After a long discussion of limited novelty and absolute novelty, more strict or less strict than existing national concepts, Haertel concludes that the standard of novelty for the European patent should correspond to the most severe national laws.

3. TECHNICAL PROGRESS

After discussing whether this should be a requirement at all and analyzing existing national viewpoints, Haertel's conclusion is that technical progress—i.e. advance in the art—should be a requirement for the European patent but considers that a new European judicial authority rather than the European Patent Office may be necessary for examination of this criterion.

4. INVENTIVE HEIGHT

Haertel definitely proposes that inventive height should be essential for patentability—at the German level or even stricter.

5. TERRITORIAL COVERAGE

The European patent must cover all the territory of the countries involved and not be divisible in effect.

6. SCOPE OF PATENT

This is a long section reviewing problems of deferred examination after grant, full preliminary examination before grant, claims as defining the scope of the patent, nullity and infringement. His conclusion is that these problems should be resolved to provide a strong European patent, the scope of which should not be subject to the uncertainties of litigation in the courts throughout its life. His proposals are given in the following sections.

B. GRANT WITH OR WITHOUT PRELIMINARY EXAMINATION

Haertel considers novelty the most important feature for the European patent. In view of the uncertainty in scope of simple registration patents, an official novelty examination is recommended, which industry also agrees is the ideal procedure.

He discusses in detail the pros and cons of dividing novelty search and novelty examination—i.e. an immediate search and a subsequent delayed novelty examination after grant.

C. NULLITY

Since the European patent will be an autonomous right, it cannot be nullified in any one country only. Nullity requirements are different in the various countries—*erga omnes* in some, *inter partes* in others. Therefore for uniformity a separate European authority will be necessary for nullity proceedings.

D. CONFLICTS

1. INFRINGEMENT

At first sight a separate European authority for infringement proceedings appears the ideal solution for uniformity of decision. But this would be impractical in view of the volume of litigation for a single court. Therefore Haertel proposes that proceedings in the first instance should be in the national courts, with appeal to a European authority.

2. OTHER CONFLICTS

License disputes, compulsory license proceedings, disputes involving inventorship can still be submitted to the national courts.

E. PROBLEMS OF COEXISTENCE OF EUROPEAN AND NATIONAL PATENTS

The advantage for applicants is that if the European patent is not granted, individual national patents could still be obtained. However he mentions that according to modern ideas, the granting of two separate coexisting rights for the same invention may be repugnant.

F. CREATION OF EUROPEAN PATENT OFFICE

The problems of administration, permissible languages, and location.

G. USE OF THE HAGUE INSTITUTE

According to its constitution, as established by the treaty setting it up, the Hague Institute would not be suitable as an office for granting patents. However it could be used for making novelty searches, if search and novelty examination are divided, which would then be used by a separate novelty examination organization having the power to grant or validate patents.

H. EUROPEAN JURISDICTION

This discusses the establishment of a new European judicial patent tribunal (as distinguished from a European Patent Office).

I. PERSONS HAVING THE RIGHT TO BE GRANTED EUROPEAN PATENTS

Proper applicants would be both nationals and *ressortissants* of the adhering States.

K. ACCESSION OF THIRD PARTY COUNTRIES

This section merely discusses possibilities. What are to be the limits and requirements? Any country? Countries of the International Convention? Countries in the Council of Europe?

L. VIS-A-VIS THE INTERNATIONAL CONVENTION

Haertel argues that the establishment of a new European patent system would not be in conflict with the provisions of the International Convention.

M. OTHER TREATIES

Haertel asserts that a new independent treaty creating the European patent would merely take its place alongside various other independent treaties such as the Benelux and Euratom Treaties.

He regards the European patent as a base patent with possibilities of extension to *"associated countries."* He discusses the meaning of true accession to the new European Patent Convention and *"association"* by virtue of Art. 238 of the Rome Treaty.

N. CONCLUSION

The European patent will definitely require a separate European Patent Office to be created in steps.

The new treaty establishing the European patent can be regarded as a *particular arrangement*—see Art. 15 of the International Convention.

The principal issues are summarized in the form of seventeen questions for the guidance of a Working Group for preparation of a draft Convention.

In a supplement, some specific matters are discussed in detail, such as the effect on novelty of prior copending applications, claims as defining the scope of the patent, the term to commence with grant, compulsory licensing, and representation before the European Patent Office by both lawyers and patent agents.

The main aspect of the Haertel Report is its comprehensiveness and its clear recognition of the various areas of potential controversy.

PRINCIPAL DOCUMENTS REFERRED TO IN THE HAERTEL REPORT

(1) Document de la Communeauté Economique N 773/60-D. (Utilization of Hague Institute.
(2) Document du Conseil de l'Europe. Exp. Brev. (53) 12.1.55. (Harmonization)
(3) Document du Conseil de l'Europe. Exp. Brev. (60) 3.9.60. (Novelty).

6. THE COORDINATION COMMITTEE REPORT

At a meeting in Brussels in November, 1960, the Coordination Committee gave its official blessing to the principal recommendations of the Haertel Report in the form of a statement of general terms of reference for a Working Group instructed to prepare a draft Convention. The following summary eliminates mention of the parallel trademark and design situations.

(a) The Committee has examined the general outlines of a project for a convention dealing with patents. In view of the many administrative and judicial problems the Committee proposes that a preliminary draft convention should first be prepared, based on the following propositions.
(b) The European rights should coexist with national rights, which will be retained with the reservation of eventual necessary harmonization. The European rights will be unitary and autonomous and not a juxtaposition of national rights.
(c) The draft Convention must not conflict with prior obligations—particularly the International Convention.
(d) The terms of the Rome Treaty will not enable this new convention to be connected with the Rome Treaty. The adhesion of third party countries is contemplated.
(e) Protection for applicants of countries not adhering to the new convention is of great importance legally and economically, but the Committee is divided on this subject.
(f) It is desirable that the new Convention should be open to adhesion by third party countries, subject to unanimous approval of member countries. The possibilities of partial adhesion or association should be considered—see Art. 238(1) of the Rome Treaty.
(g) The Committee has decided to order the preparation of a preliminary draft for a convention establishing an independent European patent.
(h) The European patent is conceived as a unitary autonomous right.
(i) Requirements for patentability will be as severe as possible. Inventions contrary to public order and morality will be excluded. Patents can include (i) chemical and pharmaceutical processes, (ii) chemical and pharmaceutical products, (iii) food products. Patents can be granted even if exploitation would be contrary to domestic legislation.
(j) After considering registration as in Belgium, Italy and Luxembourg, deferred examination as contemplated in France, and full examination as in

Holland and Germany, the Committee considers that no existing national procedures can be adopted.

The Committee is in favor of deferred examination in a narrow sense.

Three hypotheses are submitted for study—

(1) Examination for form and legal patentability as the first stage followed by a novelty search (e.g. by the Hague Institute) before grant, to be published with the patent. After several years, the novelty examination would take place and the patent would then be confirmed, restricted or rejected,

(2) A modified procedure in which the patent would not be granted before examination, but only published with the search report. This would provide provisional protection, prior to the subsequent novelty examination.

(3) Similar to (2) except that the applicant would have the choice after formal preliminary examination to request (I) publication with the search report to obtain provisional protection, or (II) publication without the search report providing no protection: either the applicant or a third party could subsequently request publication of the search report.

(k) The Working Group (which will prepare the preliminary draft convention) will retain the principle of absolute novelty, and may consider requirements for technical progress and creative effort. They can define the criteria for these requirements.

(l) The Committee doubts whether search and examination should be conducted by the same organization.

(m) The Committee is unanimous that no existing national patent offices should be empowered to grant European patents, but that an independent international institution should be established having its own statute. The Hague Institute is suited for searching, but not for granting patents.

(n) In principle the Committee is against granting a European patent and also one or more national patents to the same applicant for the same invention. However, reasonable provisions should be made for the changeover period.

(o) Nullity suits will require a European jurisdiction of two stages (first instance and appeal). However this does not exclude the possibility of using the national courts initially.

(p) For infringement suits, national courts using national law are appropriate, except that it would be desirable to achieve uniform interpretation.

7. PROTOCOL OF THE SECRETARIES OF STATE OF THE COMMON MARKET COUNTRIES

At Brussels, in December, 1960, the Secretaries of State of the six Common Market countries placed their stamp of approval on the project in a protocol of which the following is a summary with trademark and design references deleted.

The Secretaries of State have studied the conclusions of the Coordination Committee, and have noted two fundamental principles—

(a) The contemplated simplification and unification in the field of patent rights can only be realized by a new Convention.

(b) The restricted extent of the dispositions in the Rome Treaty concerning industrial property, and the possibility of adhesion by third party countries, implies that this new Convention must exceed the scope of the Rome Treaty and must therefore be submitted to the governments of the individual countries for ratification.

They have also noted that the Coordination Committee proposes on the one hand to harmonize national legislations (notably for chemical, pharmaceutical and food processes and products) and on the other hand to study a Convention for patents. It will prepare common rules and define the functions of the organizations granting these rights.

Concerning general principles, they recognise:

1. The European rights should coexist with national legislations, which will be retained with the reservation of eventual necessary harmonization.
2. The European rights will be autonomous and not a juxtaposition [5] of national rights.
3. The preliminary draft of the Convention will propose independent administrations and jurisdictions.
4. Existing obligations (e.g. the International Convention) will not be contravened.
5. The new Convention will be open to adherence of third party countries with unanimous approval of member countries.
6. Third party countries could adhere to a part only of the Convention—by association established with each of them.
7. The European patent will be autonomous and granted by an independent international organization working on the basis of searches made by the Hague Institute. Infringement will be handled in the national courts and nullity in an international court.
8. Ultimately to facilitate adhesion of third party states to the new European Convention, the President of the Coordination Committee should inform representatives of interested countries concerning the orientation and advancement of the work of the Committee.

8. THE PRELIMINARY DRAFT OF THE EUROPEAN PATENT CONVENTION

A Working Group was then immediately formed comprising representatives of the six Common Market countries. It is significant that the President of this Working Group is Dr. Haertel. It is also significant that the majority of the representatives are officials of the Ministries of Justice or Ministries of Economic Affairs of their respective countries, and that Patent Office officials are a small minority.

The drafting has proceeded very rapidly and very secretly. Several unofficial international groups have endeavoured to secure an entrée to the Working Group as

[5] The rather inelegant term in English "juxtaposition" is a direct translation from the French. It clearly means placing existing national laws side by side and ascertaining the lowest common denominator and the highest common factor; this is *not* what is contemplated.

consultants or as observers at the sessions of the Group, but without success. There is some purely informal or semi-official contact between the national representatives in the Working Group and "outsiders" in their own countries, and possibly some proposals and criticisms thus filtered in may have some effect on the internal deliberations of the whole Group.

A preliminary draft of the Patent Convention was ready early in 1961. This was complete in broad outline, with some articles fully prepared and others very tentative, including remarks concerning the differences of opinion within the Group. As can well be imagined, the principal bones of contention involved—

(a) The nature of the examination—i.e. full preliminary examination before grant or some form of deferred examination. The national representatives in the Group split several ways on this question; there is some indication that the final proposal *may* provide for an initial novelty search for record, and a deferred examination for patentability.

(b) The admission of third party states by so-called "partial adherence" or "association." Apparently only a small minority of the national representatives supported full adherence only. The others favored some form of compromise participation in view of the interpretation of the obligations of the International Convention.

As regards the second question, ingenious arguments can be submitted on both sides as to whether the proposed new European Patent Convention would contravene the provisions of the International Convention. A highly interesting suggestion has recently been made by Dr. Was of Holland. He proposes that the new Convention should have an internal system of priority, whereby an applicant from any country of the International Convention who *first* files in one of the member states of the European Convention (a premier dépôt) would be entitled to file a corresponding European patent application within a year. Since this would apply to all International Convention countries, it would likewise apply to all fully adherent member states of the new European Convention (all of which have long been members of the International Convention). Thus the initial first filing would simultaneously generate priority under the International Convention and also priority under the new European Convention, and there would be no discrimination against members of the International Convention. There would thus be formal adherence to the European Convention on the one hand with all the obligations of member states, and a mere "association" on the other hand which would flow from membership in the International Convention.

It is believed that Dr. Was' proposal either will be or has been conveyed informally to the Working Group, but there is no indication yet as to their reaction.

As regards the draft Convention as a whole, many European lawyers privately consider it is basically very impressive and sound—a distillation of the best European concepts and experience. It naturally contains many provisions which are more or less fundamental and standard in the patent laws of all major countries; it contains others which to some extent go beyond or modify the provisions of existing national laws.

The following is a summary of two groups of proposed clauses—Articles 11 to

29 and Articles 101 to 111—which appear to be of principal interest, outside the unsettled and highly controversial areas referred to above:

Art. 11 Patentable inventions

European patents will be granted for new inventions capable of industrial use and resulting from inventive activity.

Art. 12 Exceptions to patentability

(a) Inventions contrary to good morals and public order. If the utilization contravenes existing laws, this will not be determinative.
(b) New plant varieties or new species of animals and biological processes for producing them.

Art. 13 Industrial use

An invention is capable of industrial use if its object can be made or used in any kind of industry or agriculture, or can be used industrially in any other manner.

Art. 14 Novelty

An invention is novel if it is not taken from the state of the art. The state of the art is constituted by anything accessible to the public before the day of filing of a European application, by a written or oral description, use or any other means.

Relevant also to the state of the art are applications or patents published by the European office or individual national offices, on or after the filing date, based on applications of prior filing date. If several applications are filed the same day, the time of filing will be determinative.

Art. 15 Non-prejudicial divulgation

Divulgation up to six months prior to the filing date will not be prejudicial if it results from

(a) An official exhibition, by the applicant or assignee.
(b) Manifest abuse of knowledge of the invention.

Art. 16 Inventive activity

A patent will not be granted, even if novel, if the invention does not result from inventive activity, notably if for an expert it is obvious from the state of the art.

(Remarks: The Working Group was unanimous that it was useful to retain inventive activity as a condition for validity, and that it was advisable to express this in the text of the Convention in Article 16. The majority considered that inventive activity must be considered during examination. A part of the Working Group was in favor of a system leaving this to a tribunal after grant. This was objected to by several delegations due to delays in *inter partes* proceedings and the permanent insecurity of the patent. The majority of the Working Group was of the opinion that even if not expressed in the text, the European office could not dispense with consideration of inventive activity during examination.)

Art. 17 Right to obtain European patent

This belongs to the inventor or assignee. Co-inventors have the right equally in common.

Art. 18 Right to grant

The applicant will be considered as exercising the right of Art. 17.

Art. 19 Usurpation

(a) If the essential elements of an application are borrowed from the invention of a third party without consent, the latter can have the patent transferred to him.
(b) Action can be taken before courts of individual countries if competent; if not before the tribunal of the European Patent Office.
(c) After five years this right cannot be exercised unless the patentee acted in bad faith.
(d) After final judgment, the injured party will have the patent transferred to him, unless he has filed a new application which will be given the date of the earlier patent.

Art. 20 Territorial scope

(a) Effective in the territory of each contracting state, or
(b) (*alternative*) In each contracting state the same territorial effect as national patents.

Art. 21 Rights conferred by European patent

The European patent has in each contracting State the same effect as a valid national patent. (Remark: to be further considered.)

Art. 21a Limits of protection

Determined by the scope of the claims; the description and drawings can serve to define this scope.

Art. 28 Patents of addition

Will be granted only to the owner of the parent patent. Art. 16 will not apply as regards the relation between the improvement and the original invention. A patent of addition expires with the parent patent. If the parent patent is nullified, the patent of addition becomes independent without presumption of validity and expires twenty years from the filing date of the parent patent.

Art. 29 Designation of inventor

The inventor has the right to be named. The true inventor has the right to rectification if there is a false indication.

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Art. 101 Compulsory licenses granted in the public interest

(a) If exploitation by a third party is necessary in the public interest, a compulsory license will be granted on his request.
(b) Such compulsory licenses can be granted following publication or grant of the patent.

(Remarks: The Group was unanimous that each contracting state should have the right to grant such public interest licenses for its own territory. Part of the Group considered such licenses could be granted by the

European authority having effect in several or all countries, based on supranational considerations or considerations common to several countries. Another part of the Group considered such public interest licenses to be inadvisable. The matter will be reconsidered.)

Art. 102 Compulsory licenses for lack of or insufficient working

If after three years from grant and four years from filing, the invention is not worked or is insufficiently worked throughout the whole territory of the states, a compulsory license may be granted to a third party requesting the same. The patentee can offer legitimate excuses. Importation will not be an excuse.

Art. 103 Compulsory licenses for dependency of patents

(a) If a patent cannot be exploited without infringing an earlier patent, a compulsory license will be granted to the later patentee on request, to the extent necessary for what is different or an improvement.

(b) If the two inventions have the same industrial purpose, a compulsory license will only be granted to the later patentee with the reservation that the prior patentee can also obtain a license on request.

(Remarks: The Group considers that Art. 103 should apply to national patents dependent on European patents. This will be reconsidered.)

Art. 105 Voluntary licenses

Any person requesting a compulsory license under Articles 101-3 must prove he has first requested a license from the patentee and was refused a license on reasonable terms.

Art. 106 Conditions in compulsory licenses

(a) Compulsory licenses will be non-exclusive,

(b) They must provide for a reasonable royalty, but may contain restrictions and conditions,

(c) They can only be assigned with the business,

(d) The patentee cannot place obstacles in the way of the licensee.

Art. 107 Guarantees required

Compulsory licenses will only be granted to those presenting the necessary guarantees for assuring satisfactory exploitation according to the license conditions.

Art. 108 Competent authorities

Subject to Art. 111, the granting of compulsory licenses will be in the province of the European Office.

Art. 109 Territorial effect

Compulsory licenses extend over the territory of all the contracting States, unless there are contrary provisions in the license. Art. 103 may be limited to the territory of a national patent.

Art. 110 Withdrawal and modification

(a) On request of the patentee, a compulsory license may be withdrawn if the original conditions cease to exist, subject to a reasonable delay for the licensee, or if the licensee does not fulfill his obligations,

(b) The license may be modified on request of either party if new facts arise—particularly the grant of other licenses by the patentee on more favorable terms,

(c) Such requests will be presented to the European Office.

Art. 111 Reservation in favor of national legislation

(a) Each state may grant public interest compulsory licenses under a European patent limited to such state.

(b) The requirements cannot be more vigorous than for compulsory licenses under national patents.

(Remarks: This section applies particularly to national defense.)

9. GENERAL COMMENTS AND SPECULATIONS

As regards further procedure, it is believed that the final draft of the Convention will be completed some time in 1962 (barring some unforeseen event as previously stated) and may then be published officially, including comments on the sections where disagreements within the Working Group are still unresolved. It will be referred to the Coordination Committee for further action. No one appears to know at the moment just what this action will be and whether any alternative proposals from the outside will then be taken into consideration. Ultimately the Convention in final form will be submitted to each of the six countries of the Common Market for ratification; possibly several years from the present time. Thereafter there may be very long delays before regulations are prepared, personnel recruited and the new system is actually operative. The year 1970 is being mentioned among European sources as a target date—though they all say it may be sooner in view of the extraordinary and unexpected vitality of the Common Market generally.

Present predictions are that European patents will be difficult and expensive to obtain if the contemplated high standards for patentability are initiated and maintained. Therefore, they are likely to be confined to inventions of major importance. Furthermore both large and small industry may continue to take out national patents as a form of insurance in the event that they are unable to secure grant of a European patent.

As distinguished from the United States, European countries have always objected to non-use of patents and have employed compulsory licensing and possible revocation as a remedy. A new situation may arise with the European patent, since working in any one of the adhering states may be sufficient to render it free from attack. If in the future most of the other European states should adhere to the new Patent Convention in addition to the original six, then the European patent will indeed become massive and invulnerable.

However, it may still be hedged around with antitrust provisions. In recent years there has been a rapid growth in Europe of anticartel and antimonopoly legislation and control of restrictive business practices. The regulations under Articles 85-89 of the Rome Treaty are now being formulated and are likely to include wide powers to prevent uses of patents for restrictive purposes, which may have correspondingly greater effect on broad European patents than national patents.

10. THE POSITION OF THE UNITED STATES

Any state which adheres to the new European patent convention obviously cedes a small amount of sovereignty. It seems unlikely that the U.S. Senate would agree to ratify a Treaty whereby an industrial property right obtained abroad by foreign nationals would extend over U.S. territory, and be subject to litigation in a supra-national court. However it is not at all certain that even the possibility of full adherence would ever be offered to countries outside continental Europe, and in any event unanimous consent of the original six countries of the Common Market would be necessary.

The possibilities of simple association as referred to above are clearly highly interesting. There may be political reasons in Europe for desiring both full adherence and also simple association by third party states, but there may also be very strong opposition from European business, particularly medium and small business, to granting such powerful rights to third party countries on a non-reciprocal basis.

If it is impossible for the United States to become a full adhering member of the European Patent Convention, it would of course still be permissible, as at the present time, for U.S. applicants to obtain national patents. However there might be some disadvantages, particularly when negotiating with European interests if the latter were the only ones able to hold broad European patents. At the same time, operating European subsidiaries of U.S. corporations would apparently be in the position of legitimate *ressortissants* and would be able to obtain European patents. But the ownership would presumably have to remain with such subsidiary, since assignment to the U.S. parent corporation could be regarded as a subterfuge: this would raise numerous policy problems.

If actually the United States could join the European Patent Convention on a simple associate basis, then clearly U.S. applicants would be in substantially the same position as European applicants; there would be strong inducements for obtaining European patents on important inventions, but national patents would still be of interest.

The licensing of indivisible European patents by U.S. interests might of course introduce entirely new situations from the U.S. antitrust viewpoint relating to foreign operations.

The purpose of this article is not to pursue these purely speculative problems and possibilities, but is solely to draw attention to this new development. The numerous committees and associations in this country interested in foreign patent matters will undoubtedly consider the impact and implications of the European patent as more information becomes available. It will be interesting to find out if any broad U.S. viewpoint will develop and whether this in turn can have any influence on the future course of events in Europe.

The Convention for European Industrial Property Rights*

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This report continues the study of the Foundation on the developments in the field of Industrial Property in the European Common Market.[1] This article focuses on the proposed Convention for a European Patent. Its implications on United States interests are evaluated. Developments in the protection of competition and the planned joinder of Great Britain in the European Common Market, both as they relate to the field of Industrial Property, are other aspects of this study which will be examined in the future.

Towards the beginning of 1960, it was foreseen that Member Countries of the European Common Market would be unlikely to adopt a uniform Industrial Property Law in the near future.[2] The laws of the Member Countries regulating rights in Industrial Property are too deeply engrained in their respective economic and political philosophies to permit their early and drastic revision or their substitution by a European Common Market law. A hurried approach to this question by the substitution of well established laws by untried legislation would have been likely to disturb rights in Industrial Property in a manner inconsistent with the purposes and the spirit of the Treaty of Rome. However, about a year and a half ago, it was already foreseen that gradual changes in some aspects of the laws of Industrial Property were likely to occur in the application of the Treaty of Rome.[3] Broad strokes were painted on the canvas indicating directions and outlines. Since then, impressive progress has been made towards the formulation of a European Industrial Property Convention. An evaluation of those proposals which have been published is attempted here.

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* Research interim report on study #31, "Changes in Patent and Trademark Systems in the Common Market."

[1] Behrman—U. S. Companies As Licensees Under Foreign-Owned Patents, Trade-marks and Know How. This journal, Vol. 5, No. 1, pp. 16-29 1961).

Behrman—A Brief Look at Foreign Licensing by European Companies. Id., Vol. 5, No. 2, pp. 130-143.

Behrman—American Enterprise in the European Common Market: A Legal Profile (Book Review of Vol. 1). Id. at pp. 84-87. Weiser—Legal Guide to the European Common Market (Book Review of Vol. 2). Id. Vol. 5, No. 2 at pp. 150-158.

[2] a) American Enterprise in European Common Market: A Legal Profile. Edited by Stein and Nicholson, Ann Arbor, University of Michigan Law School (1960). Vol. I—Ladas—Industrial Property, pp. 236-295 and 290.

b) Institute on Legal Aspects of the European Community—The Federal Bar Association (1960). Robbins—Patents in European Community, pp. 162-167.

[3] Legal Problems of the European Economic Community and the European Free-Trade Association (1961). The British Institute of International and Comparative Law, London.

Froschmaier—Directorate for Competition, the EEC Commission—Patents, Trade-marks, and Licenses within the Community—pp. 61-65.

ACTION TAKEN PURSUANT TO THE TREATY OF ROME

The Treaty of Rome does not specifically provide for the harmonization or unification of Industrial Property law. On the contrary, Article 36 [4] of the Treaty incorporates an apparent reservation of such rights by specifying that it "does not prohibit each of the Member States from enacting and maintaining such legislation as is justified for the protection of industrial and commercial property." However, this freedom of the individual states to legislate to protect Industrial Property is strongly curtailed by the last sentence of the article which provides a warning against such measures that constitute a means of arbitrary discrimination or a disguised restriction on trade between the Member States. In fact, the Commission of the European Common Market has already stressed that there is an obligation directly incumbent on Member States to consult the Commission before they enact or amend any legislative provision which might cause a distortion in competition.[5]

The Commission has gone further. It has taken note that differences between the national systems for the protection of Industrial Property have a direct influence on the operation of the Common Market.[6] Accordingly, pursuant to the authority of Articles 100,[7] 101,[8] and 102,[9] the Commission has set up three working committees which were assigned the task of submitting proposals for new legislation in the field of patents, trademarks, and design and models. Articles 100, 101, and 102 deal with the approximation of laws of the Member Countries with respect to which the Commission can, or must, take action under Article 3(h) of the Treaty to the extent necessary for the proper functioning of the Common Market. Article 100 deserves special attention because it goes beyond "distortion" in providing for "harmonization," whenever the diversity of national laws affects directly the establishment or the functioning of the Common Market. Moreover, even more sweeping authority is provided by Article 235 [10] which provides for the enactment of legislation "which appears necessary to achieve . . . the aims of the Community in cases" where the Treaty "has failed to provide the requisite powers of action." The authority derived from these articles has no limitation—except the basic reservation under Article 36—regarding its aims, its form, or timing. But, there is an overriding consideration in the light of which the applicability and enforcement of any legislative provision should be measured. If a specific activity carried out pursuant to a national legislative provision is capable of adversely affecting

[4] Article 36. (Treaty Establishing the Economic Community. See appendix.)

[5] Third General Report on the Activities of the Community (March 1959—May 1960), Section 156, sub-section 2.

[6] Id. Section 158—Protection of Industrial Property. The Commission foresaw that the elimination of differences in national systems for protection of Industrial Property could be attained by the approximation of certain parts of municipal law which have a direct incidence on the functioning of the Common Market or by the establishment of European Legislation in this field by the acceptance of a Convention, or by a combination of these two solutions. It is evident that the latter two approaches are being favored.

[7] Article 100. (Treaty Establishing the Economic Community. See appendix.)

[8] Article 101. (Treaty Establishing the Economic Community. See appendix.)

[9] Article 102. (Treaty Establishing the Economic Community. See appendix.)

[10] Article 235. (Treaty Establishing the Economic Community. See appendix.)

commerce between Member States, and if its effect is anticompetitive in nature, the legislation is likely to be unenforceable. If, on the other hand, an activity in the field of Industrial Property is purely intrastate, or if interstate, it has none of the undesirable effects stated, the legislation on which the activity is based should be enforceable. These considerations are believed to provide the basis for preservation of the national Industrial Property laws (Article 36) or for action by national or Common Market bodies (Articles 100 and 102) to revise legislation that now permits the undesirable activities.

The interplay between Articles 100, 101, and 102, on one hand, and Article 36, on the other, brings to mind Section 8, clause 3 of the United States Constitution which gives Congress the "power . . . to regulate Commerce . . . amongst the Several States" and its effect on the powers of the States as secured by the 10th Amendment. As stated by Webster, in discussing the grant to Congress of the power over commerce, in his argument for appellant in *Gibbons v. Ogden:* [11]

> "The prevailing motive was to regulate commerce; to rescue it from the embarrassing and destructive consequences, resulting from the legislation of so many different States, and to place it under the protection of a uniform law."

Compare with the statement by Verloren Van Themaat, Director General of the Department on Competition of the Commission,[12] that the aim of the Treaty of Rome is:

> ". . . to put an end to existing obstacles to competition or distortions of competition. . . ."

and, in discussing approximation of the legal protection for Industrial Property, that

> "Many regard an eventual European Patent, European Trade Marks and European Protection of Model as the final aim of work in this field."

Also, see Article 7 prohibiting "any discrimination on the grounds of nationality; 13 progressively abolishing custom duties; 30 prohibiting qualitative restrictions on importations"; 52 progressively abolishing restrictions on the freedom of establishment of nationals of a Member State; 92 stating as incompatible state aid distorting "competition"; 95 prohibiting discrimination against the products of other states; 100 and 101 and others. Each of these articles suggests corresponding cases arising under the Commerce clause. However, except for this academic interest, it is doubtful that such a comparison would be helpful in predicting the manner of application of these articles. For this, reliance should be placed on European law, economics, and politics.

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[11] 9 Wheat. 1, 11 (1824).

[12] See note 3—Id. P. Verloren Van Themaat—Rules of Competition and Restrictive Trade Practices, pp. 76-88. Also, see Michel Gaudet, Director-General, Legal Service of the European Executives—Note 3—Id. at pp. 8-22. Also note the similarity of purposes. Gaudet states that "the legal system of the Community seeks to provide for efficiency. Within a Common Market based on the free movement of men and enterprises, free flow of goods, capital and services, *Common Rules* are necessary—Common Rules do not forge a Community, but a Community cannot be forged without Common Rules." At p. 14.

The committees set up by the Commission to deal with Industrial Property set forth aims which went even beyond the immediate objectives and obligations of the Treaty. Their purpose was not only to recommend measures conducive to the harmonization of national legislations, pursuant to Articles 100, 101, and 102, but also towards the conclusion of multilateral treaties that are to deal with Industrial Property rights in general. This is an important feature from the United States' point of view since it already strongly indicates that the agreements are likely to be open to other countries that may wish to join in the treaties. Since the aims of the proposed agreements go beyond the obligations of the Treaty, the report of the committees has been submitted to the Secretaries of State of the six governments for approval of the general principles. Approval having been secured for the draft of the work of the Committee on Patents,[18] final draft of the proposed Convention is in preparation. Early approval of the Convention could mean a new Convention on European Industrial Property within two years.[14] This development is likely to have long-term impact on United States interests.

THE PROPOSED EUROPEAN CONVENTION ON INDUSTRIAL PROPERTY

The proposed Convention deals with three areas of Industrial Property: patents, trademarks, and design and models. With respect to trademarks, the committee is expected to submit its report for approval to the Secretaries of State recommending a European trademark as a legal right independent from national trademarks. For design and models, the Secretaries of State recommended that the new La Hague Agreement be promptly ratified.

For patents, the Member States have reached agreement on a broad set of principles covering a wide area. There is to be created a new European Industrial Property right which is to coexist and be independent of the corresponding national rights. The proposed legislation defines the substantive law requirements for a patentable invention.[15] It outlines the rights and obligations accruing under the European patent. It provides for compulsory licensing of the patent under certain conditions of insufficient use to qualified licensees who in certain cases are required to provide guaranties. A new administrative organization to deal with the granting of the patents is proposed.[16] It provides for a system of judicial review and designates the tribunals—National and Common Market—for enforcing the Industrial Property rights. Some aspects of the new legislation about which details are available will be discussed.

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[18] The Committee on Patents is under the Chairmanship of Dr. Haertel of the German Ministry of Justice. He reports to Finnis who is the Head of the French National Institute of Industrial Property. Cf note 14.

[14] Finnis—Chairman of the coordinating committee on the Protection of Industrial Property—Remarks made October 19, 1961 in Washington, D. C. at the 125th Anniversary observance of the Patent Act of 1836.

[15] Secretariat of the Commission. Notes on the principal activities of the European Economic Community. Brussels (April 1961).

[16] a) Europe—Common Market and Euratom Edition, Brussels (July 1961).

b) Bulletin of the European Economic Community—Secretariat of the Commission, No. 5, p. 35 (May 1961).

ADMINISTRATIVE AND PROCEDURAL ASPECTS

The proposed European Patent Law provides for a new administrative procedure which is highlighted by a European Patent Office, a provisional patent, a deferred examination for novelty, and a modified opposition system.[17] The European Patent Office will be under the common administration of officials of the Member States. The Office will be concerned with an examination of the patent applications *pro forma*. The applications are then submitted to a search for novelty, probably carried out by the International Institute of the Hague. Publication of the patent will follow within eighteen months of the date of the application accompanied by a novelty report prepared by the Institute. The patents that issue will be provisional patents in the sense that their term is limited to five years subject to a deferred examination of their novelty and merits. The examination as to novelty will be carried out by the International Institute of Patents of the Hague. Upon confirmation of patentable aspects, a final patent will be issued thereon by the Office.

To set up a European Patent Office is adopting an idea already proposed by some British studies for the creation of a uniform patent system for the British Empire (1919-1922) and under the Longchambon plan[18] (1949). A single examination as to inventive merits conducted by the Institute of the Hague has already been proposed by other plans, including the Lambert plan[19] (1955) and the Committee of National Institute of Patent Agents, C.N.I.P.A. Plan (1958).[20] However, the present proposals go much further in making the European Office a truly European Institution authorized to administer the new patent law with the exception of the actual novelty examination which will be referred to the Hague Institute.

The founding of a European Patent Office eliminates multiple filing in the various national Patent Offices and the resulting multiplicity of patents which were a uniform requisite under the prior plans for applicants who wanted more than national protection. The proposed streamlining has, of course, considerable merits.

The publication of the application prior to a novelty examination is essentially an adoption of the registration, non-examination system of the civil law countries, like Belgium, France, Italy, and Luxembourg. The merit of this procedure is prompt publication. With it, there occurs rapid dissemination amongst the public of the technical information embodied in the patent. This is consonant with the

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[17] 16a) Id., (October 1961).

[18] Longchambon, French Senator on the Council of Europe. His plan was followed by the Reimer (1953, 1954), de Haan (1954) and Was (1954) plans.

[19] 74 La Propriété Industrielle, pp. 33-39 (1958).

[20] a) Annuaire de l'Association Internationale pour la Protection de la Propriété Industrielle (n.s. No. 9) pp. 14-15 (1960).

b) Also, see Industrial Property Quarterly, No. 2—Study regarding International Cooperation in the patent field, pp. 45-64 (April 1960). This study reports, *inter alia*, that it is estimated that some 70,000 patent applications per year would be made within the six Common Market countries.

c) Also, the Fédération Internationale des Ingénieurs-Conseils en Propriété Industrielle studied the question in details. See Bulletin de la Fédération Internationale des Ingénieurs-Conseils en Propriété Industrielle No. 6, p. 15 (February 1959).

d) Revue de Droit Intellectuel L'Ingénieur-Conseil. Etudes des Législations et Conventions Internationales, pp. 149-161 (June 1961).

purposes and spirit of the Treaty of Rome in promoting a more efficient use of economic resources. Also, as a result of early publication, notice is given to third parties who might be working in the same field or who might even be practicing the invention. The results of early publications are desirable features unachievable under the present examination systems of countries, like Germany or Holland, or even the British or the United States systems, principally because of the protracted delays of an examination on the merits.

On the other hand, by limiting the patent to a term of five years,[21] the proposed law rejects the principle of "absolute novelty" to which civil law countries adhere. And, by imposing on the provisional patent an examination on the merits, the law adopts the principles of "relative novelty" and of judicial certainty, two characteristics of the non-civil law countries. Hence, the patent law has borrowed from both systems. From the business aspect, it affords the patent holder and other interested parties useful time to evaluate the practical and economic aspects of the invention. If it is not worth further financial investment after five years, the provisional patent lapses, thereby dedicating to the public the information that it discloses. Such prompt availability of the technical information by dedication is also an important factor contributing to the accelerated economic development of the European Common Market. Again, this goes to fulfilling the purposes of the Treaty. If, however, the work is worth the investment, the patent holder may request an examination on the merits. From the point of view of the administration of the patent system, this deferred novelty examination is expected to cut down drastically the number of applications that will finally be submitted for an examination on the merits. This is because it has been shown that only a limited proportion of the patents mature into practical developments.[22] But the system will also benefit the inventor of developments that lend themselves to early exploitation. A prompt and expeditious system of examination will be available. And, with it there accrues to the patent holder a claim which defines, as precisely as possible, the scope of his protection to which he is rightfully entitled. This is promoting judicial certainty.

There is an obvious drawback to a system that provides for a novelty examination preceded by the early publication of a temporary patent. It deprives the applicant of the privilege of withdrawing or abandoning the patent application during novelty examination because of the closeness of prior art or because his earlier expectations of practical developments were not confirmed. By this method, he can keep to himself the fruit of his development. However, this is not deemed a meritorious objection. Anyone who applies for a patent in a civil law country is already subjected to this disadvantage and the fact that he has filed and then abandoned an application in an examination country will not prevent his patent from issuing in the civil law country, thereby disclosing his technical development. For the one who has filed only in examination countries and thereby has retained his present

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[21] The aspect of an examination of the merits deferred for five years was already found in a newly proposed French Law. France, Ordinance of May 20, 1955.

[22] It is reported that 30% of the original number of applications are of enough practical interest to continue to an examination on the merits—see note 20b) Id. at p. 56. This is estimated to amount to 23,000 applications on the basis of 70,000 applications.

right of non-disclosure, the early disclosure of the provisional patent can be considered as the price he has to pay for potentially greater exploitation of his invention throughout the entire Common Market.

A serious problem which is raised as a corollary of any deferred novelty examination system is the quantum of legal rights accruing the holder of the provisional patent in the interim period until his patent is made final. At one extreme of the scale, he could be denied all protection until the grant of the final patent; at the other extreme, he could be granted full protection from the date of publication of the application. Under the latter case, a holder seeking enforcement of his right against a possible infringer would directly go to court thereby obtaining a judicial evaluation of his invention. This procedure would be substantially equivalent to that now existing in civil law countries. It would also provide for the patent holder a way for avoiding the entire merit examination. It is evident, therefore, that the patent holder should be required to submit to merit examination before seeking judicial enforcement of his patent. But, to negate him all protection in the interim period is a denial of a legal right to which he is justly entitled. He should, therefore, in a case of infringement, be entitled to pecuniary damages retrospectively to the date of issuance of the temporary patent or to the date on which he has applied for merit examination. This recognizes, both, the right of the public to know promptly of the existence and of the broadest possible scope of the monopoly, and the right of the inventor to exclude others from the limited area to which he is rightfully entitled. It is, therefore, hoped that the Convention will provide for patent protection conditioned upon novelty examination—desirably by an accelerated procedure in situations like these—coupled with damages computed retroactively to the date of publication of the application as a temporary patent or to the date of application for the merit examination.

THE OPPOSITION SYSTEM

The proposed patent law provides for a modified opposition system. From what is known about it, it would allow a third party to submit to the Examiner the prior art which he considers relevant as soon as the provisional patent is made public. There is no exact counterpart of this aspect in present patent laws. Under the present German system, an *ex parte* proceeding is conducted by the Examiner at which the opposer can submit not only publications but also non-public evidence, such as experimental evidence. The patentee can rebut in kind. However, the opposition proceedings do not take place until after the claims have overcome an examination on the merits, thus benefiting from some inference of inventiveness. The closest analogue to the modified opposition is probably what is called, in the vernacular, "the poor man's opposition" which is available in some countries, like Great Britain and Germany. It is now embodied in the new patent legislation pending in the legislature of the Netherlands.[23] The modified opposition also

[23] Institute of Netherlands—Patent Attorneys—The Hague, April 1961—Re: Amendment to the Netherland Patent Statute. Also, see Amendments in the Dutch Patent Statute, American Patent Law Association Bulletin, pp. 475-476, (Sepember 1961).

differs from the variants in opposition proceedings under study in this country.[24] Amongst these, the closest probably is that which provides for bringing prior patents and printed publications to the attention of the Patent Office after issuance of a patent.

The merit of a modified opposition system is that it alleviates the burden of the Examiner in his novelty examination. A third interested party is likely to come up with the most relevant art because of his interest in the subject matter and of his familiarity with the field in which the applicant has been issued a provisional patent. The patentee should also find this desirable since it would strengthen the validity of any claim ultimately allowed. On the other hand, it presents a very delicate legal problem for the third party opposer. If brought inadvisably, the outcome of the opposition may seriously limit his defense in a future infringement suit. However, in order not to interfere with the defense of invalidity, it could be provided that the identity of the opposer never be disclosed.

What would really be objectionable is a modified opposition proceeding which would fail to distinguish clearly the *ex parte* and *inter partes* nature of the proceeding. It would be undesirable to allow the opposer to submit non-public evidence, such as experimental data of his own, to try to disprove inventiveness prior to examination for novelty. It is believed that such a proceeding, in addition to being very lengthy, would deter the Examiner from making an unbiased and equitable determination of invention. On the other hand, an opposition modified to essentially only provide the Patent Office with notice of relevant art, should provide quite a workable system in the interests of all parties concerned. It will be interesting to see what modified opposition system specifically is contemplated by the proposed Convention.

The proposed European Convention is a compromise between the two major patent systems now prevailing in Europe. It seems to have adopted some of the better aspects of these systems. Though practical and pragmatic considerations often seem to have been a prime motivating force, the aim and spirit of the Treaty of Rome have also been generally observed. Certainly, it can be expected that interesting problems will arise as the Convention is implemented.

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[24] Final report of Committee on Continuing Study of Opposition Proceedings—American Patent Law Association Bulletin pp. 287-292 (June 1961).

The Committee's study was directed to three areas: (a) Proposals to bring prior patents and printed publications to the attention of the Patent Office at the time a patent application is filed and during prosecution. (b) Similar to (a) but the procedure to apply after allowance of an application but before issuance of the application to patent, and (c) similar to (a) but the procedure to apply after issuance of a patent. The consensus of the Committee was that with respect to area (a) this was an area where the applicant could aid the Patent Office and contribute to the validity of his patent. As a further implementation of this proposal, the committee's consensus was that during the pendency of an application the applicant may be required to list all prior art which has been cited against him in a corresponding application filed in any other country. The similarities with the proposed European laws is evident. A basis for cooperation between the La Hague Institute and the United States Patent Office with respect to the examination of applications appears to exist. This is an area which should be further developed.

THE EUROPEAN CONVENTION AND THE DUTCH PATENT STATUTE

The proposed European Patent Convention shows the influence of prior European studies in this field. Also, it borrows heavily on the national legislation; as such, it is an attempt at their reconciliation. Moreover, being conceived and implemented under the aegis of the Treaty of Rome, and spurred on by pragmatic economic considerations, it is a true product of our times. But it is not an isolated experiment. There is presently pending in the Dutch Parliament a new patent statute. The proposed European Convention and that statute are more akin to each other, on the whole, than the Convention is to any single other national patent law. Yet, there are differences. They are interesting because it is believed that they throw some light on the spirit of modern European Industrial Property legislation and, therefore, on the future interpretation of these laws.

The Dutch statute provides that the application, after a *pro forma* examination, be made available to the public eighteen months after filing. But, there is no provisional patent. Moreover, no rights accrue to the holder against possible infringers upon publication of the application. The statute, therefore, promotes prompt dissemination of technical information, but separates from it the right of enforcement which generally accompanies the patent right.

The proposed Convention has gone one step further in a rapprochement with the civil law practice; it issues the application into a provisional patent. It can be hoped that the Convention patent will be granted its traditional right of enforcement as soon as it issues as a final patent, effective, retroactively, to a prior date yet to be determined. This will be in furtherance of certainty and predictability in the ownership of Industrial Property rights.

Another new aspect of the Dutch statute is that it introduces a notification procedure allowing a third party to notify the Patent Office of anticipatory art after the application is made public following the *pro forma* examination. It maintains the now prevailing opposition procedure allowing opposition by a third party after examination on the merits. But, it is important to note that the statute observes the time differential between the notification and the opposition. Moreover, in the notification proceedings, the third party has no right of participation as he does in the opposition. The proposed Convention can obliterate the distinction between the notification and the opposition procedures by providing for a single proceeding with attributes of both. However, it is hoped that the writers of the Convention will not have ignored, for the sake of compromise, distinctions which make for sounder procedural and substantive patent law.

From a study of the proposed legislation, a trend in European Industrial Property Law is discernible. The laws are expected to restrict the legitimate area of patent monopoly to a more limited segment of industrial wealth than is the case under present practice. This will be promoted by earlier and more widespread dissemination of technical knowledge. Conversely, a larger segment of wealth is expected to remain in the public domain for unrestricted exploitation. This will be promoted by the extension of examination on the merits throughout the Common Market. Also, the distinction between the area of lawful monopoly and that belonging to the public domain is expected to be sharper. This, in turn, is conducive to greater

legal certainty. As a whole, the laws are expected to lead to keener competition and to more efficient utilization of European resources. These results are clearly in the spirit of the Treaty of Rome.

SUBSTANTIVE LAW ASPECTS

Following the same trend, it can be expected that the substantive law aspects, though reflecting a compromise between civil-law and examination-system countries, will also represent a refinement and sharper distinctions in the definition of the subject matter involved. The Committee on Patents has studied the questions of subject matter, novelty, patentability and others. Their decisions are expected to be embodied in the Convention. What they are is not yet precisely known at this time. The need for unification on points of substantive law concerning patents was recognized by the Council of Europe, the Committee of Experts on Patents,[25] and other writers who made a number of suggestions.[26] Some trend towards absolute novelty seems to have been detected [27] and actually favored by certain groups.[28] But, it is believed that absolute novelty has no permanent place within the context of the present legislative trend in Industrial Property. Rather, a strict standard of inventiveness close to that prevailing in the examination countries (including the United States) and to aspects of pending French patent legislation [29]

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[25] 71 La Propriété Industrielle, p. 236 (1955).

[26] a) Engi—European Patents in the Offing. Industrial Property Quarterly, No. 3—pp. 187-196 (July 1961).

Engi suggested that the European patent application should be subjected to an examination of novelty and, preferably, also to one of the technical progress achieved. Opposition and nullity proceedings should be available. Chemical and pharmaceutical substances should be patentable. And, the requirement of working should be satisfied by working in one European Country. The duration of patents should be twenty years. Probably, having in mind Articles 85 and 86 of the Treaty, Engi advocated allowing patent licenses to be limited to one or several European Countries. It is evident that some of these ideas are embodied in some form in the Convention.

b) See note 3—Id. at pp. 63-64. Froschmaier advocated strong examination of novelty, even if deferred for a limited period. He also indicated that technical progress or "flash of genius" were being examined as conditions of patentability.

[27] See note 3—Id. at p. 63.

[28] Revue De Droit Intellectual, L'Ingénieur Conseil, Nos. 5-6 (May-June 1961)—Principles for Patent Legislation within the Common Market. A communication from the Franco-German Chamber of Commerce.

The German and French representatives reached agreement on quite a number of points: e.g. novelty examination was considered necessary, the examination being carried out by a technically competent administrative body. Judicial action should be deferred to later, if at all necessary. But, while the German representatives favored a Common Market patent coexisting with the national patents, the French representatives advocated that the differences be eliminated through revisions of the national laws, at least for the beginning.

[29] Colas and Reibel—77 La Propriété Industrielle, pp. 106-112 (May 1961)—Study on the Harmonization of Legislations Concerning Patents. Judicial Security. Criteria for Inventions. Application by the Courts. The new French Law. The authors examine the advantages and shortcomings of the opposing principles of "judicial security" and that of absolute novelty granting maximum protection to the inventor. The first principle is generally adhered to by examination countries, whereas the latter represents the view of civil law countries. The authors advocate a compromise between the two systems. They propose to use as a basis pending French

is more likely to be adopted. Such a standard would require "inventive height" and a "technical advance" over the prior art, (as in German practice) possibly coupled with some objective criteria of patentability (as in proposed French law). Accordingly, such a standard could approach that now prevailing in the United States.

With respect to patentable subject matter it can be expected that as in civil law countries claims to the product, including drugs, will be permissible. Protection based on process claims only has generally been rather uncertain and inadequate. Allowing product claims is consonant with the detectable trend of the European Convention of granting to the inventor a more limited, albeit more precise and selective, definition of the area of legitimate monopoly. For drugs, this is in line with the new French patent law and bills in the Italian Parliament.[30] However, it can be expected that strong compulsory licensing provisions would severely curtail any extention that such protection on the products themselves (drugs and others) may represent to inventor. Here again, therefore, the Convention is expected to promote a judicious balancing of interests.

THE JUDICIAL SYSTEM AND THE ENFORCEMENT OF THE PATENT RIGHTS

The European Convention provides for its coexistence with the national laws on Industrial Property. This is confirmation of earlier prognostics.[31] This is also an implicit recognition of Article 36 of the Treaty [32] reserving to each Member State the right to protect Industrial Property within its territory. But, pursuant to the original aims of the Commission to approximate the conflicting portions of national laws of Industrial Property, it can be expected that these laws will be gradually harmonized. Eventually, it can be foreseen that they will be abolished. In the interim, however, a European Patent Convention will be available to provide protection for property produced or traded throughout the territory covered by the Convention, specifically, the Common Market. National patent laws, on the other hand, will be available for the protection of nationally limited economic interests. The dual interaction of these two bodies of laws is expected to raise numerous problems.

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legislation which would introduce a novelty examination. The proposed French legislation is praised by the authors for establishing objective criteria for patentability. Colas and Reibel propose a codification of these standards into a law that would combine aspects of the British, German, French (proposed legislation), and Dutch patent systems.

It is very regrettable that the authors have summarily disposed of the merits of the United States Patent system by the statement that, after failure of the "flash of genius standard," no satisfactory objective criterion has yet been found as substitute. Except for briefly recognizing that the "doctrine of equivalents" corrects some of the inequities of the formalistic approach which characterized, according to the authors, the judicial security principles, no credit is given the U.S. system. It is believed that there are many meritorious aspects of United States patent law that would contribute to a sound European Patent Convention.

[30] Although the Italian bills propose to give some form of protection for drugs, protection over the drug itself is still very inadequate. Cf. Chemical Week, 69-74, December 10, 1960. Yet, note in view of the European trend a possible opposite trend in the United States in the Kefauver bill (S. 1552; April 2, 1961).

[31] Finnis—77 La Propriété Industrielle, pp. 133-139 (June 1961). Also, see note 3, Id. at p. 62.

[32] See note 4—Id.

Some of them are expected to arise as an incident to the use of both the national and supranational judicial systems, Common Market or other. The Convention proposes a European Patent Tribunal, as a court of appeal, presumably, to decide, *inter alia,* questions of patentability, validity and revocation. On the other hand, the Convention provides that questions of infringement be resolved by national tribunals. This is likely to lead to the development of two bodies of law interpreting a single concept of Industrial Property. One such situation may be brought about in an infringement case in a national court. A likely defense would be invalidity of the patent. Unless the national court will be required to apply the same law as applied by the European Patent Tribunal, (or its lower tribunal, if it was not appealed) rather than its own domestic law, there is no certainty that two different legal concepts of invention will not evolve. The law of reference for the national courts should be a European Law. Another type of situation that may arise is in an action of infringement brought by an assignee of the patent, the defense being that the patent is unenforceable as violating Article 85 or 86 of the Treaty.[33] In general terms, Article 85 provides that agreements of all kinds, which have as their object or result in the prevention, restriction, or distortion of competition are incompatible with the purpose of the Common Market and void. It is expected that these Articles will be applicable to clauses in assignment and licenses in connection with Industrial Property.[34] And, for such agreements that create barriers to the free movement of goods as to unduly restrict competition within the Community, an action would be under Articles 85 or 86. The Court of Justice of the Community would have jurisdiction under the Court's "administrative" jurisdiction where it provides legal redress to enterprises and to individuals.[35] The case could be referred to the Court of Justice for binding determination under the court's jurisdiction to determine questions of law involving the Community.[36] If the Court of Justice holds the patent unenforceable it makes a determination of the issue of infringement by the national court essentially useless. If held enforceable, the defense of invalidity could be asserted, thus coming back under the first situation discussed. Other hypothetical cases can be conjured. They may arise in connection with the enforcement of national rights under the situation where the patent

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[33] Article 85. (Treaty Establishing the Economic Community. See appendix.)
Article 86.

[34] See note 2a—Id. at pp. 284-290. Also in Volume II Riesenfeld—The Protection of Competition, pp. 197-348 for a thorough discussion of this topic. The Economic and Social Committee, in its discussions regarding the implementation of regulations pursuant to Articles 85 and 86, advocates that these articles must apply in principle to all branches of economic life. See note 16(b)—Id. No. 4, p. 44 (April 1961).

[35] a) La Grange—Advocate General at the Court of Justice of the European Community. Marché Commun No. 32, pp. 33-44, 35 (January 1961).

b) Donner—President of the Court of Justice of European Community. See note 3—Id. at pp. 66-75, 70.

[36] See note 35(b)—Id. at p. 69.

It should be noted, however, that under Article 173, which defines the jurisdiction of the Court, the party, as a private person or as an enterprise, must predicate his case on a decision, which has affected it, and not merely on inaction of an institution of the Common Market. This may present some difficulties since the defendant is likely to be confronted with a situation of "inaction" of the Commission towards the patents in question.

holder also owns a Convention patent. Assuming such situations to be permissible, questions relating to the order of assertion of these patents, and of *res adjudicata* can be readily foreseen. These problems underscore the importance of providing, along with the new Convention, a judicial machinery conducive to legal certainty within a context of a harmonious relationship with existing national legal systems.[37]

EFFECT OF THE CONVENTION ON UNITED STATES INTERESTS

It is reported [38] that the proposed European Convention will be open to all states that may want to accede to it subject to the unanimous approval of its original signatories. This should tone down the conjectures prevailing on this point.[39] But, because the Convention is, as planned, an agreement separate from the Treaty of Rome, ratification of the Convention is not tantamount to a joinder of the European Common Market. Thus, the Convention should be open to the United States [40] on the basis of a special arrangement either under Article 238 of the Rome Treaty or, perhaps, under Article 15 of the Paris Union Convention. How this can be done without extending reciprocity to European patentees is conjecture at this time. However, it can be expected that some form of suitable association will be found. A different attitude would promote the establishment and maintenance of territorial barriers by foreign Industrial Property rights. To prohibit this practice to national European enterprises, but to condone it for foreign ones, certainly would be abhorrent to the policy of the Treaty.

It is urged that serious consideration be given to the problem of the joinder of the Convention by the United States. It is indeed encouraging to note that the Commissioner of Patents has already recognized the importance of this question.[41] We should endeavor to insure that the conditions which will be imposed on any form of association will be to the best interests of the United States while, at the same time, respecting the aims and interests that the Convention and the Treaty of Rome are promoting. Generally speaking some form of association would seem to be favorable to the interests of the United States here and abroad. This is because the rights of the countries that may not wish to join might be severely curtailed in the territory of the Members of the Convention. The Treaty of Rome would preclude "non-joinders" of the Convention from carrying out the very practices that the Convention attempts to avoid. Moreover, it is expected that such curtailment would not be a violation of the national treatment clause of the Paris Union Convention [42] since the non-joinders would have the same rights as

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[37] See note 14. In his remarks, Finnis acknowledged that giving jurisdiction to the national courts for infringement cases would be likely to bring about "some division." But he expressed confidence that "this would work very well under the existing European judicial system."

[38] Europe—Common Market and Euratom Edition, Brussels (June 1961). Also, Finnis in his remarks, Washington—October 19, 1961. See note 14.

[39] See note 2a), Id. at pp. 256-257.

[40] See notes 38 and 14.

[41] Commissioner David Ladd, at a meeting of the New York Patent Law Association, October 10, 1961, expressed his interest in looking into the terms on which a joinder of the United States could be considered. 131 USPQ IV October 16 (1961).

[42] International Convention for the Protection of Industrial Property 1883, as revised.

the national members who are Members of the Convention. On the other hand, it is to be expected that the signers of the Convention will make it attractive to join; on what terms remains to be seen.

Probably, the most important area to be affected by the proposed Convention, other than in the solicitation of patents, is in the management and exploitation of United States interests in Europe. Most important is the extent to which assignments and licenses of United States interests will be affected by application of Articles 85 and 86, the antimonopoly and antitrust rules, of the Treaty. The problem has already been foreseen.[43] It is further complicated by the possible effects of United States anti-trust laws.[44] Broadly, it represents the possible accommodation of two important interests: on one hand, the promotion of economic progress and development by the recognition and protection of the legitimate monopolistic rights comprising Industrial Property and, on the other hand, elimination of concentrations of economic power and of agreements unduly restricting competition by the enforcement of Articles 85 and 86. Both of these interests are recognized by the Treaty. It has been suggested[45] that agreements involving Industrial Property rights which keep within the scope of the grant of the patent, design, or trademark right, constitute a lawful exercise of the lawful monopoly embodied in the grant. Those agreements that exceed the scope of the grant would be in conflict with Articles 85 and 86. Also, it has been proposed[46] to use, as the pivotal point of the issue, the concept of whether the agreement embodies a "limitation" or a "condition," the former being permissible and the latter not. Both of these interpretations are focusing on the problem, yet they provide no indication of a suitable solution or even a trend. Furthermore, all of these considerations are further complicated by the new factor which is represented by the compulsory licensing provisions of the Convention. Since these provisions come into effect when certain conditions are fulfilled that are generally independent of the criteria for application of Articles 85 and 86, it is not inconceivable that licensing provisions will sometimes work at cross-purposes with the antimonopoly and antitrust rules.

It is within this context that the licensing of Industrial Property rights takes

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[43] a) See von der Groeben Wirtschaft und Wettbewerb. Wettbewerbspolitik in der Europäischen Wirtschaftsgemeinshaft No. 6, pp. 373-396 (June 1961) for a broad statement of the problem.

b) Oudemans, Kooij and Wolterbeek—La Propriété Industrielle. Etudes Génèrales. Droits de la Propriété Industrielle et Règles de Concurrence dans le Traité de Rome—pp. 27-32.

c) The Regulations which are to implement Articles 85 and 86 were submitted by the Commission to the Council of the European Community. For a criticism of the Regulations, see McAuliffe and Andrew; the Impact of the Common Market Treaty on the Licensing of Industrial Property, Industrial Property Quarterly, No. 4, pp. 240-251, (October 1961). The authors' principal objections to the Regulations are directed to its requirements for compulsory notification and to the indefinite position given to know-how licensing agreements. (February 1960).

[44] Van Cise—The Application of the United States Anti-Trust Laws to the European Community—see 2b) Id. at pp. 140-161.

[45] See 2a) Id. at p. 288.

[46] See 2b) Id. Frayne—Trade-marks in European Community—pp. 168-176, 173.

place. Licensing has a permanent place in the foreign operations of many United States concerns.[47] It is becoming increasingly important in the determinate exploitation of United States resources in a world of increasing competition.[48] Also, there has been an important increase in the number of United States subsidiaries in the European Common Market.[49] They, too, are expected to play a significant role in the development of United States Industrial Property interests abroad. It may be tentatively suggested at this time that until the United States ratifies the proposed Convention, the companies having subsidiaries in the Common Market are likely to derive even greater benefits from their establishment in Europe. Those subsidiaries which qualify as a Common Market enterprise will be entitled to take advantage of the Convention. Accordingly, it may, therefore, be feasible for the United States parent corporation to assign the patent right to the subsidiary, allowing the latter, in turn, to obtain a Convention patent. If such a procedure could develop to any appreciable extent, it can be foreseen that U.S. companies with subsidiaries in Europe could be at a distinct advantage relative to companies without such subsidiaries. It is expected that the management of subsidiaries and licensing is going to continue to be an interesting and challenging area of Industrial Property Law.

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[47] Behrman. This journal, Vol. 4, No. 2 pp. 151-172 (1960) and prior articles cited therein. Also, Foreign Licensing Agreements Studies in Business Policy, No. 86, Vol. 1, pp. 58-59 (1959). National Industrial Conference Board.

[48] Organization of Foreign Based Corporations Studies in Business Policy, No. 100 (1961)—New York Times—October 15, 1961—Business Section.

[49] The rights of the subsidiaries which are set up in the Common Market from outside have been debated. The protectionist attitude was that only those "full blooded" EEC enterprises—those whose capital, management and production truly belong to the EEC—should benefit from the abolition of discriminatory measures levelled at enterprises of third countries. The liberal view was that other categories of enterprises established in the EEC, such as the subsidiaries of enterprises in third countries, should also profit from the facilities. The liberal view has apparently prevailed mainly on the grounds that 1) it would often be extremely difficult to determine what is a "full blooded" enterprise and 2) foreign enterprises also contribute to the Community's prosperity. In the future, all those companies will benefit from the abolition of discrimination which (a) have been incorporated under the law of a Member State, (b) whose official seat, as defined in the Articles of Association, is in the Common Market, and (c) who maintain real and continuous ties with the Community. Such subsidiaries will be full fledged "ressortissants." Common Market No. 4—Foreigners in EEC pp. 58-60 (February 1961). For a discussion of related aspects, see note 2(a) Id. Vol. II—Conard—Organizing for Business, pp. 1-151.

APPENDIX

Articles from the Treaty Establishing the European Economic Community signed in Rome, March 25, 1957; effective January 1, 1958

ARTICLE 36

The provisions of Articles 30 to 34 inclusive shall not be an obstacle to prohibitions or restrictions in respect of importation, exportation or transit which are justified on grounds of public morality, public order, public safety, the protection of human or animal life or health, the preservation of plant life, the protection of national treasures of artistic, historical or archeological value or the protection of industrial and commercial property. Such prohibitions or restrictions shall not, however, constitute either a means of arbitrary discrimination or a disguised restriction on trade between Member States.

ARTICLE 100

The Council, acting by means of a unanimous vote on a proposal of the Commission, shall issue directives for the approximation of such legislative and administrative provisions of the Member States as have a direct incidence on the establishment or functioning of the Common Market.

The Assembly and the Economic and Social Committee shall be consulted concerning any directives whose implementation in one or more of the Member States would involve amendment of legislative provisions.

ARTICLE 101

Where the Commission finds that a disparity existing between the legislative or administrative provisions of the Member States distorts the conditions of competition in the Common Market and thereby causes a state of affairs which must be eliminated, it shall enter into consultation with the interested Member States.

If such consultation does not result in an agreement which eliminates the particular distortion, the Council, acting during the first age by means of a unanimous vote and subsequently by means of a qualified majority vote on a proposal of the Commission, shall issue the directives necessary for this purpose. The Commission and the Council may take any other appropriate measures as provided for in this Treaty.

ARTICLE 102

1. Where there is reason to fear that the enactment or amendment of a legislative or administrative provision will cause a distortion within the meaning of the preceding Article, the Member State desiring to proceed therewith shall consult the Commission. After consulting the Member States, the Commission shall recommend to the States concerned such measures as may be appropriate to avoid the particular distortion.
2. If the State desiring to enact or amend its own provision does not comply with the recommendation made to it by the Commission, other Member States may not be requested, in application of Article 101 to amend their own provisions in order to eliminate such distortion. If the Member State which has ignored the Commission's recommendation causes a distortion to its own detriment only, the provisions of Article 101 shall not apply.

ARTICLE 3

(h) the approximation of their respective municipal law to the extent necessary for the functioning of the Common Market;

ARTICLE 235

If any action by the Community appears necessary to achieve, in the functioning of the Common Market, one of the aims of the community in cases where this Treaty has not provided for the requisite powers of action, the Council, acting by means of a unanimous vote on a proposal of the Commission and after the Assembly has been consulted, shall enact the appropriate provisions.

ARTICLE 85

1. The following shall be deemed to be incompatible with the Common Market and shall hereby be prohibited; any agreement between enterprises, any decisions by associations of enterprises and any concerted practices which are likely to affect trade between the Member States and which have as their object or result the prevention, restriction or distortion of competition within the Common Market, in particular those consisting in:

(a) the direct or indirect fixing of purchase or selling prices or of any other trading condition;

(b) the limitation or control of production, markets, technical development or investment;

(c) market-sharing or the sharing of sources of supply;

(d) the application to parties to transactions of unequal terms in respect of equivalent supplies, thereby placing them at a competitive disadvantage; or

(e) the subjecting of the conclusion of a contract to the acceptance by a party of additional supplies which, either by their nature or according to commercial usage, have no connection with the subject of such contract.

2. Any agreements or decisions prohibitd pursuant to this Article shall be null and void.

3. Nevertheless, the provisions of paragraph 1 may be declared inapplicable in the case of:

any agreements or classes of agreements between enterprises,

—any decisions or classes of decisions by associations of enterprises, and

—any concerted practices or classes of concerted practices which contribute to the improvement of the production or distribution of goods or to the promotion of technical or economic progress while reserving to users an equitable share in the profit resulting therefrom, and which:

(a) neither impose on the enterprises concerned any restrictions not indispensable to the attainment of the above objectives;

(b) nor enable such enterprises to eliminate competition in respect of a substantial proportion of the goods concerned.

ARTICLE 86

To the extent to which trade between any Member States may be affected thereby, action by one or more enterprises to take improper advantage of a dominant position within the Common Market or within a substantial part of it shall be deemed to be incompatible with the Common Market and shall hereby be prohibited.

Such improper practices may, in particular, consist in:

(a) the direct or indirect imposition of any inequitable purchase or selling prices or of any other inequitable trading conditions;

(b) the limitation of production, markets or technical development to the prejudice of consumers;

(c) the application to parties to transactions of unequal terms in respect of equivalent supplies, thereby placing them at a competitive disadvantage; or

(d) the subjecting of the conclusion of a contract to the acceptance, by a party, of additional supplies which, either by their nature or according to commercial usage, have no connection with the subject of such contract.

Antitrust in the 1960 Decade*

S. CHESTERFIELD OPPENHEIM **

INTRODUCTION

Law, said Justice Holmes, is a prophecy of what the court might do in the next case. Antitrust invites similar predictions. The major antitrust laws—the Sherman, Federal Trade Commission and Clayton Acts—contain standards which, for the most part, give the courts the final say on the Congressional intention expressed in either the general or specific statutory language. That is why it is often said that the antitrust laws, like the Constitution itself, are what the judges say they mean.

But predictability in the antitrust field also involves what the executive, Congress and the administrative process of the Federal Trade Commission Act may activate. In my projection of antitrust in the 1960's, this attempt at forecasting will take all of these forces into account.

The first part of my discussion will deal with an over-all survey of probabilities of antitrust in the 1960 decade. The latter part will focus on patent-antitrust trends, a subject of particular interest to the Patent Bar.

On the executive and administrative levels antitrust policy today is nonpartisan by political necessity. In the 1960's there will continue to be vigorous antitrust enforcement. This is so because antitrust has become a distinctive American article of political and economic faith in private competitive enterprise as an index of a free society. The Republican and Democratic Parties cannot afford to be unmindful of the fact that the American people have been indoctrinated with antitrust clichés regarding the virtues of competition and the vices of monopoly. It matters little that the lay public is untutored in the technical legal and economic aspects of antitrust doctrine. In their minds antitrust has the image of a Constitutional mandate rather than mere statutory enactments.

We can be sure that in the Kennedy administration the antitrust trumpets are blaring as loudly as in the Eisenhower period. Under Judge Stanley N. Barnes, Victor Hansen and Robert A. Bicks, the three former Republican heads of the Antitrust Division, antitrust enforcement boomed at an inflationary pace. Mr. Bicks actually outdid his predecessors in adding notches to the prosecutor's tomahawk. He chalked up a record that would have satisfied the avarice of Thurman Arnold in the F.D.R. Administration. The shillelagh in the hands of Attorney General Robert Kennedy's appointee, Judge Lee Loevinger, head of the Antitrust Division, will be wielded with equal force. The Attorney General has already announced continuation of a drive against price-fixing conspiracies.

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* This address was originally written for delivery before the American Society of Corporate Secretaries and revised and adapted for delivery to the Michigan Patent Law Association and the Patent Lawyers Club of Washington.

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BUSINESS BIGNESS

A paramount controversial issue will be the Administration's attitude toward Business Bigness. So far as the Justice Department is concerned, it is doubtful whether we shall be able to identify a frontal attack on business size as such. The Supreme Court and lower federal courts have not condemned enterprise giantism per se. The Antitrust Division has pending suits which have overtones of antibigness but they can hardly be classified as cases based directly upon the theory that magnified size of business units is bad for the health of the American economy.

This does not mean we should be unaware of the reality that some members of Congress, some economists and some government attorneys have espoused a direct attack on corporate bigness.

It is my long held conviction that such an antibigness approach would be a futile nostalgic desire to go back to the early American economy when competition was waged among many small business units and our technology was in its infancy.

Let me state some propositions which to me seem essential to straight thinking on the issue of business bigness.

First, the polar abstractions of perfect competition and absolute monopoly cannot serve as guides to antitrust policy. In actuality, the various forms of competition are today imperfect. A realistic antitrust policy must settle for conditions compatible with workable or effective competition in any given industry or market. We cannot hope for all the competition that is theoretically possible.

Second, monopoly in a single firm has been rare. Pullman, Alcoa and United Shoe are the only antitrust cases where the Government was able to prove that each of these firms had monopoly power to control market price and exclude competitors. There is little likelihood that with the presence of product substitutes in virtually all American markets, one firm can acquire or maintain a stranglehold of monopoly power.

Third, there is misuse of the monopoly slogan in attacks upon industries or markets in which a few large sellers account for the major percentage of production and sales. The economists call these oligopolies. The danger arises when Government seeks to equate oligopoly market power with monopoly.

It is common knowledge that in structure and market behavior, there are numerous oligopoly industries in America. My position is that so long as the few large firms in an industry compete effectively and do not engage in collusive practices, a competitive oligopoly should be free from antitrust attack. Neither the Supreme Court nor a lower federal court has interpreted the antitrust laws as condemning in and of itself economic concentration of an oligopoly. In the 1946 American Tobacco Company case, the Big Three in cigarettes were found guilty of conspiratorial conduct in controlling the leaf tobacco auction markets and in the marketing of their major brands of cigarettes. The conviction was based on this abuse of oligopoly power, not on the fact of oligopoly alone.

In this connection, however, antitrust enforcement is still tainted with fallacious beliefs that oligopoly market behavior is inherently at odds with competitive mechanisms. Most economists reject this generalization. It stems from the false notion that identical prices of competitors are per se proof of absence of competitive

rivalry. Some government attorneys would join with some members of Congress and some economists in the false view that price leadership, so-called administered prices and conscious parallel conduct of competitors, which result in uniform prices in a given market at a given time, are invariably the indicia of tacit collusion among them.

In the 1960's these beliefs will probably continue to be advocated. In my opinion, they are contrary to what should be expected from normal competitive responses. When products are standardized or reasonably interchangeable with respect to price, use and quality, economic forces usually compel competitors to meet the lower prices of their rivals or even to meet higher prices when industry-wide increases in cost cause a price leader to initiate a price increase. The Supreme Court has ruled that mere uniform or parallel business behavior in price or in other respects is merely *circumstantial* evidence that may show either independent business decisions of each competitor or an illegal agreement. As the Supreme Court said, "conscious parallelism has not yet read conspiracy out of the Sherman Act entirely."

The Antitrust Division has already suffered dramatic setbacks in its attack on identical prices in the polio vaccine, the Tulsa Oil, the Columbia Pictures and the Continental Baking cases. Failure to prove genuine collusion among competitors proved fatal to the government's case and rightly so.

There is another barrier to sound antitrust in the overstress on price competition. This results in failure to recognize the pervasiveness of non-price competition in brand names, quality, service. So long as there is effective interbrand competition at the seller and buyer levels, oligopoly competition can be as virile among the large firms as among the small firms.

My long-held belief is that on the issue of bigness and market power the determination of whether there is an antitrust violation should turn on a flexible Rule of Reason inquiry into all of the relevant facts and circumstances in a case by case inquiry. In this area, the Supreme Court has given its blessing to this approach since the majority opinion of the Court in the Standard Oil case of 1911. In 1953 in the duPont Cellophane case, the Court reaffirmed this Rule of Reason method of adjudication as applied to monopoly charges under Section 2 of the Sherman Act and dicta in the Klor's case of 1959 again reaffirmed this.

This is the only realistic way of deciding whether a single firm, or an oligopoly of several firms in an industry, is compatible with the kind and quality of competition required by antitrust policy. In this decade, there will be pressing need to bridge the gap in factual information regarding the structure, market behavior and accomplishment of American industries. But progress is being made toward greater sophistication in antitrust economics and industry case studies, as contrasted with the economic abstractions of preceding decades.

MERGERS

These same considerations apply to mergers as forms of business expansion. In merger cases an extensive Rule of Reason inquiry is an inescapable requisite to determination of whether a corporate acquisition of the stock or assets of

another corporation violates amended Section 7 of the Clayton Act. The legal test is whether the acquisition creates the reasonable probability of a substantial lessening of competition or tends to create a monopoly in any line of commerce in any section of the country. The Congressional purpose is to stop in its incipiency undue concentration of market power by this type of corporate growth.

Since mergers as such may either promote or lessen competition, amended Section 7 should not be enforced as an antimerger statute. Moreover, this antitrust provision does not condemn bigness resulting from a corporate merger as such. The prohibited adverse competitive effects must be shown to be reasonably likely in the relevant product and geographic markets in which the merger has an impact.

It is still a controversial issue whether the Department of Justice and Federal Trade Commission merger suits thus far adjudicated have been resolved by resort to a full-scale application of the Rule of Reason. The hard fact is that in all but one litigated case the courts have sustained the Department of Justice attacks on mergers under amended Section 7. The Federal Trade Commission has also ruled against every litigated merger in which the Commission has reviewed the Initial Decision of the Hearing Examiner. The Brown Shoe decision of the District Court, which held the merger of Brown Shoe and Kinney in violation of Section 7, is now pending in the Supreme Court and may throw much needed light on the Supreme Court's thinking since its decision in the duPont-General Motors case under old Section 7.

In any event, my belief is that mergers will continue to come under close scrutiny of the Department of Justice and the Federal Trade Commission in the 1960's. And there is no sign that Congress will relax the statutory curbs on the urge to merge—or as one writer has recently put it, on the anatomy of a merger.

As a final observation on the bigness issues, it should be noted that neither vertical integration nor diversification of products and functions has ever been held a per se violation of the antitrust laws. Only when these forms of business growth are accompanied by an illegal purpose or are the leverage for abuse of market power, such as a monopolistic price squeeze, have they been condemned as antitrust violations. It is not probable that the courts or Congress will depart from these sound principles. But at present there are indications in some quarters that diversification of products is being viewed with alarm as a source of building up strategic advantages of giant enterprises. If this is so, the question still is whether those advantages are or are not compatible with effective competition. Diversification, like vertical integration, are normal forms of business growth which should be sanctioned unless they are otherwise shown to be coupled with proven antitrust violations.

PER SE ILLEGALITY

Continuing with this general survey, we note judicial interpretations in antitrust areas where the Supreme Court and lower federal courts have charted the reefs and shoals of per se illegality, in restraints of trade that are deemed inherently unlawful and therefore do not demand an inquiry into all of the relevant circumstances under an expanded Rule of Reason approach.

Antitrust will continue to be an anticartel policy in domestic commerce. However, moderate relaxations applicable to foreign commerce may be allowed when the conditions in trade with other countries deny to American enterprise opportunities for export or import.

Anticartelism means that the government will continue to attack combinations, conspiracies and other concerted action among competitors when the purpose is to fix market prices, control production, divide territories, or allocate customers. Once these restraints of trade are factually shown to exist, they will be held conclusively presumed to be unreasonable per se by their very nature.

Group commercial boycotts or concerted refusals to deal by sellers or buyers are apparently also in this category.

In passing, we should note that in the Simplicity Pattern case, the Supreme Court ruled that certain discriminatory practices are absolutely banned under the Robinson-Patman Act, irrespective of their effect upon competition. These include discriminatory brokerage payments, advertising or promotional allowances and services and facilities. Failure to give proportionately equal treatment to all of the customers of the same seller is deemed per se unlawful.

Corporations should reconcile themselves to compliance with these per se prohibitions which are not likely to be relaxed or repealed by Congressional legislation. There is substantial consensus that the anticartel prohibitions of the Sherman Act are in harmony with over-all antitrust objectives. The per se Robinson-Patman Act violations continue to be a subject of controversy.

SECTION 3, CLAYTON ACT

Section 3 of the Clayton Act applies to exclusive dealing arrangements and tying clauses which are reasonably likely to lessen competition substantially. The recent decision of the Supreme Court in Tampa Electric Company lends encouragement to the belief that the Court does not interpret its earlier Standard Stations opinion as precluding an extended Rule of Reason examination of the competitive effects of exclusive dealing under the Clayton Act. In Standard Stations the Court seemed to give too much weight to quantitative measures of adverse effects on competition, such as dollar volume or percentage market shares. The Federal Trade Commission and courts reviewing the Commission's findings of facts have interpreted Standard Stations in that restrictive manner. Tampa Electric, however, expressly states that "a mere showing that the contract itself involves a substantial number of dollars is ordinarily of little consequence." It is gratifying—although perhaps surprising to those who misread Standard Stations—that the Court adopts an extended Rule of Reason market inquiry in determining whether there is a reasonably probable foreclosure of a substantial volume of competition by reason of the exclusive dealing contract. The relevant product line of commerce and the geographic area of effective competition must be determined before deciding whether there is probable foreclosure of competition in a substantial share of the relevant market. Most surprising is the Court's reliance on the Rule of Reason factors mentioned in the Columbia Steel case which arose under the Sherman Act. But the difference is that under the Clayton Act the

test is one of reasonable probability rather than proof of an accomplished substantial lessening of competition. Tampa Electric signals the willingness of the Court to inquire into the particularized circumstances of the specific case. The Court repudiates the implication that its previous exclusive dealing decisions under Section 3 adopted a mechanical illegal per se market foreclosure rule.

Tying clauses tested by either the Sherman Act or Section 3 of the Clayton standards are virtually illegal per se. The Supreme Court has said that tying agreements serve hardly any other purpose than the suppression of competition in the tied product or service. Construing the Section 3 opinions and the Northern Pacific Sherman Act opinion of the Supreme Court, my belief is that tying clauses fall under the antitrust axe whenever the owner of the tying product has sufficient economic power to impose an appreciable restraint over a substantial volume of interstate commerce. To me this means that a tying clause can rarely escape antitrust condemnation. There is only a narrow exception in prescribing reasonable specifications for the tied product.

OTHER RULE OF REASON ASPECTS

There are other areas involving marketing practices where antitrust issues should not be, and cannot be, resolved by mechanical per se violation rules.

Certain conduct is sanctioned with a presumption of per se legality rather than a conclusive presumption of per se illegality.

For example, the Supreme Court and lower federal courts have firmly supported the basic principle that a seller, acting unilaterally, has discretion to select his customers, provided there is no proof of a plus element of unfair trade practice or antitrust violation. The Ninth Circuit Court of Appeals recently quoted with approval this writer's general proposition that "individual refusal to deal is preserved whenever it is reasonably ancillary to the effectuation of lawful marketing objectives."

It is also lawful for a seller to designate exclusive or nonexclusive sales areas for distributors or dealers so long as there is effective product or interbrand competition at the seller and buyer levels. To the contrary, a seller would be exposed to antitrust violation if he attempts to restrict sales outside the territory designated for his wholesale distributors or retail dealers, or to restrict the persons to whom these marketing outlets may resell.

In Robinson-Patman Act price discrimination cases only a half loaf of the Rule of Reason is being used by the Federal Trade Commission and most Circuit Courts of Appeals with respect to proof of injury to competition, an essential element of an illegal price discrimination. The present trend of decisions is based upon the test of injury to particular competitors rather than the effect of the price differential in the relevant market as a whole. This approach is out of harmony with over-all antitrust policy. The issue that remains to be squarely tested in the Supreme Court is whether Congress intended to protect individual competitors against diversion of trade even though the price differentials do not substantially lessen the vigor of competition in the entire relevant line of commerce. If that issue should be resolved in favor of preventing injury to particular competitors,

it is improbable that Congress, sensitive as it is to the voice of small business, will revise the Act by repudiating that interpretation.

CONGRESSIONAL LEGISLATIVE PROSPECTS

What are the prospects of Congressional legislation in the antitrust field? In the present Congress, the mood of certain Congressmen and Congressional antitrust committees or subcommittees will be to keep the antitrust pot boiling. The Kennedy Administration will witness an increase in the number and pace of investigations, hearings and demands for revised or new antitrust legislation. We may expect to hear particularly from Senator Kefauver's and Congressman Wright Patman's committees. There will be three ring antitrust shows on Capitol Hill but it is doubtful that Congress will respond to many of these legislative proposals.

A few bills have been the subject of extensive hearings. One is mandatory advance notice of a corporate merger when the combined capital of the acquiring and acquired corporations exceed $10,000,000. In my opinion, this is ill-advised legislation. The Department of Justice and the Federal Trade Commission have sufficient means of learning of such significant contemplated mergers through trade sources. The Department of Justice has power to bring a suit to enjoin a merger. It would be desirable to give the Commission a like power. But a requirement of pre-merger notification would confront these agencies with an investigative burden far out of proportion to any public benefits that can be claimed for that type of enactment.

At present the Department of Justice has no power to compel production of documentary evidence in antitrust investigations prior to issuance of a civil complaint. There is a probability that this gap will be filled by enactment of a bill giving the Attorney General power to demand pre-complaint production of material and relevant documentary evidence. The Attorney General's National Antitrust Committee Report of 1955 recommended similar legislation but with various safeguards against abuse of process.

Let us hope that Congress will not give heed to legislative proposals to nullify the elemental right of competitive self-defense in good faith meeting of the equally low price of a competitor—a right the Supreme Court has held is an absolute defense to charges of price discrimination under the Robinson-Patman Act. But we should not ignore the powerful force of small business proponents who seek to dilute this defense. The proposed bills are contrary to national antitrust policy goals and should not be enacted.

PATENT ANTITRUST ASPECTS

Next we turn to public policy of the patent laws in relation to antitrust policy. This area has been one to which I have devoted a large measure of research and law teaching interest. Time permits only a thumb-nail summation of propositions which reflect my beliefs and forecasts for this decade of antitrust.

First, the patent and antitrust laws are not inherently in conflict. Both public policies can peacefully coexist as fountainheads of competitive private enterprise.

Second, it is no longer disputed that a patentee will be denied equitable relief against direct or contributory infringement if he goes beyond the lawful monopoly of the claims of his patented invention to restrain commerce outside the scope of his patent. This is patent misuse in per se violation of the Patent Code. The Supreme Court has ruled in a series of cases that tying goods or services to a lease or license of the patented device or method is a clear case of patent misuse regardless of the amount of commerce restrained in the tied goods or services.

Third, it is erroneous to brand every patent misuse as also a per se antitrust violation. Justice Douglas' dictum to that effect in the Mercoid case is unsound. A patentee should be treated no differently than owners of other kinds of property. Patent misuse may also constitute antitrust violation if the misuse meets the standards and tests of violation of the Sherman, Federal Trade Commission or Clayton Acts. In my opinioin, the Third and Seventh Circuit Courts of Appeals committed error in two recent decisions by branding exclusive dealing covenants in the marketing of patented goods as per se patent misuse. That issue should have been tested under the antitrust doctrine applicable to exclusive dealing covenants.

Fourth, the Supreme Court has provided guides to antitrust violations through abuse of patent rights. "Hard core" antitrust violations occur when patentees combine their patent rights or conspire among themselves or with licensees—in short, any type of horizontal agreement—to fix market prices, control production, divide territories or allocate customers. However, interchange of patent rights, (sometimes called patent pooling), is tested by a Rule of Reason inquiry into the purposes of the interchange, its degree of market power and its effects as manifested by its operating practices.

These four propositions illustrate areas of patent misuse and antitrust violation. Let us now examine areas where patent rights have been given "hard core" judicial protection and a few areas where borderline issues still need clarification.

Despite the Government's attempts to overrule it, the General Electric doctrine still stands in its announcement of a Rule of Reason applicable to individual patent license limitations unilaterally imposed by the patentee. In broad terms, General Electric held that the patentee is entitled to grant "a license to make, use, and vend articles under the specifications of his patent for any royalty, or upon any condition the performance of which is reasonably within the reward which the patentee by his grant is entitled to secure." Hence, any restrictions or conditions in a patent license reasonably ancillary to the lawful rights of exclusion contained in the patent grant have been sustained by the Supreme Court. General Electric sanctioned first sale price limitation and General Talking Pictures sanctioned a field of use restriction in a patent license. Early Supreme Court decisions sanctioned territorial restrictions in patent licenses so long as the purchaser who buys within an allocated territory is not restricted in his right to resell anywhere else in the United States.

The Supreme Court in Hazeltine Research sustained package patent licensing without coercion of the licensee by requiring him to take the package and refusing a request for a license under only one or some of the patents. Hazeltine also

approved a formula for royalty payments on the package measured by a percentage of the licensee's sales of equipment in the licensed field. But no royalty rate for the package, less than the package, or one patent, should be so disproportionate as to constitute in practical effect economic coercion to accept only the package.

In my opinion, the recent Third Circuit Court of Appeals decision in the Shatterproof Glass case misapplied the Hazeltine rationale to condemn as mandatory package patent licensing the charging of the same rate of royalty, namely two cents per square foot of glass manufactured and sold by the licensee, whether the license included the package or one or more patents. This was held a per se patent misuse. The court did not consider the reasonableness of the single royalty rate. In that respect, the decision is highly questionable. It is in conflict with antitrust policy and principles of contract law.

It is surprising that at times patent counsel wonder whether the Antitrust Division considers an exclusive patent license as a badge of antitrust violation. As former Co-Chairman of the Attorney General's National Committee to Study the Antitrust Laws, I can say that neither Judge Barnes, the other Co-Chairman and then head of the Antitrust Division, nor his liaison representatives, ever took the position that an exclusive patent license is per se in opposition to antitrust policy.

Acting unilaterally, a patentee can refuse to license. He can also grant an exclusive license or select two or more non-exclusive licensees. He cannot delegate to a licensee the discretion as to the selection of another licensee. Hence, if a patentee acts jointly with a licensee or other party except a bona fide agent of the patentee, or gives such other party a veto power, with respect to selection of licensees, this is beyond legally permissible conduct under either the patent or antitrust laws.

It is well settled that an unconditional sale of a patented article by the patentee or his authorized licensee relinquishes the patent monopoly in the article sold when the only patent reward sought is the price of the article. However, there is need for clarification of the question whether any restriction upon the purchaser of a patented article transgresses both patent law and antitrust law.

My study of the case law on this aspect convinces me that the Supreme Court has not announced a rigid rule *invariably outlawing* every restriction imposed upon purchasers of patented articles. There are certain types of restrictions on purchasers which are absolutely banned by Supreme Court rulings. For example, it is indisputable that the Sherman Act, apart from its exemption of valid and enforceable State Fair Trade Act contracts, prohibits the patentee from fixing the resale price after sale of a patented article. The Supreme Court has also invalidated restrictions on use or the place of resale of a patented article when it was originally sold within a territory where the patent licensee was authorized to sell it.

Distinguishable, however, is a case like General Talking Pictures. There the majority of the Supreme Court sustained a patent license field of use restriction where the patented article was initially sold with knowledge of both the licensee-vendor and the purchaser that it was to be used outside the restricted field. A sale made *outside* the licensed territory would also infringe the patent rights when the purchaser has knowledge of the restriction.

Without attempting to state refinements which distinguish the cases, suffice it to say that the Supreme Court has not squarely faced the question of whether use restrictions within the General Electric doctrine on articles that may be put to various uses survive a valid sale of a patented article when made by the patentee or his authorized licensee to vend. My position is that such use restrictions in the patent license itself should bind the purchaser who by contract, notice or knowledge, is in privity with those conditions. The sale itself would transfer the title but the purchaser should be held subject to the lawful use restrictions stemming from the patent license itself. Such equitable servitudes on the purchased chattel are consistent with the public policy of the patent law because the patentee has exacted a reward beyond the mere price of the sold article and has placed limitations on one or more of the various possible uses of the article thus sold.

Another Supreme Court clarification is needed on the question of multiple patent licenses. Suppose the patentee has individually and separately executed patent licenses with various licensees, and has fixed a first sale price in each of these licenses. The Third Circuit Court of Appeals recently ruled in the Newburgh case that such first sale price limitations in plural patent licenses accounting for three-fifths of the production in the industry is a per se price fixing agreement in violation of the Sherman Act and beyond the limits of the General Electric doctrine. In the Gypsum case the Supreme Court expressly stated it had no occasion to decide that issue because Gypsum had otherwise cartelized the whole industry through controls beyond its patent rights. My position is that the Newburgh decision is erroneous. Multiple patent licenses with a first sale price limitation but executed separately with each licensee should not be held a patent misuse or antitrust violation unless there is proof of a horizontal agreement between the patentee and the licensees or among the licensees.

CONCLUDING OBSERVATIONS

My concluding statement is directed to a few general observations derived from this survey of the present status and future prospects of antitrust in this decade.

First, on the question of business bigness, there is no need for any basic substantive revision of the antitrust laws. It would be little short of disastrous to private competitive enterprise to place a statutory limit on the size of an enterprise or its market shares. This would destroy the incentive and spirit to compete, not to mention the utter impracticality of setting a legislative or administrative ceiling on size or market shares on an over-all basis. American industries are too dynamic and diverse for such static conceptions.

Second, it is extremely important that a corporation charged with antitrust violation it believes is not within the settled per se violation areas, should have the fortitude to litigate the case whenever it believes that the issues involved are fairly justiciable and are significant to itself and to the industry in which it operates. A corporation with resources for this approach should have greater fear of losing such a case by default than the fear of risking the outcome of litigation and the cost in money and management time. Complacency in avoiding litigation under the circumstances stated, or docile acceptance of hard bargains in antitrust consent

settlements, will tend to create the very peril of undue interference with freedom of lawful private enterprise managerial decision-making business should at all costs strive to preserve. Remember that the ultimate safeguards against unwarranted antitrust charges are the independent, courts to which the issues are submitted.

Third, in the patent-antitrust areas, the same considerations apply when the patent practices or antitrust charges are not believed to be within the clear-cut per se violation areas. Corporations and their patent counsel should be aware of ideological hostility to patent rights on the false assumption that they are intrinsically in conflict with the competitive goals the antitrust laws seek to maintain. It should be a matter of constant concern that this fallacious thinking usually stems from disbelief in the basic premises of the patent laws and Patent System as generators of incentive to invent and to invest high risk capital in patented inventions and in the research and development expenditures that bring them to practicable commercial utilization or governmental use for national defense and security. The Patent Bar should counsel constant alertness to defend the lawful "hard core" of exclusive patent rights and yet be equally willing to counsel abandonment of patent practices which are "hard core" patent misuses or "hard core" antitrust violations. Similarly, borderland patent-antitrust issues in need of Supreme Court clarification should be pressed to final adjudication.

Considerable progress toward protection of the constitutionally sanctioned exclusive rights of the patentee has been made under the Patent Code of 1952. For the first time in the history of this legislation, the Code expressly provides that the patent grant shall contain the right to exclude all others from making, using and selling the patented invention throughout the United States. The Code also declares that patents shall have the attributes of personal property and that a patent shall be presumed to be valid.

So far as judicial attitudes toward patents are concerned, there is still cause for concern in frequent excessive severity of the courts in judging the validity of the patent on the issue of the standard of invention. But more important is the need of alertness of the Patent Bar to detect in patent-antitrust cases, judicial reluctance to resolve on balance doubts in favor of patent rights and against a finding of antitrust violation. There is no way of knowing how frequently this occurs but this potential threat underscores the role of patent counsel in presenting in briefs and oral argument an affirmative and persuasive case for protection of patent rights believed to be within the allowable range of both patent and antitrust policy.

Fair enforcement of antitrust policy and equitable protection of legitimate patent rights are only two of the many forces that have promoted a creative American economy. Yet to the extent that antitrust policy and patent policy symbolize *economic liberties* of equal importance with *civil liberties,* let us hope that the 1960 decade will witness their coexistence free from erosion of the laudable objectives each of these policies is designed to achieve within their respective spheres.

STUDENT PAPER

Among the objectives of the seminar and lecture series given by the Foundation in conjunction with The George Washington University Law School are the stimulation of student interest and the initiation of a source of publishable student material for the *Journal.* By making available the best papers, students receive an incentive and our readers will appreciate the evidence of scholarly development in the fields of interest.

Jerry Cohen, a senior in The George Washington University Law School, was recipient of the Patent Office Society Student Award for the following paper submitted in partial fulfillment of the requirements for the seminar and lecture series for the year 1961.

The Foundation invites educational and research institutions to submit informative student manuscripts on the patent, trademark, copyright, and related systems.

The Constitution and Enforcement of Government Owned Patent Rights

JERRY COHEN

I. INTRODUCTION

It is the purpose of this paper to consider whether the United States Government can constitutionally sue infringers of government owned patents. That there is any such question at all may be surprising to some who fail to appreciate the differences between governmental and private patentees. On the other hand, the conservative adherents of limited government may be appalled at the suggestion that the government might wield the right to exclude conferred by a patent. The view of the latter group would be shared, albeit for different reasons, with those who oppose the patent system in the first instance and recognize government acquisition and dedication of patents as a way to circumvent the operation of the patent system. This constitutional question has been raised in recent Congressional hearings as a reason for limiting government acquisition of patents.[1]

The parallel constitutional question whether the government may acquire patents is settled in favor of acquisition [2] notwithstanding that no court has directly stated

[1] See, e.g., Prepared Statement of the National Association of Manufacturers, p. 3, *Hearings on S. 1084 and S. 1176 before the Patent Subcommittee of the Senate Judiciary Committee,* 87th Cong., 1st Sess. (1961). The American Patent Law Association has appointed committees to prepare amicus briefs on the question arguing for and against constitutionality, A.P. L.A. *Bull.,* Mar. '61.

[2] Forman, *Patents—Their Ownership and Administration by the United States Government* 26-36 (1957).

that there is such a constitutional power. During the last century, numerous judicial decisions,[3] federal laws,[4] and administrative decisions [5] have been grounded on an implied acceptance of such power. However, one may still inquire whether this ready acceptance of the government's power to acquire patents was premised on a tacit assumption that such acquisition represented a dedication of the patents to the public, for the history of government patent ownership has generally been one of non-use of the patents.[6] The government has never brought suit to enjoin infringement or to collect damages for past infringement.[7] Many schemes of government ownership have, in fact, involved express dedication of patents to the public.[8] Other schemes involved the pro forma vesting of title in the United States; but the government's actions with respect to these patents have not been those of an active patentee.[9] Indeed, the principal reason for government patenting has been to pre-empt others from independently inventing and patenting the same inventions.[10]

The power of the government to acquire patents was challenged by two commentators, Wille in 1943 [11] and Ewing, a former Commissioner of Patents, in 1928.[12] Their conclusion that the government, being unable to sue for infringement, could not acquire patents has been attacked on numerous occasions by several other commentators [13] and finally submerged by the accomplished fact of some 10,000

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[3] *United States v. Houghton,* 20 F. 2d 434, 438-9 (D. Md. 1927), aff'd w/o ref. to this point, 23 F. 2d 386 (4th Cir. 1928), cert. den., 277 U.S. 386 (1928); *United States v. Chemical Foundation,* 272 U.S. 1 (1926). See also the favorable dicta in *Solomons v. United States,* 137 U.S. 342, 346 (1890), *Gill v. United States,* 160 U.S. 426, 435 (1896), *Ordnance Engineering Corp. v. United States,* 68 Ct. Cls. 301, 352 (1928), cert. den., 302 U.S. 708 (1937), *United States v. Dubilier Condenser Corp.,* 289 U.S. 178, 192 (1933).

[4] Trading with The Enemy Act of 1917, 40 Stat. 966, as amd. by the First War Powers Act, 55 Stat. 839 (1941), 50 U.S.C.A. (App.) 5 (b), 816 (1958); TVA Act of 1933, 48 Stat. 58, 16 U.S.C. 831 (1958); Atomic Energy Act of 1954, 69 Stat. 944, 42 U.S.C. 2182 (b); National Aeronautics and Space Act of 1958, 72 Stat. 435-7, 42 U.S.C. 2457 (1958).

[5] 31 Op. Atty. Gen. 463 (1919), 32 Id. 321 (1920), 34 Id. 320 (1924), 37 Id. 180 (1933), 38 Id. 425, 534 (1936), 39 Id. 164 (1938). See also Executive Order 10096, 37 C.F.R. 300 (1950), Finnegan and Pogue, Federal Employee Invention Rights—Time to Legislate, 40 J. Pat. Off. Soc'y. 252 (1958).

[6] Forman, op. cit. n. 2, 146-152. Only a few exclusive licenses and royalty bearing licenses have been granted under Government owned patents, U.S. Dept. of Justice, Investigation of Government Patent Practices and Policies [hereinafter Rep. Atty. Gen.] vol. 1, 113-123 (1947).

[7] The Attorney General proposed to sue known infringers in 1929. However, nothing came of this idea, 3 Rep. Atty. Gen. 209-211.

[8] Synthetic Liquid Fuels Act of 1944, 58 Stat. 191, 30 U.S.C. Supp. V. 323 (1958).

[9] Patents acquired under the Atomic Energy Act of 1954, supra n. 4, are generally licensed on a non-exclusive royalty free basis, 10 CFR 81.12 (1960 Supp.).

[10] A first phase of this is to protect the United States against claims for infringement, Saragovitz, Procurement of Patents by Gov't. Agencies, 37 J. Pat. Off. Soc'y. 677 (1955). A second phase is to avoid the concentration of economic power through government spending for contract research, Riesenfeld, Patent Protection and Atomic Energy, 1 Atomic Energy Law Rep. 818 (1959), but See Keefe and Lewis, The Department of Defense Policy at the Crossroads: An Argument for the Retention of Traditional Incentives, 10 Catholic U. Law Rev. 22 (1961).

[11] Wille, Government Ownership of Patents, 25 J. Pat. Off. Soc'y. 729 (1943).

[12] Ewing, Government-Owned Patents, 10 J. Pat. Off. Soc'y. 149 (1928).

[13] Yung Kwai, Patents to Government Employees, 13 J. Pat. Off. Soc'y. 387 (1931), Broder, Government Ownership of Patents, 18 Id. 697 (1936), Kreeger, Patent Rights Resulting From

government owned patents.[14] The premise that the government cannot sue infringers has only received cursory treatment. This paper will revive the much abused arguments of Wille and Ewing and again pit them against the arguments for the government in the contemporary setting where the principal question is one of enforcement rather than acquisition of patent rights. Wille and Ewing must be taken more seriously in this setting because the likelihood of a government suit for infringement has increased since they presented their arguments.[15] Part II sets forth a prima facie case for the government based on the patent clause of the Constitution. Part III presents challenges to the constitutionality of government enforcement, built around the arguments of Wille and Ewing, with some extensions by the present author. A rebuttal for the government is presented in Part IV. The style of Parts II-IV is generally one of ardent advocacy of the position espoused in the particular part. However, some concessions are made by "both sides" to narrow the issues. No surrebuttal appears because the author feels that the government case is the stronger one; the rebuttal for the government comprises the author's analysis and conclusions. Part V sets forth variations of the constitutional question which may produce a different result in specific cases.

II. THE GOVERNMENT'S PRIMA FACIE CASE

The patent clause of the Constitution gives Congress the power to promote the progress of useful arts by securing *to inventors* the exclusive right to their discoveries.[16] Congress, in exercising this power, has given the inventor's exclusive right the attributes of property and made it freely assignable.[17] The assignee of the exclusive right may sue for infringement.[18] The governmental assignee is indistinguishable from the private assignee in this respect.[19] This is in accord with

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Federal Research, 12 Law & Contemp. Problems 714 (1947), 3 Rep. Atty. Gen. 132 (1947), Forman, op. cit. supra n. 2, 28-36.

[14] But cf. *Schechter Poultry Corp. v. United States,* 295 U.S. 495 (1935) (NRA code structure held unconstitutional after two years of extensive operation).

[15] The Attorney General indicated a willingness to sue in 1929 and several instances of infringement were reported to him. However, no suits were filed, supra n. 7. At that time there were no exclusive licenses under government patents. Patents seized by the Alien Property Custodian during World War I were being returned to their owners, Settlement of War Claims Act of 1928, 45 Stat. 270. The other departments had no exclusive licenses, see S. Rept. 1447, 70th Cong. 2d Sess. (1928).

[16] The full text of the provision is:

> "The Congress shall have power . . . (8) To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries."

Art. I, sec. 8, cl. 8. For the analysis implicit in the portion quoted in text, see Lutz, Patents and Science, A Clarification of the Patent Clause of the Constitution, 34 J. Pat. Off. Soc'y. 766 (1952). The remainder of the clause relates to copyrights.

[17] 35 U.S.C. 152, 154, 261 (1958). During the period, 1936-1955, approximately sixty per cent of United States patents were issued to corporate assignees, Frederico, Distribution of Patents Issued to Corporations, Senate Patent Subcommittee Study No. 3, p. 15 (1957).

[18] 35 U.S.C. 281 (1958).

[19] 31 Op. Atty. Gen. 463, 466 (1919); 34 Id. 320, 328 (1924); 38 Id. 425, 427 (1936); 3 Rep. Atty. Gen. 132 (1947).

the rationale of the patent system as, inter alia, an "incentive to invest." [20] The government does not need such an incentive for direct investment.[21] However, private investment may be promoted by issuing exclusive licenses under government owned patents.[22] The costs of government sponsored research and development programs can be at least partially recovered by issuing royalty-bearing licenses, exclusive or nonexclusive, on patents resulting from these programs.[23] The government should have the right to protect all of its patents in anticipation of their use for one of the above purposes.[24]

An historical note may be in order at this point. In the landmark case, *United States v. Dubilier Condenser Corp.*,[25] the Supreme Court, in an obiter dictum, assumed that there was no statutory authority for the government to acquire and exercise patent rights and went on to the conclusion that the government could not acquire inventions by contracts with government employees because:

> "In these circumstances, no public policy requires us to deprive the inventor of his exclusive rights as regards the general public and to lodge them in a dead hand incapable of turning the patent to account for the benefit of the public." [26]

The obiter was eliminated from the official report a month after the decision upon motion of the Solicitor General.[27] The tenor of this short-lived obiter indicates the Court's recognition that patent rights must be exercised in order to turn the patent to account for the benefit of the public.

Government agencies have issued exclusive licenses [28] and royalty-bearing li-

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[20] *Picard v. United Aircraft Corporation*, 128 F. 2d 632, 642 (2d Cir. 1942) (Frank., J., concurring opinion). See generally Frost, The Patent System and the Modern Economy, Senate Patent Subcommittee Study No. 2 (1957).

[21] Admittedly, patents are a byproduct of research undertaken to serve national defense and general welfare. This research could be maintained, although at greater expense, in the absence of government owned patents, see Dienner, Government Policies Relating to Research and Patents, 13 Law & Contemp. Prob. 320 (1948) and 1 Atty Gen. Rep. 11-131 (1947). In fiscal year 1961 the government will spend some eight billion dollars for research, National Science Foundation, Federal Funds for Science, IX. (1960).

[22] Kramer, Exclusive Licenses Under Government Owned Patents, 28 J. Pat. Off. Soc'y. 319 (1946). Cf. Robert C. Watson, Management of Government-Owned Inventions, 21 Fed. B.J. 121 (1961).

[23] Boyle, Exploitation of Government Owned Patents, 35 J. Pat. Off. Soc'y. 188 (1953). A variant of this is that the Government can offer cross-licenses rather than pay damages for infringement of private patents, see 2 Rep. Atty. Gen. 311 (1947).

[24] Of course the Government could dedicate to the public those patents which do not require the above forms of handling, 35 U.S.C. 253 (1958).

[25] 289 U.S. 178 (1933).

[26] 289 U.S. 706 (1933).

[27] Ibid. The records of the Clerk of the Supreme Court do not contain any briefs or other papers in support of the motion to strike. Finnegan and Pogue, op. cit. supra n. 5, p. 327, n. 125. However, one educated guess is that the Solicitor General called the Court's attention to numerous statutes providing for Government ownership of patents, Forman, op. cit., 26-28.

[28] 2 Rep. Atty. 394-395, 398-399 (TVA gave two exclusive licenses to employees and another to the University of Tennessee research corporation). The Alien Property Custodian has offered exclusive licenses. None were granted because none of the applicants made a satisfactory show-

censes [29] under government owned patents. Some government patents have been sold to private interests.[30] A Senate bill, now pending in the 87th Congress, S. 1176,[31] provides for active exploitation of government owned patents. Several government patent policy reports have recommended such active exploitation.[32] It will be apparent that the sine qua non of such activity is enforcement of government patent rights.[33]

III. THE CHALLENGES

The United States Government is one of enumerated and delegated powers.[34] Those powers may not be extended under the banner of general welfare.[35] Congress has no delegated power to grant an exclusive right to the government to practice

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ing that an exclusive license was necessary to commercial use, 2 Rep. Atty. Gen. 53-54. See also Anderson, If There is An Invention Under A Government Contract—Who Should Get It? 21 Fed. B.J. 64, 70-75 (1961) and Solo, Synthetic Rubber: A Case Study in Technological Development Under Government Direction, Study No. 18 of the Senate Patent Subcommittee (1959).

[29] 2 Rep. Atty. Gen. 45-46, 65-66 (Alien Property Custodian). A rule of thumb rate of five per cent of the net selling price of the patented product was used. It should be noted that the Alien Property Custodian held the patents as a quasi-trustee for the benefit of the patentees.

[30] The Alien Property Custodian sold a block of 4,767 patents, 1,500 trademarks, and copyrights, and fifty prewar agreements to a nonprofit organization, the Chemical Foundation, for $271,850, 2 Rep. Atty. Gen. 46-47. During the period 1919 to 1938, the Foundation collected $120,500 in license fees, $7,031,304 in royalties and $942,136 in settlement of infringement and other claims, Boyle, op. cit., p. 190. See *United States v. Chemical Foundation*, 272 U.S.1, (1926) (upholding the validity of the sale.)

[31] Introduced by Sen. Long (La.) Feb. 11, 1961. A House counterpart has been introduced by Rep. Multer (N.Y.). Section 8 (b) of the bill provides for the "grant to any person for purposes of commercial exploitation [of] a license for use of any patent held by the United States, the assignment of the interest of the United States in any patent . . . for such period of time and upon such terms and conditions (including the payment of such royalties or other fees) as the Administrator [of a Federal Inventions Administration] shall determine to be just and equitable." The National Aeronautics and Space Administration has proposed patent licensing regulations, 26 Fed. Reg. 6368-6371 (July 15, 1961), providing for exclusive licenses and royalty bearing licenses. The Administrator would sue to protect non-exclusive licenses (other remedies are also provided, e.g.—relieving the licensees of their obligations to pay royalties on the inventions covered by the infringed claims). Exclusive licensees would be authorized to sue infringers at their own expense. Public hearings on these regulations were held Sept. 20, 1961. This action finds statutory support in the 1958 Space Act, 305 (g) (h) and 203 (3), 72 Stat. 436-7, 28 U.S.C. 2458 (g) (h) (1958) and 72 Stat. 430, 28 U.S.C. 2473 (3) (1958), respectively.

[32] H. Rep. No. 1169, 65th Cong., 3rd Sess. (1919); S. Rep. No. 405 and H. Rep. No. 9932, 66th Cong., 2d Sess. (1920); 1923 Rep. of the Interdepartmental Patents Board, S. Doc. No. 83, 68th Cong., 1st Sess.; 1928 Report of the Interdepartmental Patents Board, extracts quoted in 3 Rep. Atty. Gen. 194-195; S. Rep. No. 1447, 70th Cong., 2d Sess. (1928); Second Report of the National Patent Planning Commission, H. Doc. No. 22 (1945).

[33] The Alien Property Custodian recognized the threat to his licensing program resulting from open and unchallenged infringement, 2 Rep. Atty. Gen. 57-59. The cross-licensing program of the Navy Department was hampered by the refusal of the Department to sue infringers, 2 Id. 310-311.

[34] *Martin v. Hunter's Lessee*, 1 Wheaton 304 (1806).

[35] *Kansas v. Colorado*, 206 U.S. 46, 90 (1907).

an invention.[36] The patent clause of the Constitution only authorizes Congress to grant exclusive rights to inventors.[37] The historical ancestor of the patent clause, the British Statute of Monopolies,[38] expressly barred the arbitrary grant of monopolies by the Crown with a carefully limited exception for grants to inventors.[39] The American patent system was founded with an awareness of the abuses that could arise through arbitrary grants of monopoly power.[40]

There is no natural or common law right to exclude others from practicing an invention.[41] The right only arises through a "contract" between the inventor and the people wherein the people, to promote the progress of the useful arts, authorize Congress to grant to the inventor the right to exclude in return for a clear disclosure of the invention.[42] Under settled principles of contract law, a party cannot contract with himself.[43] When the government receives a patent, the promise to exclude is returned to the promisor and is thereby extinguished.[44] An analogy can be found in the real estate principle that when an easement is transferred to the owner of the servient estate, the easement is extinguished by merger into the servient estate.[45]

IV. REBUTTAL FOR THE GOVERNMENT

The fallacy of the challenges is that they equate the people or society with government for all purposes. There is a distinction between the United States Government as the representative voice of society and the government as a sovereign identity. Congress made this essential distinction clear with respect to patent license rights by the 1928 amendment to the Act of 1883. The Act of 1883 [46] provided that federal employees could obtain patents without the payment of Patent Office fees if the applicant would state that the patented invention could be used by the government, "or by any other person in the United States" without the payment of any royalty. The courts ruled that patents issued under the Act were open to

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[36] The patent provision of the Constitution is set forth in note 15 supra.

[37] The same clause authorizes the grant of copyrights to authors so that they may have exclusive rights, for limited times, to their respective writings. In its copyright legislation, Congress has provided that Government publications may be freely copied; federal ownership of copyrights is expressly barred, 35 Stat. 1075 (1909), 17 U.S.C. 7 (1958). The principal theme of this argument is that Congress followed the constitutionally correct approach in the copyright area and should follow this precedent in the parallel area of patents.

[38] 21 Jac. I (1624). See Robinson on Patents, sec. 15 (1890) for a discussion of the role of this statute in American patent law.

[39] See Smith, Patent Law 7-11 (1954) for a discussion of the abuses leading to the enactment of the Statute of Monopolies.

[40] *Thompson v. Haight*, 23 Fed. Cas. 1040, 1042 (1826). See also, Ewing, Government-owned Patents, 10 J. Pat. Off. Soc'y. 149, 151-153 (1928).

[41] *Wheaton v. Peters*, 8 Pet. 591 (1834).

[42] Wille, Government Ownership of Patents, 25 J. Pat. Off. Soc'y. 729, 736 (1943). See also Robinson on Patents, sec. 20 (1890).

[43] Restatement, Contracts, sec. 15.

[44] Cf. *Persky v. Bank of American National Association*, 261 N.Y. 212 (1933).

[45] Wille, op. cit., at 736.

[46] 22 Stat. 625 (1883).

free public use.[47] Congress, prompted by continued requests of the War Department,[48] amended the Act in 1928 to limit the royalty free license to use "for governmental purposes." [49] Thus, the statute, as amended, allows the government to obtain a license under patents while the patentee's right to exclude the general public remains undisturbed.[50] Going one step further to the situation where the government acquires full title rather than a license, there seems to be no reason why the distinction between the public and the government should be lost in a merger of identities.

Under Art. IV, sec. 3, cl. 2, of the Constitution, Congress may provide for the acqusition and disposition of property, by the government. While such property is held, the government may seek the aid of the courts in preventing trespass by the public.[51] Patents have the attributes of property.[52] Thus, the government may sue for infringement.[53]

V. SOME VARIATIONS ON THE THEME

It is the purpose of this last section to list some collateral issues which could arise in a test of constitutionality of government enforcement of patent rights.

First, the challenge to constitutionality could arise in a context wherein the government could buttress its arguments by reliance on the power to tax and spend for the general welfare.[54] That is, Congress may undertake to spur some phase of the economy through research expenditures and through exclusive licenses under government patents to selected companies.[55] Such licenses would be mere collateral incidents of a legitimate government program.[56] The Hamiltonian view that the spending power is not limited to the support of other delegated powers was adopted by the Supreme Court in *United States v. Butler.*[57]

Second, there may be room to draw a line of distinction between government

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[47] *Squier v. American Tel. & Tel. Co.*, 21 F. 2d 747 (S.D.N.Y. 1924), aff'd on other grounds, 7 F. 2d 831 (2d Cir. 1925), accord: *Selden v. National Aniline & Chemical Co.*, 48 F. 2d 270 (W.D.N.Y. 1930); *Hazeltine Corp. v. A. H. Grebe & Co.*, 21 F. 2d 643 (EDNY 1927), *Hazeltine Corp. v. Electric Service Eng. Corp.*, 18 F. 2d 662 (S.D.N.Y. 1926); contra: 32 Op. Atty. Gen. 145, 146 (1918), 2 Ops. JAG 1029 (1918), [cited with approval in *United States v. Dubilier Condenser Corp.*, 289 US 178 (1934)].

[48] 2 Rep. Atty. Gen. 421-423, 427, 3 Id. 208-209 (1947).

[49] 45 Stat. 467 (1928), 35 USC 45 (1958).

[50] Cf. 28 U.S.C. 1498 (1938).

[51] *United States v. Waddell*, 112 U.S. 76, 79 (1884), *Hunt v. United States*, 278 U.S. 96, 100 (1928). These suits involved trespass on public lands.

[52] Supra note 16.

[53] 3 Rep. Atty. Gen. 132.

[54] Constitution Art. I, sec. 9, cl. 7.

[55] Today, Congress is doing this in atomic energy and to a lesser extent in agriculture and synthetic fuels.

[56] See Hamilton's Report on Manufactures, reprinted 4 Works of Alexander Hamilton 70, 751 (Lodge Ed'n).

[57] 297 U.S.1, 66 (1937). See also Story, Commentaries on the Constitution of the United States, 5th ed., vol. I, sec. 907 and Corwin, The Spending Power of Congress—apropos the Maternity Act, 36 Harv. L. Rev. 548 (1923).

patents acquired via vesting in the Alien Property Custodian and those acquired via other sources. That is, the opponents of government ownership might retreat to the extent of recognizing the right of the Custodian to seize patents and enforce them against infringers so long as they were immediately sold to private industry.

Third, there are some procedural difficulties inherent in suits by the government for infringement. If the defendant had a counterclaim against the government for infringement, he could not raise it; suits against the government for patent infringement are limited to the Court of Claims.[58] It is not clear whether the government would be bound by the six-year statute of limitations applicable to private patentees in suing for damages for past infringement.[59] The application of the equitable doctrine of laches is also uncertain.[60] A defendant faced with a combination of these uncertainties might well plead that such suit deprives him of property without due process of law. Therefore, Congress should clarify the procedural ground rules of government suits for infringement.

VI. FINDINGS AND RECOMMENDATIONS

The government has a large portfolio of patents and is acquiring more patents at an ever-increasing rate. Some government patents have been sold and exclusive licenses and royalty-bearing licenses have been issued. As more patents are acquired by the government, these activities will be expanded and it will become necessary to sue infringers to protect these activities. The government has not yet sued any infringers.

When the first infringement suit is filed, the defendant will undoubtedly challenge the constitutionality of such suit. The constitutional question is an open one. Such challenge can be based on the absence of a delegated power to hold and enforce patents.

The government can point out that the patent clause does not preclude government ownership and that government ownership and enforcement of patent rights is consistent with the constitutional purpose of promoting the useful arts. The government can further rely on the property clause of the Constitution, and in some instances, on the spending clause.

The procedural uncertainties inherent in a government suit for infringement, the lack of precedent for such suit and the fact of a century of government patent ownership without such suits all indicate the need for legislation (1) to provide a declaration by Congress that public policy favors such suits, (2) to indicate whether the government will undertake to protect its whole patent portfolio, or some portion thereof, and (3) to establish appropriate judicial procedure for such suits.

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[58] 28 U.S.C. 1498 (1958).

[59] 35 U.S.C. 286 (1958). C.f. *United States v. Morris*, 222 F. 14 and *United States v. Pitan*, 224 F. 604 (D. So. Dak. 1915).

[60] See *Rome Grader & Machinery Corp. v. J. D. Adams Mfg. Co.*, 135 F. 2d 617 (7th Cir. 1943).

FORUM

Although the primary purpose of this *Journal* is to communicate the research work of the Foundation, it also serves as a vehicle for educational activities designed to exchange informed opinion and stimulate additional study. This section provides a medium for the presentation of papers and notes which do not necessarily rest as yet on a firm basis of empirical research. It is hoped that the material published in this section will stimulate researchers to undertake factual study of the issues.

WESTINGHOUSE ELECTRIC CORPORATION

October 31, 1961

The Patent, Trademark, and Copyright
Foundation
The George Washington University
Washington 6, D. C.

Attention: Mr. L. James Harris
Executive Director

Dear Mr. Harris:

I have been interested, as usual, in reading the proceedings of the Foundation's public conferences as they are published. In particular, I have noted with interest Mr. Roberts B. Larson's remarks concerning employees' incentives * under the topic "The Patent System and the Public Interest" presented at the Fifth Annual Conference in June of this year. This particular subject has been raised by Mr. Robert L. Wright of the Department of Justice in a talk before the Industrial Research Institute here in Pittsburgh a few weeks ago.

There are some companies in this country who do make an attempt to share the return from patentable inventions with the inventors and a few countries have legislation directed at this result.

This is a rather complex subject and a complete analysis of what would be involved in recompensing inventors strictly in accordance with their inventions raises a number of questions and problems.

First, and perhaps the easiest of solution in the long run is that a system for

* The Foundation is engaged in a study entitled "Rewards and Incentives to Employee Inventors."—EDITORS.

paying royalty to individual employee-inventors may be very complicated from an administrative point of view. Is it logical to attempt to determine in advance that a certain percentage will be paid for the use of each invention? A fair price might vary from practically zero in one case to six or seven per cent or even more in other cases. If, for administrative simplicity, we take an average, such as one or two per cent, the payments will be too much for some inventions and not enough for others.

It is not an answer to say that this determination is encountered every day when a company negotiates with an outside inventor for rights under his inventions. It is true that some guess work is necessary in that the value of the invention has to be appraised. However, no average is attempted and the parties are dealing at arms length. If an employer is required by law or contract to recompense the inventor, only the price remains to be determined. Since this cannot be an arms length transaction, is this a fair type of negotiation from the viewpoint of either the employee or the employer?

Is there a maximum royalty which can be paid and still enable a manufacturer to maintain a competitive position? Obviously, payment of royalty to inventors is an element of cost. If the addition of this form of cost is apt to price a product out of the market, the employer may very well wish to forego using the invention. This may then be disadvantageous to the public and of course, the inventor recovers nothing. Is it not better for the inventor to contribute to the overall welfare of his company and therefore share in the overall profitability in the same manner as non-inventors? If an article is sold at a loss or is barely breaking even, can the employer afford to pay any additional royalty?

Is it logical to set up a system whereby a scientist or engineer receives payment in accordance with the luck of his assignment? If royalties are paid on inventions, an employee's best chance of increasing his income lies in being assigned to a profitable field where the chance of making inventions is relatively great. If some arbitrary formula is applied, his return then depends upon the luck of his assignment or his ability and inclination to maneuver politically for a desired job.

If each inventor is given the same percentage of the selling price, the article or other product may soon be priced out of the market or profitability killed if the product embodies a number of inventions. For example, a typical television receiver might very well embody a dozen or more inventions. With the profit margins as close as they are in the television field, it can be readily understood that it would be impossible to add one or two per cent for each of such number of inventions. On the other hand, if a nominal percentage is divided among inventors, in many cases there may be so many inventors involved that no one will get a worthwhile amount and again the inventor is not paid strictly in accordance with the value of his invention if he relies for his remuneration on the value of his inventions.

Such a plan would involve expensive bookkeeping.

This type of operation would raise the question of the appropriate basis on which the royalty should be paid. For example, if the invention related to the hardening of a turbine blade, it would not be fair to give a percentage of the selling price of the complete turbine. On the other hand, it might be quite costly to determine in each case the proportionate selling price represented by the blade itself.

In almost if not all cases, the invention could not have been made solely by the effort of the employee. The employer has provided plant, tools, environment, other associations with skilled workers, technical background, etc. Inventors are normally hired and paid to invent. Raises, promotions and other honors accompany the employee in proportion to the value of his inventions. Mr. Larson queried whether inventors are, in fact, paid more than non-inventors. The answer is not simple but is probably "yes" if, in fact, the inventor is worth more than the non-inventor. Thus, an inventor may do very little but contribute a minor invention now and then. These inventions may be useful but not of any great value. On the other hand, a design engineer may find many non-patentable but very valuable cost saving reductions, modifications of design, etc., which make his contribution to the employer greater than that of the inventors. Furthermore, design improvements of a non-patentable nature in areas where inventions are rare may be of equal value to the corporate profitability to most inventions made by inventor-employees. Since the employee is to do just what he is hired to do and is the recipient of the foregoing advantages as well as awards, perhaps he may be as adequately recompensed under an award system as he would be on a royalty or profit sharing basis.

In those cases where inventions are almost if not entirely due to the sole efforts of the inventor, it might be relatively easy to determine the value of his contribution, but research today, as it is carried out in universities, government laboratories, non-profit laboratories of other types, as well as in corporate research facilities and engineering departments, projects are usually team efforts and if payment for inventions moves in the direction suggested, the value of team effort might very well be reduced.

It has been said that if an engineer or scientist wishes to live on the value of his inventions, he had best go into business for himself where his inventiveness can be more easily and directly evaluated in the market place.

A commercially successful product may be due to the forging of the last link of a long chain. For example, a successful product may have had to await the development by others of a particular material, a process for manufacturing or processing that material, machinery for processing such material, another component of a combination or success may result out of seeing what was wrong with an earlier unsuccessful embodiment. What should be done about recompensing those responsible for the preceding improvements (perhaps not patentable) and in some cases making possible the last invention?

How would the value of an invention be determined? By the sales price? Success may be due to other inventions, sales promotion, advertising, public fancy, etc., which may or may not have anything to do with the value of the invention per se.

Many of these problems are also faced but not entirely met in some of the fairly generous award systems of various corporations but it is my opinion that an award system such as is in effect at Westinghouse is more equitable over the long run from both the viewpoint of the scientist or engineer and his employer.

We encourage our inventors to make disclosures of their inventions. An award of $50 is granted for each disclosure which is "accepted." A second award of $200 is granted the most meritorious disclosure in each 50. A further award of $50 is paid

each inventor at the time a patent application is filed. Superimposed on this set-up is a special patent award for patented inventions which have brought about commercial success. These awards run as high as $5,000 for each inventor involved. Under this arrangement, inventors are paid on a fairly standard uniform basis but there is also possible additional payment for truly worthwhile ideas.

Very truly yours,

T. L. BOWES
General Patent Counsel

SELECTED TRANSLATIONS

In view of the international situation we plan to make available to our readers, from time to time, translations of original, distinctive or outstanding articles, reports or notes relating to the Foundation's fields of interest.

Secrets of the Patent Library*

VALERII AGRANOVSKI

The party will assist in every possible way . . . in the exemplary organization of scientific-technical information of the entire system of learning and distribution of native and foreign progressive research.

From the Project of the Program of the
Communist Party of the Soviet Union.

They say a tailor once lived in Odessa. When he died a small copy book filled with numbers was found among his belongings. People looked and sighed: differential calculus! The man who was almost illiterate made a great, truly ingenious discovery. Alas, two hundred and fifty years after it has been done by Newton and Leibnitz!

We often discussed the tailor's fortune. Some friends considered his story an anecdote, others thought it was true. But the majority of us, then still students, agreed that the old man nevertheless lived a life full of creative fire and inspired hopes.

And the result?

There comes like a law the time of reckoning, when a man takes into his hands the money-box of past years and empties the contents on the hand: how many golden years are there, how many of silver, how many of copper?

Thus it becomes clear that the days the Odessa tailor spent sewing ordinary suits were his golden days, but the years wasted for an ingenious discovery which is not useful to anyone were his copper years.

* Translation by the U.S. Patent Office of Russian article in *Ekonomicheskaya Cazeta*, No. 3, 1961, pp. 21 and 22.

Tragedy . . .

Lev Vladimirovich Venchunas fabricated four hundred and fifty inventions during a half century of life. Truly not four hundred and fifty but forty. And in this correction lies the main point of the problem. The remaining inventions of Lev Vladimirovich were not recognized by society, they could not, as they say, be protected by an author's certificate. Why? There are various reasons, but the principal one is the absence of novelty.

If Venchunas were alone, we would produce a sorrowful smile and we would say to him: We are sorry. Yet, in the past year, among a hundred and thirty thousand inventors presenting applications for author's certificates approximately a hundred thousand were given rejections. They also sought what has been found already, they suffered for what others suffered already, they tormented themselves for what has been already obtained by tormenting, they invented what has been already invented.

Imagine: a man travels in a train and he hears the noise of the wheels. Why, he thinks, do they make noise? At the next stop he gets out, he bends over the track and for months long he is "driving a nail into his head": how to join the rails so that the wheels will not make noise? For some reason or other this eccentric person is assured that no one has thought before about the problem, and he does not know that thousands of people have already proposed and are still proposing the same solution.

How many such "rail joints" are there on earth? How to protect the bright heads of inventors against them? How to free them for useful and truly new thoughts?

A signboard hangs on a building: "All-Union Glass Fiber Scientific Research Institute." This is not an individual inventor working on his own responsibility and risk. This is a State organization, a large collective body, having a serious thematic plan ratified wherever required. People work months and years. They receive wages. Then one day they file an application at the Committee of Inventions, for example No. 690,868: "Continuous process for making glass plastics with the aid of pressure." And they obtain, believe it or not, the answer: You exerted yourselves carelessly, comrades. Similar work is described in German Patent No. 833,252, issued ten years ago . . .

Is this crime or ignorance?

In the Committee for Inventions and Discoveries they can cite you tens of similar cases. And they will also tell you that works presented by organizations able to claim the title of invention can be literally counted, and that some institutes and designing offices as a rule do not want to file an application so as not to reveal their sterility.

Yes, whole institutes occasionally carelessly waste forces, money, and time, working from nothing to the patent. And why should they not work from the patent and higher? Who prevents them?

A hidden treasure that has not been opened is not a treasure; its riches are not worth a penny. We must adopt this simple truth before we step over the threshold of a patent library.

There is a patent library in Moscow. There it is possible to become acquainted with any of the six million patents belonging to any of twenty-seven countries of the world. If you desire, they will place on your table the "privileges" (patents) issued to first Russian inventors already in the beginning of the past century, or, if you wish, the author's certificates entered in the card-index on the day of your visit. Arm yourselves, observe the actual search!

Only, there is an innumerable quantity of needs in the library. You simply wonder when and how its employees are able to fulfill their immediate duties: they must worry where to sit the respected inventor arriving with delay, how to protect the numerous patents against dust and mold, what to do with the photo laboratory that can hardly accommodate the three people . . .

In spite of everything, it is possible to envy optimism of the library workers. They even know how to boast. If, they say, only twenty thousand people visited us in 1956, seventy-seven came last year!

Is this much or little? Everything in the world is relative . . .

We do not touch the periphery, sighed the librarians.

What is true is true. The Minister of Culture of the USSR even issued a special order concerning the organization of patent departments in ninety-seven regional libraries. Five years ago.

Here is an eyewitness report. Constantin Nikeforevich Matsegora, Acting Director of the Moscow Patent Library, visited Stalingrad this past April.

My hair stood on end, he began his account. I arrived, I walked through the corridors of the library, I looked: there were nailed boxes, sealed packages lay around. My thought was, have they really obtained a new building and are preparing for moving? I examined, this was our patent and scientific technical literature! As they received it so they threw it into the corridors. In five years mountains were formed. There was certainly no mention of the patent department . . . And more! In other libraries, they say, the literature was thrown on a pile and then simply burned: there was no room for storage! . . .

This is the way in which, with rare exceptions, the supply of patent literature is here organized.

What is the situation concerning the demand?

This is a fine and delicate problem. As is known, inventors have never had any liking for patent literature. They say that its usage is not "traditional," that the inventive thought is born from the needs of the future and is not propelled by past creations, that "we are not creeping empirics drawing new ideas from old patents, we are people of creative fire and great emotions," that as long as there will be no original supply, there is no use of talking about the present demand.

This is the reason why our scientific-technical information is so badly placed. This is the reason why the golden stock of the patent libraries is perishing: very few know the treasures buried there and very few use them.

Recently an inventor told me an instructive story. He discovered a process for preventing curdling of milk. He went to the Committee, he filed the application for invention and he received a rejection: it turned out that in the archives there is preserved a patent issued to someone fifty years ago! The conclusion? The

inventor strived uselessly and wasted his time and the remarkable substance was for fifty years practically concealed from the national economy.

Still another circumstance struck me. The inventor himself narrated the story quite placidly. With a smile. Even with a feeling of a certain satisfaction with himself. Later, when I met his colleagues, very fervent, passionate and over-anxious inventors, I understood why they are prejudiced against the patent literature. Here are some of their statements.

First Inventor: The mind is disarmed! We are capable of performing the creative flight only when we feel that we are the first discoverers. Devil take it, what kind of Columbus am I if there are around so many fellow travelers!

Second Inventor: I remember, at the time when automobiles appeared I devised an original construction of hinged "dvornika." I went to the novelty office and they rolled out for me a carriage with four huge boxes full of patents. Then I understood clearly that a lot of courage is needed for being an inventor in the world where, they say, everything has been invented already . . .

Third Inventor (the same one who told me the story about the milk): I thirst for the effect. I am solving an interesting crossword puzzle. It may be that the puzzle was once solved by someone, it may be even that the solution is patented, the passion for effect is overpowering. I can do it myself! I arrived there by my own power! Am I not sorry for the time, you say? I would spit on time, if it were interesting to me! . . .

The reader has evidently noticed that all the statements have the same platform which is extremely individual. There is no social approach to the work.

From the inventor's state of mind it must, of course, be deduced of necessity that the stage at which the attention is to be focused on the patent literature is determined strictly according to the individual, a law cannot be issued here. But the inventor himself, having a duty to consider the interests of the community, should understand that the work from a patent and higher, a task truly, is by far not individual by nature.

What is the new technology?

The question is not empty. I know a designing office: TSKTB of the Latvian Council of National Economy (SOVNARHOZ) that developed an equipment for the protection of metals against corrosion. They grabbed this equipment with hands and with legs, as the saying goes; it so happened that no one had tried to build it before in our country. And it was truly needed. But, was it new?

The comrades of the Committee for Inventions are quite sincerely convinced that a technology may be considered new only when it can be patented, i.e. when it contains elements of invention: it is not new only among us, but generally. From this point of view, there was no particular need for developing tools and machines for cleaning the metal of corrosion, as the patent library possesses hundreds of patents describing similar constructions. And it was certainly not necessary to include them in the plan of TSKTB for building new technology. The question is, whom are we cheating?

Eighty-five of these are in the plan of TSKTB for 1961 and not one of them aims at the future.

Yesterday, agrees the director of TSKTB, Victor Georgievich Sirotenko. We are patching holes.

And the results: through long years of existence the collective body TSKB has not obtained one author's certificate, it has not produced one invention. The work bores the people. Able engineers-designers try to flee at the first opportunity. Of five hundred workers only one is a candidate of sciences. One hundred and seventy people have no higher (university) education. I remember the saying: One of the Sovnarhoz workers spitefully remarked, as the collective body so are the tasks standing before it.

However, what can a collective body do, even if it is extremely talented, when the whole system of work organization, orders and financing flatly excludes the possibility for building new technology. There is no laboratory in TSKTB. Likewise there is no good basis for production. Policy is dictated by Sovnarhoz and its concerns, originating of course from its present but sometimes also from its past needs. But TSKTB should dictate them according to the needs of the future. Payment is according to sheets, which means that a designer in order to justify his earnings must produce at least five sheets a month.

I am not a fakir, says engineer Yurii Aleksandrovich Vanags. If they want me to think, to invent and not simply to copy old solutions in a hurry, they should give me two sheets a month. I wish they would!

Now imagine, in the country there are one hundred and one Councils of National Economy (Sovnarhoz) and each one has its own TSKTB, under such or under a different title. There is practically no communication between the designing offices. Each TSKTB carries out the orders of its Sovnarhoz, and they all, of course, recklessly duplicate each other. How do you like the circulation of this ignorant and perspectiveless production offered by them?

There is no arguing: old holes must also be patched. Yet, who will in such case build the truly new technology? And the progressive technology . . .

Not long ago the designers of the Latvian TSKTB developed an interesting machine for grinding semiconductor plates. They say that the ordering plants "tore it into pieces." But let us analyze it in relation to "need," "novelty," and "progressiveness." Is the machine needed? Yes. Is it new? Let us assume that. Is the machine progressive? The answer is short: "No!" The last word in the technology is the growing of the semiconductor crystals which excludes the necessity of grinding and the question is about the transition upon micro modules. Hence the machine and the whole industry needed until now fall far in the rear and do not belong to the frontiers of science and technology.

The level of work . . . We must regret that it is not always sufficiently high, and time and time again we are guilty ourselves. Let us take for example the "Types of metal cutting machines for the years 1959-1965." There is no graph at all indicating progressiveness and patentability. In this regard even our GOST's (National Soviet (industrial) Standard) are not checked and in their specifications there is no word about it. . .

What is the final product of any scientific and technical work? Scientific-technical

information. The higher its level and the better the state of organization in which it reaches the "places," the more rapidly grows the scientific and technical progress.

The patent serves as the source of this information and at times as the only source. This is the reason why it is so important to provide education in patent culture.

Where to begin? Many people attacked this question. They also produced answers that I can only report conscientiously.

A lecture entitled "Patent Knowledge" should be organized in all universities of the country.

Furthermore, a patent service, group or department, should be organized in large plants. I saw one such group in action, in the Plant VEF in Riga.

It is deplorable that unjustified waste of forces has been permitted until now. In the VEP there exist independently of each other: BRIZ (worker's inventions bureau) (four persons), BTI—Bureau of Technical Information (eleven persons) and the patent group (also four persons). They are somehow connected with the inventive activity, but they do not work together, they do not help each other, they even hinder one another.

Things appear quite logical when we think about the similar practical division of inventive activity and new technology. Such division, paradoxical as it may be, exists also in the Latvian Sovnarhoz itself: one one floor there is BRIZ working on patent information and inventions, on the other the department for new developments and scientific discoveries. They are not connected with each other, either organizationally or in principle.

The comrades propose finally also the following measure: Why should there not be issued a law, they say, prohibiting the directors of scientific research institutes and designing offices from developing the projects that have not been preliminarily verified in the patent library? And why should we not prohibit by law the industrial utilization of technology that is not new and progressive?

Further developing the idea, they come to the following conclusion: the utilization of new technology should be included in the plans of industrial concerns. In this connection, with compulsory indication of percentage: increasing, for example, the productivity by seven percent with three percent introduction of new technology. Then the directors of plants will begin to seek ways into the patent library and its riches.

Everything that we are talking about refers to the organization of a system of scientific technical information that does not exist in our country, as we must regretfully say. And for the time being there is not an institution that would be willing to take upon itself the burden of its creation.

Who will develop a scientific method of patent usage? Who will arrange the classification of patent literature? Who will induce leading scientific research institutes to publish every quarter a patent survey for their branch of science so as to keep in touch with the latest scientific and technical developments and to keep other organizations on this level? And finally, who will correct the work of patent departments in regional libraries and would regularly, and not every five years, inspect them?

In the Committee for Inventions and Discoveries they consider that all these problems belong to the Committee for Coordination. What will they say there?

One way or the other, it is evident that these problems must be solved jointly by all interested organizations and the sooner the better.

There are problems that cannot be regulated by law. Yet, in the meanwhile, much depends on their solution. We can turn to inventors with an appeal, with a call: "Read patent literature! Work with (from) patents! Do not waste in vain the forces starting from nothing!" . . . But are there economic levers that could help us? Levers that would work steadfastly and safely?

In the United States, they say, the inventors must pay the fees when filing an application. Not everyone wants of course to risk money and, therefore, many themselves check the novelty of their proposals, turning to the patent literature. A lever? Generally speaking, yes. But we cannot use such in our country since the nature of the inventive development is here quite different.

Why not pay our inventors a compensation for costs connected with familiarization with patent literature, typing of documents, etc., in the case of course when an author's certificate is issued? Besides, there exists a rule that applications must be reviewed by the Committee within four months from the day of receipt. Why not shorten the review period to one month, if the inventor adds to his application a list of patents that he examined referring to a similar problem?

We must all together, jointly, harmoniously think about all these problems. And it must be achieved that inventors will knock more often upon the doors of patent libraries and that the doors will be open a long time before they are knocked upon.

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PERIODICALS

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Author refutes statements made by Mr. Alfons Puishes in above entitled paper to the effect that "inventions produced at public expense belong to the people." Mr. Bowes itemizes the advantages and disadvantages to Government, to the Contractor, and to the public interest of license and title policies. Mr. Bowes believes that "a policy permitting retention of title by Contractors is the more advantageous to all three of these interests."

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NOTES

First Foundation Film Premiered

"FUEL TO THE FIRE," a color motion picture on the nation's patent system, had its premiere showing on October 18th in the Departmental Auditorium, Department of Labor, in Washington.

Lasting approximately half an hour, the film is designed to provide a clear and memorable impression of what our patent system is, how it came to be, why it is important, and what it means to the individual citizen.

Presented by the Patent, Trademark, and Copyright Foundation of The George Washington University, the film was shown as part of the opening ceremonies of the three-day observance of the 125th anniversary of the Patent Act of 1836, which established an examination system for patent applications and made the Patent Office a separate and distinct agency in the Department of State.

The Foundation undertook the production of the film as part of its public educational program. Previous research by the Foundation had revealed that the general public knows very little about the patent system. "Fuel to the Fire" will be made available to educational institutions, television stations, businesses, and other interested organizations for showings throughout the country.

The Foundation supervised production of the film, providing background material, the line of argument, preliminary treatment, review for technical accuracy and tone, and acted as technical consultant.

New Members Join Advisory Council

LLOYD A. HATCH, Vice-President—New Product Development, Minnesota Mining & Manufacturing Company, David L. Ladd, U. S. Commissioner of Patents, and Sherrod E. Skinner, Executive Vice-President of the General Motors Corporation, have been appointed to the Foundation's Advisory Council. Commissioner Ladd will serve as an ex officio member.

Foundation Announcements Broadcast Nationally

RADIO AND TELEVISION stations throughout the country are continuing to broadcast and to show information and material supplied to them by the Foundation as public-service announcements. The announcements, referring to the patent system and the Foundation's work, are bringing many inquiries from the public.

Digest Reviews Compulsory Licensing Studies

A NEW DIGEST of the Foundation, the fourth, has gone to press. This latest issue reviews the Foundation's studies of compulsory licensing of patents and its effects.

The topic is of lively interest because of the Administration's vigorous enforcement of the antitrust laws and because of provisions in a pending bill introduced by Senator Estes Kefauver compelling the licensing of patents on new drugs after three years.

Eleventh Report Describes Activities

RECENT ACTIVITIES of the Foundation are described in the eleventh *Report to Members,* published this month. It includes photographs and reports on Foundation events, people, research and other activities.

Law Student Wins Award

JERRY COHEN, a senior in The George Washington University Law School, was recipient of the first Patent Office Society Student Award, presented annually for the best paper by a student in the Seminar and Lecture Series conducted by the Foundation. Mr. Cohen received a citation and honorarium of $100, contributed by the Society. His paper is published in this issue of the *Journal.*

Book Contributions Invited

With the increasing requests for information and use of the Foundation library, we believe we should bring to the attention of our readers, once again, the need for additional reports, periodicals, books and manuscripts. This material is being arranged and indexed for the use of students, researchers and professional people. We ask you to contribute second copies, from your personal collection, of publications related to the Foundation's fields of interest.

New Information on the Operation of the License Policy in Federal Contracts for Research and Development

DONALD STEVENSON WATSON *

MORE FACTS ARE NOW AVAILABLE on the operation of the license policy in the research and development contracts of the Department of Defense. When put into perspective, the new information does not give a strong support to the views of those who urge retention of the license policy. Neither is there anything in the new information to confirm the opinion of those who believe that a uniform title policy would best serve the public interest.

The new data were published in September, 1961, by the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary of the United States Senate. The document [1] is the eleventh in a series of "preliminary reports" on the patent practices of federal agencies. Analysis of the new data on the actual operation of the license policy substantiates the findings of the study conducted in 1960 by The Patent, Trademark, and Copyright Foundation of The George Washington University.[2]

THE SUBCOMMITTEE'S SURVEY

IN 1960, THE SUBCOMMITTEE ON PATENTS, TRADEMARKS, AND COPYRIGHTS sent a questionnaire to 120 business firms. Of these, 100 were the leading prime contractors, measured by the net value of the research and development (R&D) contracts awarded them by the Department of Defense in the fiscal year 1959. The other twenty were smaller prime contractors; the Subcommittee does not say how they were selected. These bases of choice are obvious, though they do not follow

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[1] *Patent Practices of the Department of Defense. Preliminary Report of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate.* 87th Congress, 1st Session, Pursuant to S. Res. 55 (Washington, D.C.: GPO, 1961). Hereinafter this document is cited as *Subcommittee Report.*

[2] Donald Stevenson Watson, Harold F. Bright, and Arthur E. Burns, "Federal Patent Policies in Contracts for Research and Development," *The Patent, Trademark, and Copyright Journal of Research and Education,* Vol. 4, No. 4, Winter 1960, pp. 295-432. Hereinafter cited as *Foundation Study.*

statistical techniques. The questionnaire covered the companies' R&D and patent activities in the decade 1949-1959.

In our investigation, Dr. Bright and I chose the sampling method. Our sample was drawn from the R&D patents and patent applications for the period July 1, 1951, to December 31, 1957. For the sale of brevity, I shall use the expression "R&D patent" to mean those patents retained by contractors as a result of their performance of R&D contracts financed by the Department of Defense. To have taken a sample of the contractors would have consumed more time and resources than we had. Though our sample was small, and though we gathered fewer facts than did the Subcommittee, our statistical procedure gave us much the broader view, a view that makes it possible to put some of the Subcommittee's findings in larger perspective.

In the summer of 1960, both the Subcommittee's questionnaire and ours were out being answered. Some corporations got and answered both; researchers, too, occasionally find themselves as direct competitors. Though the moral authority of a Subcommittee of the United States Senate perhaps exceeds that of a private and independent research organization, the proportion of responses to the Subcommittee's questionnaire was about the same as that to ours. Besides, they drew up the simpler questionnaire.

Two-thirds of the firms, seventy-eight out of 120, replied to the Subcommittee. Of these, however, eleven had never filed any applications for R&D patents, and four more firms had not yet been issued any R&D patents. In our survey, fifty-four usable replies came from 102 organizations. After we had closed our books, six more usable replies came in, making a total of sixty out of 102 versus sixty-three net out of 120 for the Subcommittee.

By taking the 100 biggest contractors, plus twenty small ones, the Subcommittee concentrated its attention on industry. It overlooked the universities and the private research organizations which have acquired about ten per cent of the R&D patents, including some important ones.[3] Furthermore, the net thrown out by the Subcommittee did not catch enough of the hundreds of small businesses that have in fact acquired many R&D patents. The Subcommittee's small companies have scarcely any R&D patents.

The business firms replying to the Subcommittee filed about 8,000 patent applications and were issued about 4,000 R&D patents in the period 1949-1959. These numbers are probably about half the total.[4]

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[3] *Foundation Study,* pp. 325, 342.

[4] From July 1, 1951 to December 31, 1957 there were about 10,000 patent applications under DOD contracts. Extrapolating to a decade, and rounding off upward (to allow for

The Subcommittee, therefore, gives its attention mainly to the half of the R&D patents acquired by the largest corporations.

The Subcommittee does not statistically analyze the mass of data it collected. The data occupy a forty-three-page appendix; comments on them are limited to five pages of text. The Subcommittee correctly points to the importance of the R&D financed by the Department of Defense, to the new products and industries that have emerged, and to the many benefits enjoyed by the firms with Defense contracts. All this is true, and hardly subject to dispute. What the Subcommittee does not do, however, is to analyze its own data [5] to evaluate the actual operation of the license policy in the decade of the 1950's. What now follows is a marshaling of the Subcommittee's data to cast light on the major issues attending the operation of the license policy of the Department of Defense.

PRIVATE R&D VERSUS FEDERALLY FINANCED R&D

A by-product of our 1960 study for the Patent Foundation was the finding that dollars of federally financed R&D yield a much smaller number of patented inventions than do dollars of privately financed R&D. The Subcommittee found that seventeen or eighteen (the *Report* gives both numbers) of the seventy-eight corporations spent more on their private research than they did in their R&D contracts with the Department of Defense. In the text of its *Report* the Subcommittee specifically mentions the names of four companies as leading DOD contractors. These same companies are listed in Table 1, which gives a comparison of expenditures for patents in the ten-year period. For each R&D patent, the expenditure was more than one million dollars, and for each patent obtained by these companies in their own commercial programs, the research expenditure was much less than one million dollars. Inspection of the data for the other companies in the survey discloses a similar relation. The Subcommittee itself comments on the differences between company-funded R&D programs and government-sponsored R&D programs.[6] Company programs do not often "require the extensive prototype engineering effort" usual in work for the Department of Defense. Military equipment is generally more highly specialized and expensive.

The companies reporting to the Subcommittee were issued a total of 34,000 patents in the period 1949-1959. Of these, only about 4,000 were

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growth in R&D) gives a total of about 16,000. This is twice the Subcommittee figure. We found about sixty per cent of applications result in patents. The Subcommittee finds the percentage to be about fifty.

[5] The Subcommittee does not vouch for the accuracy of the data submitted to it by the responding firms. *Subcommittee Report*, p. 86.

[6] *Subcommittee Report*, p. 33.

TABLE 1

RESEARCH EXPENDITURE PER PATENT, SELECTED COMPANIES

COMPANY	R&D Contracts with DOD			Company Research			
	Dollar Volume Millions (1)	Patents (2)	Expenditure per patent, millions of dollars (3)	Dollar Volume Millions (4)	Patents (5)	Expenditure per patent, millions of dollars (6)	Ratio of Column 3 to Column 6 (7)
Eastman Kodak	69.5	14	4.964	324.0	1,686	0.192	25.9
General Motors	291.0	265	1.098	1,647.0	3,630	0.454	2.4
Radio Corporation of America	275.5	43	6.400	324.4	2,592	0.125	51.2
Westinghouse Electric .	250.0	123	2.032	544	3,165	0.175	11.6

Source: *Subcommittee Report*, pp. 86-129.

R&D patents.[7] The R&D patents were about twelve per cent of all patents, for the sixty-three companies obtaining patents. For a longer period, and for a much wider range of patent activity, our crude estimate in the 1960 Report was that about six per cent of all postwar patents are R&D patents.[8] Though one is twice the other, the two percentages do not seem to be far out of line. The Subcommittee chose to look at the big firms, which are progressive in their research, which own large numbers of patents, and which perform much R&D for the military. It is to be expected that the big firms [9] would have a higher ratio of R&D patents to total patents than industry in general. Even so, the twelve per cent figure must be considered surprisingly low.

COMMERCIAL USE OF R&D PATENTS

Much of the controversy has centered on the commercial exploitation of the patent inventions emerging from the operation of the license policy. Both sides stress the importance of commercial use. In urging the retention of the license policy, spokesmen for industry and the patent bar insist that the new inventions can be developed and can make their contribution to the improvement of technology only if the normal incentives of the patent system are given full reign. Otherwise, and under the title policy, the same spokesmen contend, new inventions nearly always lie dormant. The impression in our minds as we began our study early in 1960 was of a vast array of inventions coming out of the billions of dollars spent on R&D by the Department of Defense. On the other hand, the public statements of the opponents of the license policy also put strong emphasis on commercial use. The opponents have painted the

[7] *Subcommittee Report*, p. 35.

[8] *Foundation Study*, pp. 364, 365.

[9] The Subcommittee comments especially on General Electric, General Motors, RCA, and Westinghouse. *Subcommittee Report*, p. 35.

picture of the great give-away, the vast and unjust enrichment of industry at the expense of the taxpayer.

When we made the final calculations in our study, we were mildly astonished to find that few of the R&D inventions have in fact been put to commercial use. The intensity of the controversies over patent policies had given us the tentative impression of a rate of commercial use somewhere in the range of thirty to fifty per cent. Instead, our guarded estimate turned out to be thirteen per cent. We were not able to take a firm stand in this figure and to make strong and well founded generalizations from it alone. Our inability to get a higher rate of response from those receiving our questionnaire deprived us of the advantages of statistical precision. Nevertheless, we thought that the correct figure is not far from thirteen per cent, because the other things we learned from our respondents helped to confirm the low figure. Our invitation to industry to furnish us with case histories of commercially important R&D inventions yielded meager information. Our tentative finding that the value of the patent rights in R&D contracts is actually low was also in line with the low thirteen per cent estimate. If anything, we said, the correct figure might be a little lower.[10]

And, indeed, the Subcommittee comes up with a figure lower than ours. The Subcommittee's estimate is "less than seven per cent." [11] Of the seventy-eight firms responding to the Subcommittee's questionnaire, one-third reported commercial use, either by themselves, or by their licensees. But the number of inventions commercially used is, in the Subcommittee's words, "quite limited."

The billions of dollars of federal funds spent under the license policy by the Department of Defense in the period 1949-1959 therefore resulted in just a few hundred patented inventions of *any* commercial importance. During this same period, hundreds of thousands of patents were issued. During this same period, the Subcommittee's seventy-eight firms were issued about 34,100 patents. Of these, about 4,000 were R&D patents. And of these, about 280 (i.e., seven per cent) were thought to have some actual or potential commercial value.[12]

In commenting on the seven per cent rate of use, the Subcommittee mentions only General Electric, with commercial exploitation of fifty of 471 inventions, and Western Electric with four of 247. Table 2 gives additional data along the same line. The figures in Table 2 are taken from appendix D of the Subcommittee's *Report*. The Companies listed are

[10] *Foundation Study*, p. 325.

[11] *Subcommittee Report*, p. 35.

[12] In its text, the Subcommittee enumerates thirty-five commercially used products or processes embodying R&D inventions. *Subcommittee Report*, p. 36.

TABLE 2

COMMERCIAL USE OF R&D PATENTED INVENTIONS
BY SELECTED COMPANIES, 1949-1959

Company	Total Patents Issued	R&D Patents	Commercially Used R&D Patents
Aerojet General	52	25	0
American Bosch Arma Corp.	262	20	1[a]
Avco Corp.	169	25	0
Bendix Corp.	2,439	230[b]	7
Collins Radio Co.	296	131	nominal
Curtiss-Wright Corp.	132	20	0
General Electric	5,660	471	40-50[c]
General Motors	4,077	265	41
Goodyear Aircraft Corp.	33	16	0
Hughes Aircraft Co.	366	174	4
IBM, Inc.	885	68	1
ITT Corp.	1,258	218	nominal
Lockheed Aircraft Corp.	214	7	nominal
Martin Co.	121	79	43[d]
Melpar, Inc.	30	10	0
North American Aviation, Inc.	366	172	4
Northrop Corp.	379	328	67
Pan American World Airways	3	0	0
RCA	2,635	43	0
Raytheon Co.	780	212	4
Sperry-Rand Corp.	1,176	252	29[e]
Sylvania Electric Products	560	65	0
Thiokol Chemical Corp.	15	0	0
United Aircraft Corp.	442	171	38
Western Electric Co.	1,046	247	4
Westinghouse Electric Corp.	3,288	123	nominal

[a] A product, rather than a patent.
[b] Eighty per cent of patent applications.
[c] "Military use is known to have been made of 222 of the 471 patents."
[d] Licenses.
[e] Products, rather than patents.
Source: *Subcommittee Report*, pp. 86-129.

those with dollar values of R&D contracts larger than $100 million in the period 1949-59.

Of the firms *not* included in its survey, the Subcommittee says only that "many" have obtained R&D patents, and that "some" of them are being used commercially. The Subcommittee gives two examples.[18]

COMMERCIAL VALUE OF R&D PATENTS

In our study we concluded that the value of the patent rights in federally-financed R&D contracts is quite small. Though we could not bring forward any but scraps of quantitative evidence, we were able to form strong impressions to support this conclusion.

[18] *Subcommittee Report*, pp. 36, 37.

The Subcommittee's *Report* does not expressly deal with the general issue of the dollar value of the patent rights retained by industry under the license policy. But the *Report* does in fact furnish much new factual information that gives additional weight to the conclusion we came to a year ago.

Of the one-third of the seventy-eight companies replying to the Subcommittee, several reported small amounts of money received from the royalties on licenses and from the sale of products embodying R&D patented inventions. Table 3 brings these data together, from the facts loosely assembled in Appendix D in the Subcommittee's *Report.* The royalty incomes shown in the Table are for an entire *decade,* not for a year.

Another measure of the commercial value of R&D patents to industry is the income derived from the sale of products embodying R&D patented inventions. Critics of the license policy seem to believe that industry has enjoyed large revenues, even monopoly profits, from the patent rights it retains under R&D contracts. Table 4 assembles the data reported by the Subcommittee. Here, too, the figures are not for a year, but for a whole decade. Nearly all of the reporting companies give the *gross* income from the products in question. Just what part of the income is attributable to the R&D patented inventions is not known. But Table 4 should make clear the implication that industry's net income from R&D inventions has been negligibly small. A glance at the Table shows that seven of the

TABLE 3

INCOME FROM SALE OR LICENSING OF R&D PATENTS, 1949-1959

Company	Amount in Dollars	Remarks
Bell Aircraft Corp.	not stated	Patent on helicopter blade
Chrysler Corp.	4,000	Patents on welding machines and methods
Clevite Corp.	28,000	Patent on magnetic recorders
Douglas Aircraft Co.	5,000	
Hughes Aircraft Co.	1,200	210 R&D patents
IBM	700	
Lockheed Aircraft Co.	not stated	Some income from foreign licensing
Martin Co.	2,613,000	
North American Aviation, Inc.	37,500	
Northrop Corp.	16,700	67 patents licensed to 16 companies
Sperry-Rand Corp.	52,000	19 patents
United Aircraft Corp.	1,448,500	Total income from license agreements on 22 R&D patents. Only small part of this income is allocable to R&D patents.
Western Electric Co.	2,500	

Source: *Subcommittee Report,* pp. 86-129.

TABLE 4

INCOME FROM SALES OF PRODUCTS EMBODYING R&D PATENTED INVENTIONS, 1949-1959

COMPANY	AMOUNT IN DOLLARS[a]	REMARKS
Aerojet General	not stated	Sale of jet assisted takeoff units
Airborne Instruments Lab.	200,000	Patent on coaxial noise generator
American Bosch Arms Corp.	100,000	Company spent $1 million on devl.
American-Standard	51,300,000	Cylinders and tubes
Bell Aircraft Corp.	not stated	Helicopter blade
Bendix Corp.	not stated	Apparently small
Boeing Airplane Co.	not stated	
Clevite Corp.	30,000 per annum	Piezoelectric ceramic material
Eastman Kodak	20,000 in 1959	
Fairchild	(substantial losses)	
Garrett Corp.	not stated	Apparently small
General Electric	5,645,000	Mostly jet engine equipment
General Motors	82,000,000	Engines and transmissions
Grumman Aircraft Eng. Corp.	not stated	
Hughes Aircraft Co.	57,400,000	Cathode tubes and diodes
ITT Corp.	1,004,000 in 5 years	
Litton Industries, Inc.	9,500	This is sales revenue allocable to the invention
Lockheed	not stated	
North American Aviation, Inc.	1,326,000	Computers
PRD Electronics, Inc.	not stated	About ⅓ of gross sales attributable to features covered by R&D patents
Raytheon Co.	7,500,000	Magnetrons
Sanders Associates, Inc.	not stated	"Minor fraction of 1% of company business."
Sperry-Rand Corp.	information incomplete	Amounts are small
United Aircraft Corp.	not stated	
Western Electric Co.	not stated	
Westinghouse	40,000,000	

[a] Unless otherwise indicated, the amount is for the entire 10-year period.
Source: *Subcommittee Report*, pp. 86-129.

corporations received, for the entire period 1949-1959, several millions each from the sale of products embodying R&D patents. These millions of dollars are for a decade, not for a year. Some fraction of these is the *gross* income from R&D patents. Some small fraction of this fraction is the *net* income. Whatever the amount, it is negligibly small, when measured against the billions of federal R&D expenditures, and the billions of corporate profits.

LICENSING

One of the charges against the license policy is that the inventions coming out of federally-financed R&D are not made freely available and that therefore technological advance is impeded. The open or implied contract is the generally royalty-free availability of the patents falling into the hands of government under the title policy. The Subcommittee finds that twenty-two of the seventy-eight firms have in fact licensed to others the use of inventions resulting from R&D contracts with the Department of Defense. The ratio of licensing firms is less than one-third. But a much higher ratio of patents is included in licensing agreements. The Subcommittee itself points out that General Electric has cross-licensing agreements in the field of electronics with RCA, Westinghouse, Sylvania, Western Electric, Raytheon, and Philco. Though General Electric has found commercial use for about ten per cent of its 471 R&D patents, it has licensed about forty per cent of them. Another group of firms covered by the Subcommittee's study belong to the Manufacturers Aircraft Association; they also cross-license their R&D (and other) patents under royalty-free agreements.

The significance of the Subcommittee's findings on licensing is greater than might seem at first. In the 1950's, a little more than three-quarters of all industry R&D financed by the federal government was carried out by the electrical equipment and aircraft industries.[14] More than half of all the R&D patents in the same period were in electronics and in aircraft.[15] It seems likely, then, that a majority of R&D patents are made available in industry.

SUMMARY

The two studies, the Foundation's and the Subcommittee's, supplement each other. The materials they assemble make it possible to point to the following characteristics of the license policy as it operated in the 1950's:

1. The R&D contracts awarded by the Department of Defense to industry resulted in a rate of invention far lower than that prevailing in commercial R&D. A million dollars of commercial R&D is several times more productive of patented inventions than a million dollars of federally financed contract R&D.

2. Of the patented inventions originating in the federally financed R&D conducted by industry, surprisingly few have had actual commercial application. We found that the proportion commercially used is about

[14] *Foundation Study*, p. 304.

[15] *Ibid.*, p. 322.

thirteen per cent, whereas the Subcommittee's figure is about seven per cent. The different methods of investigation probably account for the discrepancy in the percentages. The important thing, however, is that the orders of magnitude are very close.

3. A large proportion of the R&D patents, in the aircraft and electrical fields, are under cross-licensing agreements.

4. There is scarcely any evidence that the license policy has resulted in industry's exploiting any patented inventions of spectacular importance. The Subcommittee mentions none. We did find one, developed by a large university.

5. The Subcommittee's survey data give firm support to one of our important conclusions—that the value of the patent rights in R&D is exceedingly small. Both industry and the advocates of the title policy should pay more attention to this uncomfortable fact.

Utilization of Corporate Annual Reports for Popularizing Patent Information

IRVING H. SIEGEL *

SUMMARY

A REVIEW OF RECENT ANNUAL REPORTS of numerous manufacturing companies reveals the continuing common neglect of an outstanding opportunity to convey to a wide lay audience the significance of owned and licensed patents in past development, in current operations, and in planning for the future.

A LARGELY IGNORED CHANNEL

THE THEME OF TWO EARLIER CONTRIBUTIONS to this *Journal*[1] seems important enough to warrant treatment at least once more, especially in the present context of active Congressional interest in the utility and functioning of the patent system.

Company officials frequently assert in testimony and in letters and other statements appearing in newspapers[2] the broad value of patent rights in an enterprise economy. Pamphlets prepared for distribution, say, in connection with exhibits held in the lobby of the U. S. Department of Commerce building in Washington offer facts and opinions on the role of patents in the origin, evolution, current activities, and prospects of companies. Some company periodicals—for example, those of International Business Machines Corporation, International Telephone and Telegraph Corporation, and Western Electric Company—list new patents issued to employees. Occasionally, booklets accompanying the annual reports of companies also have something definite, though brief, to say about patents.[3]

* Member of the Research Staff of the Foundation.

[1] *PTC J. Res. & Ed.*, Vol. 2, No. 3 (1958); Vol. 4, No. 3 (Fall 1960).

[2] See, for example, letter by John T. Connor, President, Merck & Co., in *Wall Street Journal*, December 5, 1961, and statement by Samuel Lenher, Vice President, E. I. du Pont de Nemours & Co., *ibid.*, January 30, 1962.

[3] Thus, *An Introduction to General Electric*, distributed with the 1960 report, states (p. 5): "As a measure of the scope and effectiveness of the Company's research and

The annual reports themselves, however, are unevenly—and, on the whole, inadequately—utilized by corporations as media for the dissemination of verbal, photographic, and statistical material concerning patents. Indeed, the comparative indifference to the potential of this channel for distributing popular information on patents contrasts remarkably with the increasing emphasis on corporate research and development activity, on the contribution of new products to recent sales revenue, on the anticipated role of new product lines and processes in tomorrow's operations, and on trademark identification. Two questions naturally arise: Is the "true" role of patents being deliberately or unwittingly overlooked in the annual reports, so that Hamlet has a hard time finding his way into a play often regarded as his own? Or do company spokesmen instead tend to overstate elsewhere the actual significance of patents?

Although these questions need not detain us, it is easy to advance plausible reasons for the failure of companies to give a more complete, multidimensional picture of their technological condition. For one thing, a corporation is not the monolithic entity it is commonly assumed to be; nor is it dominated, as a rule, by a single, all-encompassing mind. Company patent officials, moreover, have varying locations in the hierarchy, as a study made by the National Industrial Conference Board has noted; and, in any case, their influence on the public relations department, which typically has charge of the production of the annual report, may be the critical factor. Another consideration is the experimental quality of these reports, which still vary in form and content, often greatly, from year to year. In time, more companies will probably develop reporting patterns that routinely provide patent information no less technical than the accounts now given of happenings on the research frontier. Finally, we should recall that, until very recently, corporate research expenditures were generally small, even trivial, so that the prejudice against capitalizing such intangible assets as exclusive industrial knowledge or

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development, General Electric has been issued more than 33,000 patents since its incorporation in 1892—the highest number ever awarded to any one company."

In *The Challenge of Change,* accompanying the 1960 report of American Machine and Foundry Company, patents are mentioned in the course of discussion of research and innovation (pp. 7-8): "The year 1938 marked an important milestone in AMF history. The Company instituted a search for a machine whose market would be large and not yet mechanized, a machine that would be novel and patentable. Out of this search came the AMF Automatic Pinspotter. . . . By the end of 1960, the total number of these AMF machines . . . was approximately 70,000. Because of this AMF invention, tenpin bowling has become one of the nation's largest participant sports. . . ."

In Clevite Corporation's *Operations and Background Information: 1961* (p. 5), this passage appears: "Where do Clevite's strengths lie? We have developed and hold many patents on materials, methods and devices. We have an acknowledged position of leadership in vital areas of technology."

special rights to information has long escaped determined challenge. A change in attitude toward information is in the making, as the annual national commitment to research and development increases, as the need for better storage and retrieval systems becomes more evident, and as the Soviet technological threat intensifies.[4]

OBVIOUS GAPS

In addition to a general paucity of patent information and the underrepresentation or omission of the patent aspects of corporate research activity and innovation, numerous other evidences may be cited of neglect of the opportunity provided by annual reports for promoting an image of progressiveness. Thus, companies often tell less in these reports than in press releases about their arrangements to exploit byproduct inventions, about cross-licensing and sales agreements, about technical assistance to small business and to foreign firms, or about pending or terminated litigation involving patent infringements or the compromise of trade secrets.

While other faults in company financial statements may be of greater moment to investors and to such organization of experts as the American Institute of Certified Public Accountants,[5] conspicuous limitations in published statistics on technological operations and assets also deserve attention. Among these limitations are: the omission of data on annual and capitalized research outlays, the inclusion of such information in inseparable form in larger composites, the aggregation with other income items of royalties paid and received, the failure to mention unamortized

[4] See I. H. Siegel, "Scientific Discovery, Invention, and the Cultural Environment," *PTC J. Res. & Ed.*, Vol. 4, No. 3 (Fall 1960), pp. 233-248, on the emergence of "information" as an economic category coordinate with "matter" and "energy."

The widening appreciation of the economic role of information is reflected not only in the attention nowadays directed toward Government patent policy but also in the concern of companies for keeping trade secrets, developing proprietary "knowhow," and restricting the competitive activities of former employees. Thus, C-E-I-R Inc. has sought (unsuccessfully) to enjoin former staff members from using contacts made and information acquired on the job (*Washington Star,* February 6, 1962); du Pont has sued the von Kohorn engineering enterprises for alienation of secret information and soliciting services of its employees (*New York Times,* December 5, 1961); and Sperry Rand has reached an out-of-court settlement of its suit against Control Data Corp., a firm of former employees accused of improperly using UNIVAC trade secrets and methods in the development and production of computers (*Wall Street Journal,* January 12, 1962).

[5] Press releases of October 29, 1961 on the Institute's new edition of *Accounting Trends and Techniques,* spotlighted faults observed in a new survey of 600 annual reports. These faults concerned: the comparability of financial data for different years, the availability of financial summaries in addition to basic data, the utilization of the vague term "earned surplus," the footnoting of financial statements, the retroactive adjustment of data for stock splits, the reporting of long-term leases, and the disclosure of costs associated with pension or retirement plans.

costs of patent property, the inclusion of patents in the balance sheet (often with other intangibles) at a nominal value of $1.

AVAILABILITY OF DATA

That companies have much more to say on patents than they normally tell in annual reports is clear from the preceding paragraphs. But other evidence likewise indicates that, once the objective of upgrading technological information distributed to stockholders and to the general public were acknowledged as a worthy one, companies could tap additional data sources already available to them. With the fuller presentation of patent material, more explicit public statements of company policy and attitudes might also be expected. For the student concerned with the place of the patent system in our evolving economy, such expressions of company opinion would also have analytical value.

An example of the expansibility of publishable patent information is provided by the report of a recent Senate Subcommittee survey relating to defense research and development contracts. The seventy-eight firms responding to the questionnaire—leading prime contractors and representative small prime contractors—supplied information on patent applications filed during 1949-59 for inventions made under Department of Defense contracts and on patents actually issued. They also indicated whether or not commercial use had been made of the patented inventions for own account or by licensees.[6]

Equally significant of the potential for general improvement is the fact that many firms already make some use of the annual report to tell the patent story. For example, pharmaceutical companies have been stating their positions on various issues raised by the patent inquiry of the Senate Subcommittee on Antitrust and Monopoly.

Many companies could match the following paragraph, which comprises a section on "Patents" in the 1960 report of Polaroid (p. 8):

> "Including the twenty-three granted in 1961, 293 United States patents have thus far been granted to us in the field of one-step photography; eight of the new patents relate to color, bringing to 39 the number of patents relating directly or indirectly to the production of color prints by the Land process. There was a corresponding growth in the number of our foreign patents. Over 250 additional patent applications directed to inventions and improvements in the field of one-step photography are pending, in many of which claims have been allowed."

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[6] *Patent Practices of the Department of Defense,* Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U. S. Senate, 87th Cong., 1st Sess., 1961.

A fuller statement that doubtless represents the experience and policy of many reticent firms occurs in the 1961 report of Armour and Company (p. 20), a report which, like that for 1960, places great emphasis on research and product diversification:

> "Patent Work Important to Research Progress
>
> "In order to secure the full benefit of the inventions and discoveries produced by the many research groups, Armour patent attorneys follow each research project from the start and counsel with research personnel in the direction and scope of the work so as to avoid duplication of work already patented or published by others and to afford patent protection for the ultimate commercial development.
>
> "As research on a new product or process proceeds, and when experimental results provide the necessary technical information to properly define the invention, a patent application is filed. The patent law group may also provide assistance in the selection and registration of a trademark to be applied to the new product.
>
> "At present Armour has more than 400 United States patents in force and more than 600 registered United States trademarks. In addition, we have some 250 pending patents and 70 pending trademark applications. Corresponding patents and trademarks are issued or pending in many foreign countries.
>
> "It is the Company's policy to utilize its patent and trademark rights primarily for the protection and extension of its own business, but in some situations licenses are granted to others as a part of a joint venture arrangement or on a royalty basis. During the year we have granted licenses in foreign countries, and in most of these, trademarks as well as patents have been included, so that we are building and extending good will along with our foreign business."

The annual reports of firms that provide pertinent financial data also indicate plausible directions of future improvement. Many companies could apparently work up and routinely release statistics on annual and cumulative research expenditures, on the proportions of corporate and government research funds, on royalty revenues and payments, and on the historical cost and estimated current value of purchased and company-originated patents. Progress in these directions, of course, requires conviction that company interests would not be prejudiced by the release of more data—or, in positive terms, that release might actually yield private (and public) benefits.

BALANCING THE RECORD

The case for more deliberate utilization of corporate annual reports as channels of popular patent information seems easy to establish. First

of all, companies that publish their patent history, that tell the "human side" of corporate invention, and that release statistics on their patent holdings and transactions are reinforcing impressions they normally seek to create through trademark promotion, through accounts of their new products and processes, and through publicity on the scale and variety of their research programs. They also are contributing to the foundation of fact and opinion that should underlie political decisions affecting the character and worth of private rights to intangible property.

While Congressional inquiries dominate the stage, a persistent feature of the economic and social climate should also be kept in mind: In a democratic nation, there is widespread latent antagonism toward legal, as well as illegal, "monopoly" and toward the concentration of economic power in the hands of individuals or organizations. Indeed, the popular predisposition in such a nation is to doubt the compatibility of the general welfare with the vesting of exclusive property rights in large corporations. A reader who already has vague misgivings is likely to accept this kind of statement as obvious and corroborative, without independent investigation or reflection:

> "Today the task of the American inventor has become harder. . . . Many inventions today are therefore the product of corporate employees working in corporate laboratories with corporate research funds, making new processes and products that can be subjected to corporate mass-production methods and marketed under a corporate patent monopoly by corporate distributive mechanisms to a vast mass market for corporate profit, with the inventor getting sometimes only his employee pay, and sometimes a small royalty payment added." [7]

The same reader may also be confirmed in his conviction when he is told that it is nowadays important "to have control of a patent tool, either to keep one's competitors at a disadvantage or to control the use of the patents by them and to collect royalties for their use"—that, indeed, "the Big Technology [has] made the strategy of patent control the crucial strategy of American business." [8]

In the face of such challenges, companies that claim social as well as private merit for the kind of patent system that the United States has had for the past century and a quarter should be eager to present their side of the picture. Annual reports seem to be practical medium for such a presentation; and, though available, they are underutilized for this purpose.

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[7] M. Lerner, *America As a Civilization, Volume I,* Simon and Schuster, New York, 1957, p. 231.

[8] *Ibid.,* p. 232.

Industry Life Cycles and Patents

R. A. NORMAN *

INTRODUCTION

IN THE TEMPEST OF DAY-TO-DAY BUSINESS ACTIVITIES, it is often difficult to believe that there is any underlying direction to the flow of industrial progress. The total situation seems a storm-swept sea of action without discernable rhyme or reason, much less order. Beneath the surface turbulence, however, there are strong and steady currents. If one could perceive these currents and understand something of the forces that shape them, he might, perhaps, be able better to understand and cope with the business problems of the day.

This paper is a very brief attempt to suggest a general theory of business and to relate it to the field of patents. The theory is based partly on observation and experience, partly on logic, and partly on speculation. To be useful it will require both verification and wise interpretation. Nevertheless, it is an attempt to perceive some order in the situation. As such it may provide a point of departure for further work that some day may serve as a guide for considering specific problems of patent policy in business.

A THEORY OF BUSINESS

MOST OF US ACCEPT THE NOTION that the purpose of business is profit. A business begins for profit; it lives on profit; it dies when profit ceases. Profit is the élan vital of business.

Knowledge is the basis of profit. When the people of a business possess some special knowledge or skill that permits them to accomplish a result desired by others, the business has a basis for profit. To realize those profits, however, a business must give its knowledge away. It must put its knowledge to use and transfer it to the community it serves. When its special knowledge has become generally available so that anyone may use it, it no longer produces profit. It is no longer special; it is simply one of the known ways in which men can apply their energies to effect change. To gain more profits, the business must generate new knowledge. It must find new and better ways to do things or new, more useful things to do. Thus the work of business is like the task of Sisyphus; it is an unend-

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ing struggle with the unknown. Each step of achievement turns into no more than a new point of departure.

The continuing search for advantage causes industries to develop on an evolutionary basis. Competing businesses, in their continuing attempt to find new and better ways of applying a technological concept to a field of human needs, provide people with a variety of choices. Some are found useful. They survive and are absorbed by the industry at large. Others are passed by. They are eliminated. The entire process is a continuous, self-generating, self-correcting search for better ways of using human energy to serve human needs.

If one examines the over-all growth of an industry, one can sometimes see a pattern emerge, a sort of orderly growth comprised of the successive solutions of a series of major problems. In the general flurry of activities one can see the main thrust of the assault, the gradual "homing-in" on a solution, and with it, the emergence of a new inner bastion of unknowns to be stormed.

Just as the pattern of growth of an individual reflects the evolution of the species, so does the development of a single product reflect the growth of an industry. First comes the development and design stage: learning what product to make. Then comes the reproduction problem: learning how to make it. After that comes cost reduction: learning how to make it efficiently. When this is accomplished, attention can be turned to improvements: learning how to add features that will make it of more value to the customer. Finally, the product is made obsolete by some new, better product, diverting any further effort from the old one. At each step, certain problems must be solved by making a variety of different trials and weeding out the inferior approaches in favor of the superior. Although the stages may overlap and anticipate one another, the general sequence is a logical and necessary building of knowledge through experience.

This general pattern holds for whole industries as well as for products. The general process and sequence is the same, except individual businesses provide the variety of trials and the market chooses which shall survive. The basic problems may be visualized as something like simultaneous equations in which one set of unknowns involves the work of the business and the other set is concerned with the needs of the market. Solutions are found by a sort of substitution method, successively trying out different combinations on a trial and error basis until a "fit" is found.

The life cycle of an industry starts with an era of innovation. The major problem is to find the "best" product design for customer performance requirements: to explore the technological possibilities in terms of market applications. Many different products are offered to the public.

Obsolescence is rapid as one improvement follows another in quick succession. Usually novelty appeal is important, prices are high, and quality is poor. Remember the early days of television?

Finally certain "best" products emerge; products which are technically sound solutions to the customers' expressed requirements. The television industry, after exploring different sizes and shapes of picture tubes from 10″ up to 27″ and 30″, settled down on 17″ and 21″ rectangular glass tubes. These were the sizes customers preferred.

With the coming of standardization, the field of innovation shifts from product design to manufacturing. The major job is to find a satisfactory process for mass-producing uniform, dependable products. The customer has become more sophisticated. He is no longer impressed with novelty; he wants something that will work. To solve this problem, the industry swings to standardization. You can get any color of car you want, as long as it's black; you can get any size television receiver you want, as long as it's 17″ or 21″.

Just as the product problem was solved, so is the process problem. Standards of quality that satisfy customer needs are met; he can buy almost any brand with assurance of getting the service he wants. Additional increments of quality are no longer important. Now the industry turns its attention to efficiency and market expansion. Price competition becomes more and more intensive. All excess elements of work are eliminated. "Stripped" models appear on the market. Advertising stresses price in capital letters as the industry seeks to sell more and more products. The battle for business survival starts and it is won on a basis of total efficiency.

When the market is saturated and both prices and costs have bottomed out, the industry turns to new approaches to competitive advantage. Product differentiation comes back into the picture. Producers attempt to build special features into their service or add gimmicks to increase the value of their products. Supermarkets, having matched one another in all other respects, turn to trading stamps. Television receiver manufacturers try new sizes: 19″ and 23″ square-cornered tubes. You can not only get any color of car you want, you can get power steering, power windows and almost any style feature you want.

Finally, out of the endless quest for competitive advantage, a totally new concept emerges, a breakthrough either on the technical front or the market front or both. The original industry enters a liquidation period in which the major problem is to utilize all that is still useful from its prior investments and at the same time reconstitute itself to move into the new field. The original field of unknowns has been so well explored there is little room left for significant new contributions. Further de-

velopment expenditures are unwarranted. The main job is to withdraw gracefully as the economic value of the service diminishes and to transfer attention to work where new contributions remain to be made. One sometimes thinks the railroads are at such a stage.

This general pattern can be traced in a variety of industries. Television, automobiles, supermarkets, and railroads have been mentioned above. One can see a similar cycle in the motion picture industry, and in the electrical power industry. Magazines are swinging more and more to specialization, attempting to appeal to limited segments of the market on a basis of special interests. The old "general purpose" giants have mostly disappeared. Television programming has not yet made the switch; it is still in the "efficiency era," attempting to appeal to the widest possible audience with "standardized" programs. It is becoming more and more evident that it has saturated its market.

The shape of the curve, the time factors, the rate of change, and the very substance of the growth elements change from industry to industry. Yet the general process of development is there, if one cares to look for it.

THE THEORY OF BUSINESS AND PATENTS

Patents both reflect and affect this evolutionary process. On the one hand, a collection of patents in a given field is a record of the evolution of knowledge in that field, reflecting the trials and errors, the step-by-step advances, and the shifting centers of interest as successive problems are solved. On the other hand, it is not unreasonable to conclude that the use of patent rights has had some effect on the direction and rate of growth of industries.

Often an industry is based on a relatively simple but very fundamental idea: a basic discovery leading to a whole new field of development. The transistor was such an invention. In such instances, a few key patents may underlie the whole field of development and the holder of such patents may have a very strong position indeed. Where his position is quite clear, the field not complex and the market easily developed, he may be able to realize his greatest rewards by exercising his right to exclude others.

In many instances, however, the period of industry incubation may be quite long. Its rate of growth may be dependent on the variety of experiments attempted. Both the technology and the market may require extensive exploration before the industry can establish a sound basis for growth. In such cases, it is to the inventor's advantage to have many different enterprises making independent choices and commitments because the field can only be explored by pursuing a number of different directions.

During such a period of intense product exploration a large number of

patent applications are filed, mostly centered on different approaches to expressing the original concept in terms of products. During this period it is impossible to predict which particular approaches have survival value and so the general tendency is to "cover all bets." Obsolescence is rapid and competitors are quick to absorb the lessons learned by others. Development may move so rapidly in this period that the significant inventions are widely used and well established as industry standards before patents issue. In such instances, the patent holder may have an excellent basis for negotiating licenses, but may have little practical opportunity to exercise his right to exclude.

Where the pace of invention is slower, an inventor may be able to block off an entire field of development by his product patent. In some instances this may put him in a commanding position, but this, too, has its risk. He may very well force the industry to redouble its efforts to find other approaches to the problem. The resulting concentration and diversity of both technical and market development efforts may leave him behind in the race, even though his approach may have a potentially better technical foundation. One can only speculate on the extent to which air-cooled automobile engines might have been developed had they been subjected to the same variety of development efforts as fluid-cooled motors.

Certain standard products begin to emerge as the era of innovation draws to a close. These are the survivors of the product selection process: the best adaptation of technical possibilities to customer needs. Those who hold basic patents on these products have an important advantage, one that will stand them in good stead when the era of efficiency starts. The nature of patent activity changes. Product patents tend to be directed to minor variations and improvements, rather than new, basic advances. Process and production equipment patents are more in evidence as the industry turns its attention from the service itself to the means of performing that service. Again certain important patents may emerge which, while not resulting in any marked product advantage, may provide a significant production advantage. Here the right to exclude may result in a valuable competitive edge, provided the right to the use of the basic product patent is unimpaired. The advantage of the process patent may also be decisive later, in the era of efficiency.

When both the product and process problems have been solved, patent activity diminishes. All attention is on cost and little effort is directed toward invention. At this stage, a royalty position from earlier activities may provide the basis for the difference between profits and losses. As costs are driven down to rock bottom and prices forced down to meet them, the added income of royalties may be the source of profits for one producer while the added cost of royalties may be the extra cost burden that results in a loss for another.

At length some stability is reached, essentially a "bottoming out" of cost and a saturation of the market. With attention shifting to gadgets and special features, patent activity resumes. It is a period in which producers attempt to differentiate their products and services by marginal additions of style changes and gimmicks which may have little fundamental relationship to the function of the business. Patent activity may be quite feverish but it really has little importance; styles change too fast. Most competitors are chiefly interested in preserving their freedom to change designs. As a result, patents may be treated as trading material to insure that freedom.

While this is going on, somewhere a new concept is developing. Some one has gone beyond the traditional limits of the technology or the market need or both and imagined new, unthought-of degrees of freedom. When these new ideas begin to take form in a new innovation era, the death knell of the old industry has sounded. Now the job is one of orderly withdrawal; of limiting further expenditures of work to the true economic value of the service performed. Very often the people who have grown up in the industry refuse to recognize this stage. There will be an outburst of frantic activity to save the business. Engineering effort will increase. Old ideas will be recovered from the discard file, dusted off and put to work, all to no avail. But the field has long since been well explored and new knowledge is limited. To spend resources which might be applied to truly new developments is wasteful, but it goes on until its futility is finally made clear in financial results.

CONCLUSION

Does this theory of business make sense in the light of history? We can all think of illustrations in the past in which this general kind of pattern has been traced. A research study of the field of patents might tend to validate or invalidate the hypothesis and in either case shed a little more light on the problem.

Does this theory of business help us understand the general problems of business and in particular does it help us solve the patent problems of tomorrow? In a sense, it does not. It proposes that important values lie in the creation of new understanding and therefore in the realm of the unknown and unpredictable. It says that the evolution of knowledge takes place as the result of human action and is formed not entirely by external laws or events, but by the choices people make and the way in which they gain experience. While the evolutionary pattern is always logical and even obvious in retrospect, it can never be extended into the future with complete assurance because it is by nature a creative process, formed by the free decisions of individuals.

However, while it cannot predict the mutations that take us forward in great leaps into the unknown, it can tell us something about where we have been, where we are and the general nature of the job ahead. It can provide a framework for relating the specific problem of the moment to the general setting of activity. More importantly, it can tell us something of the conditions necessary to the further evolution of our knowledge and to future profits. As it turns out, the *process* by which knowledge is developed is more important than the knowledge itself.

A Patent Guide for Inventors and Executives, and the Context in Which it Appears

L. JAMES HARRIS *

SUMMARY

THIS IS A REVIEW of the book entitled *Patents, Research and Management* edited by Howard I. Forman, assisted by Joseph Gray Jackson, Joseph Rossman and Virgil E. Woodcock, and published by the Central Book Co., Inc., 1961, New York. The book is primarily designed to provide helpful information about the patent system to inventors and executives. The authors have included much practical advice acquired from personal experience. This undertaking, representing a considerable effort on the part of the participants, is a notable and timely contribution.

The review also affords the reviewer an opportunity to examine briefly the environment relevant to a book on patents.

Introduction

CHANNELS OF INFORMATION SUCH AS BOOKS that educate and inform the general public, as well as those with a special interest in the patent system, regarding the function of the system, on how it works and how to use it, are an essential element in opening up and continuing the vigorous exploration of new fields in ways that will foster industrial advance based on the concept of individual enterprise. In view of the public discussion in which we are now engaged on various aspects of the patent system, it seems timely, in a review of a book like *Patents, Research and Management,* to discuss briefly the context in which it appears.

In the past government enterprise was more limited and individual enterprise more extensive. The Crown in the exercise of its prerogatives considered the development of industry and commerce and the enterprise of invention the province of individuals and organizations [1] rather than

* Executive Director of the Foundation.

[1] The guilds were generally opposed to inventions and patents. Prager refers to the stagnation of the guilds resulting from their alleged "skill" and "secrets." He states that it was widely felt in Europe that "improvements in mechanism" tend to "abridge employ-

the direct obligation of royalty.[2] The government acted as a patron of individuals and organizations which through their own efforts and at their own expense, advanced technological knowledge and understanding. So highly regarded were their contributions that the government, by means of a patent system, secured to these citizens the exclusive privilege of practicing their novel manufacture for a limited time and the English Statute of Monopolies (from which our modern patent system stems) which declared monopolies void,[3] excepted letters patent. The Statute resulted from the oppressive practice of certain kings to grant monopolies to their favorites on lucrative commercial activities in the realm in return for service or financial support.[4]

Interest in science and development dates from our country's very beginning,[5] and Federal and State governments were not slow to undertake their own explorations for new knowledge. In response to demands imposed by westward migration and defense, the growing nation sponsored territorial and technical surveys and organization.[6] In general, however, applied research and development was still considered the unique province of industry.[7] Some even challenged the right of the government

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ment." See page 312, particularly footnote 8, Frank D. Prager, "Historic Background and Foundation of American Patent Law," *The American Journal of Legal History,* Vol. 5 (October 1961).

[2] This is to be distinguished from the medieval custom of artisans entering the King's service to obtain protection from armed attack. *Ibid.,* p. 311.

[3] 21 Jac. 1 (1624).

[4] See Robinson on Patents, p. 9. This accounts to some extent for the negative attitude even toward patents expressed in the British Statute of 1624. The Statute is directed toward abuses. According to Prager (*Ibid.,* note 1, p. 313), "a similar attitude was reflected by statutory law in other countries, prior to the reorientation of patent thinking brought about by America."

[5] The ideas of Jefferson and Franklin were well received in the colonies. See Prager, *op. cit., supra,* note 1, p. 316.

[6] The Smithsonian Institute (1846)
National Academy of Science (1863)
National Advisory Committee for Aeronautics (1915)
Naval Consulting Board (1915)
National Defense Research Committee (during World War II)
Office of Scientific Research and Development (during World War II)
Atomic Energy Commission (1946)
Office of Naval Research (1946)
National Science Foundation (1950)

See historical review of Richard H. Bolt, "Role of the Federal Government in Basic Research," in *Proceedings of a Conference on Academic and Industrial Basic Research,* National Science Foundation, NSF 61-39 (1960).

[7] "Proposals are made from time to time that the Government expand its research activities, and enter into the field of developmental or applied research. This survey gives ample evidence that industry is keenly aware of its research responsibilities and is increasing its activities in the field of applied research. For the Government to compete

to own patents on inventions developed in the government establishment on constitutional [8] and other grounds [9]: there was no public benefit in dislodging the inventor and placing the patent in the "dead hand" of government.[10]

With the introduction of technology on a larger and larger scale in national defense and actual warfare, governments were forced to take a more direct hand in the development of efficient instruments of destruction, or perish.[11] Economic growth, the accumulating advances in science, and

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with industry in this sphere would be an unncessary duplication of effort and expenditure, the survey indicates.

". . . Dr. Robert E. Wilson, Chairman of the Board of the Standard Oil Company (Indiana), said, 'Industry must recognize an increasing responsibility to support basic or fundamental research in our universities.'

"This must be done. To the extent that it is not done, it is quite probable that the Government will feel it necessary to fill the gap through its own activities, and to call upon the taxpayer to support, through government action, basic research carried on by outside agencies under the auspices of the Government.

"This can create a serious problem: in thus undertaking basic research it is quite possible for the Government to gradually encroach upon the field of applied or developmental research and so enter into the sphere which has been, and should continue to be, the responsibility of private enterprise." Foreword by Howard E. Blood in *Trends in Industrial Research and Patent Practices,* a survey of the general patterns in research activities and patent policies within different types of industry, National Association of Manufacturers (1948).

[8] See Ewing, "Government-Owned Patents," *Journal of the Patent Office Society* 10 (1928), p. 149; Wille, "Government Ownership of Patents," *Ibid* 25 (1943), p. 729. But cf. Forman, *Patents—Their Ownership and Administration by the United States Government,* Central Book Company, 1957. Cohen, "The Constitution and Enforcement of Government Owned Patent Rights," *PTC J. Res. & Ed.,* Vol. 5, No. 3 (Fall 1961).

[9] The utilization of government owned patented inventions is believed to be quite low. The Thomas Alva Edison Fellow in The Patent, Trademark, and Copyright Foundation is presently engaged in a study of the use of government owned patents and the economic implications of such use. Very few exclusive licenses have been issued by the government. The government has never brought an action for infringement of a government owned patent. Generally patents acquired by the government are licensed on a royalty-free non-exclusive basis. The principal reasons found in the literature for government patenting are to protect the government from the claims of others and avoid concentration of economic power. Saragovitz, "Procurement of Patents by Government Agencies," *Journal of The Patent Office Society* 37 (1955) 677; Riesenfeld, "Patent Protection and Atomic Energy," *Atomic Energy Law Rep.* (1959) p. 818; Cohen, *op. cit.,* p. 261.

[10] The Supreme Court of the United States in a statement in *U. S. v. Dubilier Condenser Corporation,* 289 U. S. 178 (1933) which was later removed from the official report on motion of the Solicitor General, pungently remarked that "no public policy requires us to deprive the inventor of his exclusive rights as regards the general public and to lodge them in a dead hand incapable of turning the patent to account for the benefit of the public."

[11] The first example of the decisive power of technology in warfare in relatively modern times is the Russo-Japanese War, 1904-05. In this war the world was given a clear-cut demonstration of the technological diligence that would thereafter be necessary by governments in preparation for national defense—and even more so for war. Previously, protracted international tensions developed in Europe the preparation for defense into a fine art of fairly balanced forces: each side exercising vigilance to prevent the development of

the cold war have resulted in a phenomenal increase in expenditures devoted to R&D.[12] The startling fact, however, is that no matter what sector of our economy spends the money on R&D today—government, industry, the university—the major portion of it comes from the Federal government.[13] Thus, in the guise of expenditure for the national security, the fountainhead of individual enterprise, the delicate mechanism or creativity, R&D, has been blown up to enormous (though perhaps less inventively productive)[14] proportions, and control and direction of this

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an unequal technological relationship. The Japanese had not developed nor understood this "clubby" relationship. In the words of Count Leo Tolstoy, "Japan has conquered not because the Russians are weak but because Japan is at the present time perhaps the most powerful state in the world, both on land and on sea; and this is so, first, because all those technical scientific improvements which once gave predominance in strife to Christian nations over un-Christian have been assimilated by the Japanese—owing to their practical capacities and the importance they attach to the military art—much more successfully than by the Christian nations." *The Great Events by Famous Historians,* The National Alumni, Vol. XX (1919) p. 118.

[12] "The vital importance of research and development to our economic growth and to the international balance-of-power struggle has expressed itself in an ever-pressing demand for scientific innovation. Translated into annual expenditures for research and development, this has meant a skyrocketing increase from around $100 million in the early 1920's to more than $12 billion in fiscal year 1959-60. The National Science Foundation has estimated R&D expenditures for 1960-61 at $13.5 billion, a percentage increase of 160 over a 8-year period beginning in 1953-54. The percentage change in R&D expenditures in relation to gross national product has also shown sharp increases. In 1940, total R&D expenditures were about one-half of 1 per cent of the gross national product. In 1959, they had increased to an estimated 2½ per cent of the gross national product." Simon Marcson, "Data on Research and Development for Selected Companies," Appendix A, *Proceedings of a Conference on Academic and Industrial Basic Research,* Princeton University, sponsored by the National Science Foundation, NSF 61-39, p. 79.

[13] "In 1959, of all the research and development performed in the United States, almost 70 per cent was paid for by the U. S. Government." Testimony of Senator Long based on *U. S. News & World Report* (April 3, 1961) p. 26. "This percentage figure tells only part of the story, for in certain industries the Government pays for the major part of the research performed." *Government Patent Policy,* Hearings before the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, U. S. Senate, 87th Cong., 1st Sess., pursuant to S. Res. 55 on S. 1084 and S. 1176 (1961) p. 6.

See also Simon Marcson, *op. cit. supra,* note 12, p. 79; and testimony of Mrs. Kathryn Arnow, National Science Foundation "Sources of R&D Funds in U. S. 1959-60," *op. cit., supra, Government Patent Policy,* pp. 18-28.

[14] Among the findings of fact of general significance reported by Messrs. Watson, Bright, and Burns in a study of "Federal Patent Policies in Contracts for Research and Development" in the *PTC J. Res. & Ed.,* Vol. 4, No. 4, 377:

"1. In the period 1946-1959, the federal government spent $37 billion on research and development, out of a total of $70 billion. Hence, the federal government paid for a little more than one half of all R&D. In the same period, patents were issued on 527,000 inventions. Of these, only about 32,000, or 6 per cent, originated in federal R&D, contract and otherwise.

"2. The rate of commercial utilization of privately owned patented inventions originating under federally financed R&D contracts is about 13 per cent. In contrast, privately

instrument—so sensitive to its environment—is passing largely into the hands of the bureaucrat.[15]

During the period when this R&D was performed for the most part under the free enterprise system, America steadily advanced [16] to its present

developed and privately owned assigned patented inventions are utilized at a rate of between 55 and 65 per cent."

Also see the Preliminary Report of The Patent, Trademark, and Copyright Subcommittee of the Committee on the Judiciary, U.S. Senate, *Patent Practices of the Department of Defense,* concerning use of patents by contractors and grantees, pp. 33-38; Donald Stevenson Watson, "New Information on the Operation of the License Policy in Federal Contracts for Research and Development," *PTC J. Res & Ed.,* this *Journal* issue.

[15] "Since the U. S. Government finances over 65 per cent of all research and development performed by industry and since a large part of Government-financed research is devoted to pushing forward the frontiers of knowledge, it can be seen that government activities in this field have an exceedingly important and direct impact on the growth of our economy, its market structure, and our defense effort.

"Government research and development, in addition to their effect on the growth of our economy, have an equally profound effect on the structure of our economy. The channeling of research and development funds into an industry can insure its expansion and prosperity; the withholding of such funds can stifle or retard its growth.

"Similarly, the awarding of research contracts to particular corporations, especially in trailblazing developments, confers incalculable advantages in know-how which generally presages the growth, domination, or competitive superiority in these or related fields." Testimony of Senator Long, *op. cit., supra,* note 13, p. 7.

The association between government and industry can be an influence for progress, but this requires constant vigilance to assure that our system is strengthened and the great traditions of our democratic society advanced. We have found that our institutions, organizations, and individual citizens flourish best when they are at liberty to seek their own goals. It may be that the association between industry and government must continue indefinitely. If so, it will require deep understanding on the part of government officials as well as on the part of the industrial community. There are important questions that the new association raises. Is it wise for a company to enlarge its facilities to meet government contracts and at the same time move from its customary policy of developing the umbrella of protection for the commercial exploitation of new products that the law affords it now? Are the R&D contracts of government adequately reliable with respect to duration and magnitude to justify devoting the increasing amount of activity demanded by expanding government programs? Can industry afford government R&D contracts that require these changes and the heavy demands for consultants' time and energies too? Will all these government R&D contracts not disturb the effective balance among industries? Will it not become increasingly difficult for other than government oriented industries to prosper, or even survive? Happily, there have been many cases in which government and industry have had a common interest, but it would be unrealistic to believe that the government has been giving R&D contracts to industry primarily to assist industry.

[16] "Well, new industry has sprung continuously from very small and humble beginnings of small business. It still does. The aluminum industry is based on an invention of a graduate student, I believe, who had a patent on how to make aluminum from a very common ore. Vulcanized rubber, which has made the automotive industry what it is, instead of automobiles riding on steel wheels, like railroad trains, has come about through the patent situation. Radio industrial growth is, in large measure, based on patents. The television industry went far through inventions prior to the war to bring about a rather complete knowledge of video circuits and things which were applied during the war to radar.

position of technological primacy. Other countries may excel in certain branches of technology,[17] but in none has the scope of development been so broad and in none has it been applied so comprehensively to the well being of the ordinary people. There is no question that for the first time in our history we are in a mortal technologically oriented struggle with a foreign power. The challenge is far beyond anything we have experienced in industrial competition with England or any other of the industrially advanced nations of Europe.[18] . . . and science and invention have a direct import on every phase of this new competition. There is also no

"This country would have been in vastly worse shape in its attacks against submarines, and England in its defense against bombers, if it were not for technology created by private industry on the expectation of return from patents on television prior to the war.

"Electronic digital computers, which are necessary for control of nearly all activities that go on in this country now, including space flights, in large measure got their start from two inventors, John Machley and Pres Echert, who started a very small business about 15 years ago, with the incentive of retention of all commercial patent rights.

"New technology really feeds on old inventions. The rate at which the airplane industry progressed was dependent upon having an aluminum industry earlier built up. Similarly, the rate at which this country can progress in any new field now, take it as space or other fields not now foreseen, is dependent in large measure on the rate at which other technology can be applied to these new fields. And that, in turn, will be increased enormously if the incentive is restored to the individuals responsible for bringing about the technological improvements.

"These new industries, of course, have supplied economic employment for the country in ever increasing scale. The country seems to need a new large industry every 10 years to keep its economy healthy. These new industries will usually arise from a small business that has some incentive for carrying these ideas forth. Our patent system has provided a necessary economic ingredient for that, and I think the whole system is in great jeopardy as to at least half of the inventors in the country, if there is not private retention of inventions, because the other half will find it necessary to adopt regulations comparable to the first half, which will remove nearly all incentive." Testimony of David E. Sunstein, President of General Atronics Corp., *op. cit., supra,* note 13, pp. 427-428.

[17] "Let us compare for a moment the state of science and technological advancement in the Western World including Japan, with the Iron Curtain countries. No one would argue that the science and technology in the Iron Curtain countries was not built on the shoulders of Western achievements. In a few narrow fields, those primarily with military implications, the state of the art in the Communist countries has advanced beyond the Western countries. The history has been that in the Iron Curtain countries [sic] have bought, borrowed, and stolen the technological developments of the Western World, and have perfected them in some few areas of military value somewhat beyond our present capabilities. In the field of space technology, the groundwork for Russia's capability in space was initially built by German scientists who were forcibly removed from their home countries after World War II; they were enslaved in the service of the Soviets." Testimony of H. M. Horner, chairman of the board of United Aircraft Corp., *op. cit., supra,* note 13, p. 242.

[18] "Today this enormous and complex economy stands challenged as never before. It is challenged by a Soviet economy forced to run by the State's repression of the people. It is challenged by the productive growing capacities of the European Common Market. Even if there were no external challenges, it would still have to meet the needs of a population expanding in numbers and needs." "Laws Against Growth" in "Review and Outlook," *The Wall Street Journal,* (Jan. 8, 1962) p. 18.

question that our technological primacy has been accomplished [19] during the existence of our patent system.[20] It seems somewhat curious, therefore, that the patent system is being subjected to such a vigorous attack at home [21] at the same time that we are engaged in a most desperate technological struggle with a foreign power. It seems curious that some people are so anxious to advise and support radical and untried [22] changes in the patent system under which our industries have flourished and under which we have achieved a higher standard of living than any other nation in the

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[19] See note 16.

[20] Article 1, Section 8, Clause 8 of the Constitution vests in the Congress authority to enact patent laws. The first Patent Act was passed by the Congress in 1790 and patent laws enacted by Congress have been in effect since that time.

[21] "I have challenged industrial representatives to submit to me the first example of any consequence or significance where some major development has not been developed because the researcher was not able to get a patent monopoly on the product.

"And I have yet to have one submitted.

"Now it is contended that perhaps the fact that none have been submitted and that no examples are known might not prove the point. But if there had been some processes developed in which a monopoly would have guaranteed the development of the product, I would suggest that the people who have a vested interest in maintaining private patents on public research would be those in the best position to know. In many instances either they or their competitors have had contracts to develop products on which they would have liked to have had patents but were not able to obtain them.

"It has been claimed by some private interest groups that this bill would destroy or impair the present patent system, and in some indefinable way would deprive industry of some constitutional right. To that, I make the following answer:

"1. There is no constitutional right in any individual or corporation to receive or hold patent rights. The Constitution gives to the Congress the power to adopt, revise, or abandon patent systems. The truth is that this legislative act (S. 1176) is a more direct attempt than even the present patent statute to carry out the constitutional mandate to promote the progress of science and useful arts." Testimony of Senator Long, *op. cit., supra,* note 13, p. 10. See also Admiral Rickover's testimony in the Hearing before the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, U. S. Senate, 87th Cong., 1st Sess. (June 2, 1961); Douglass Cater, "Is Our Patent Law Out of Date?" *The Reporter* (Jan. 18, 1961) pp. 36-37; Daniel Hamberg, "Our Antiquated Patent System," *Challenge* (January 1962) pp. 24-27.

[22] See S. 1552 introduced by Senator Kefauver ("Drug Bill"); S. 1176 introduced by Senator Long ("Federal Inventions Administration Bill") 87th Cong.

"At one extreme, we have the suggestion that the patent system be abolished altogether in order to maximize the applications of all inventions. . . .

"To meet these objections [to abolishing the patent system] but at the same time to make knowledge free so as to maximize its use, it has been suggested that the patent system be abolished and replaced by a system of awards from the public treasury. . . .

"Probably the least radical (but not necessarily the best) suggestion for accommodating the patent system to the modern era is that the government retain title to all patent rights arising out of government-sponsored research." Daniel Hamberg, *op. cit., supra,* note 21, pp. 24-27; also see Studies of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, U. S. Senate, No. 1, Bush, "Proposals for Improving the Patent System" (1956), No. 11, Melman, "The Impact of the Patent System on Research" (1958).

world. . . . and some of these changes [23] and proposed changes [24] are in the same direction as the R&D trend: toward more government expendi-

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[23] See Atomic Energy Act of 1954, Sections 151 to 160; National Aeronautics and Space Administration Act of 1958, Section 305, entitled "Property Rights in Inventions"; Research and Marketing Act of 1946, Sec. 10(a) and 205(a) (1946), 7 USC:Secs. 427, 427i, and 1624 (1958); Federal Aviation Agency Order 56, Nov. 1, 1960; Coal Production and Conservation Act of 1960, Secs. 2 and 6; Helium Act Amendments of 1960, Secs. 3 and 4; Section IX of the Armed Services Procurement Regulation, revision of January 31, 1961, and subsequent revisions of the Defense Department's licensing policy with respect to communications satellite programs (change in Sec. 9-107.2 (b) or ASPR).

"Last month the Post Office changed its patent rules. They are now saying, 'we will take all patent rights.'

"I think this is a tragic mistake. They will not get rights to as many patents as before. Contractors will tend to develop ideas with their own money, protect it with private patents, and then go to the Post Office and say, 'we have a ready made product for you.' This means that the Post Office may be getting the benefit of such work 6 months to a year later than now.

"We have to do this in self-defense, and there is nothing wrong with it. If I know an agency will take all rights, I would rather protect the rights first." J. Rabinow, President, Rabinow Engineering Company, testimony, *op. cit., supra,* note 13, p. 492.

[24] "The first provision is that the U. S. Government should acquire title and full right of use and disposition of scientific and technical information obtained and inventions made at its direction and at its expense, subject to waiver of Government title when the equities of the situation so require. . . .

". . . The second provision calls for the establishment of a Federal Inventions Administration, which would administer all Government-owned patents and make necessary determinations of the act. It would be affirmatively charged with the duty of protecting the public interest in scientific and technological developments achieved through the activities of departments and agencies of the U. S. Government and would be charged with the dissemination of knowledge so developed. It will undertake a program of utilization (take inventions off the shelf) as a means of widening the uses of Government-owned patents, discoveries, and new scientific and technical knowledge." Senator Long's testimony, *op. cit., supra,* note 13, p. 8.

"On the other hand, three aspects of the argument advanced in support of a Government ownership policy are cause for great concern:

"1. Some of its proponents have also advocated complete abolition of the patent system.

"2. Inasmuch as the Government already finances more than half of all research and development, adoption of a Government ownership patent policy almost certainly would mean eventual Government ownership of the rights to commercial development of the major technological 'breakthroughs' of the future.

"3. That—point No. 2 that I just mentioned—could only lead to two things—an enormous expansion of Government competition with privately owned enterprises, and socialization of what may become basic industries of the future.

"Stated another way, a very probable consequence of adoption of a Government ownership patent policy would be a concentration, in Government, of economic resources and monopoly control far exceeding any conceivable accumulation of power under a policy permitting only the reservation of licenses for governmental use." Testimony of Carl E. Barnes, Vice-President, Research, Minnesota Mining & Manufacturing Co., *ibid.,* p. 257.

"Until the Atomic Energy Act was adopted on Aug. 1, 1946, the practices of all but one of the Government departments was to leave, with the Government contractor as a general rule the title to any inventions made in the performance of Government contracts. In research and development contracts, and in these types of contract only, the Government

ture and control. It is important for citizens and organizations to be made aware of this trend,[25] it is important to shake public indifference or indulgence before this development proceeds too far and our prerogatives are forfeit to a crystallized and irreversible change.[26]

Lest it be thought this caution involves narrow partisan considerations, the reader is referred to the writings of the founding fathers. [26a] They adopted a system of separation of powers to protect against the assumption of dictatorial power by individuals and enacted the Bill of Rights against arbitrary action by the government. Although they identified the government with people like themselves—this identification eventually expanded into an identification with all the people, occasioning Lincoln's famous reference to government being "of the people, by the people, and for the people"—pride in and respect for the government they had devised were tempered by an awareness of the danger implicit in the well-meaning but overzealous—or perhaps the power hungry—individuals who might transform that government into a burden, or even an instrument of actual oppression. It is perhaps regrettable that it is necessary to observe this

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received a royalty-free, nontransferable, nonexclusive license to use such inventions for governmental purposes only." Footnote 8 to statement of Paul F. Hannah, Vice-President and General Counsel, Raytheon Co., *ibid.*, p. 261.

[25] "The thrust can be seen in terms of money, for one thing. Not merely the broad upward sweep of Federal spending in general, but more specifically in relation to lower levels of government. Consider this revealing statement in one of the budget's special analyses: 'In 10 years, total aid to state and local governments will have more than tripled, rising from $2.9 billion in 1953 to an estimated $9.9 billion in 1963.'"

"The thrust can be seen in the new farm program, which proposes a much tighter regimentation of agricultural life than anything known before. It can be seen in the welfare recommendations which, whatever the merits of some of them, foresee a new expansion of Federal authority. It can be seen in the effort toward central management of cities. It can be seen in the educational proposals which, despite official denials, plainly etch the outline of Federal control.

"There can be no question at all, then, about the direction. We are perfectly aware that many Americans either welcome or are apathetic about the trend. But many others, conceivably even a majority, are worried about a centralization of power so plainly at variance with Constitutional principles and hence so full of foreboding for the future of free institutions." "Who's Responsible?" an editorial in "Review and Outlook," *The Wall Street Journal* (Feb. 12, 1962).

[26] "The drift toward collectivization—decried as slavery when engineered by the Kremlin —is at an accelerating pace in the United States. And, astonishingly enough, this goes on without the aid of the customary socialistic rationalizations! Is socialism advancing under some new force? Probably not. It is more than likely that the socialistic excuses used in the past were nothing but catchy phrases, never reasons, and that most of us have been naively distracted by straw men while socialism has mushroomed unmolested.

"The end of this road, be it municipal or federal, is omnipotent government which becomes harder to live with, more difficult to squelch, with each passing day." "Socialized Sugar," *Notes from FEE,* The Foundation for Economic Education, Inc., New York (January 1962).

[26a] See Jefferson, *Life and Selected Writings,* Modern Library ed., 1944.

type of dichotomy between the citizenry and government, but to take dispassionate soundings and correct, if need be, an instrument that absorbs so much of our thoughts and sparks so many of our actions, it is essential to view it somewhat apart. This type of vigilant, constant "self" examination is the effort we must make—nay, the duty we owe to those who entrusted us with its custody—to assure that the essential values of our precious heritage will continue undiminished.

In a complex democratic society, relationships and operations must be organized to serve a large and variegated public. In working out the individual's needs for fulfillment, to contribute to progress, through the medium of invention inevitable conflicts of interest result. The achievement of adjustments—so that fairness, efficiency and peace can be accomplished—is the role of the patent system . . . or, indeed, of any system of law in society. There is a danger that as government controls and directs more and more of the R&D in this nation that a permissive institution such as the American Patent System will no longer be able to provide an acceptable market responsive formula, a flexible non-state-directed instrument that will carry the drive of ideas into the market place to compete according to their true merit and their actual vigor.[27] Unfortunately, a system that controls and imprisons ideas primarily for the benefit of the state or by those who run the state (which amounts to the same thing), tends to stifle the creative drive. Understanding [28] superficially this need for free expression of its members' ideas, the Communists have distorted [29]

[27] "One of the proposed bills, S. 1176, would establish a system of awards for certain inventive contributions to the United States. The inclusion of this device is a recognition that some sort of incentive to invention is essential. But in place of the traditional American incentive contained in the opportunity to exploit a patent, it would substitute a system of monetary awards to be granted by the Government somewhat similar to the Russian Practice. The rewards given to Russian inventors are material rewards in the form of medals, prizes, cash, better livings quarters, etc., contributed by the state. These rewards, in and of themselves, benefit only the inventor and do not improve the economy of the country. The rewards offered to U. S. inventors by the patent system are entirely different. The limited monopoly afforded by the patent enables the inventor to put the patented product on the competitive commercial market. This does not require the use of Government funds, as in the case of the Russian system. The amount of the reward in this country is measured by the usefulness of the invention to those who enjoy its benefits. In short, it is a basic difference between the Communist dictator state and the American free enterprise system." H. M. Horner, *op. cit., supra,* note 17.

[28] "It will be apparent to the reader, however, that Soviet leaders recognize the importance of providing 'capitalistic' stimuli that appeal to self-interest—of using such stimuli as alternatives to, or as supplements of, political and social pressure." Clesner, "The Coordinated Soviet Effort to Promote and Apply Major Inventions," *PTC J. Res. & Ed.,* Vol. 4, No. 3, p. 213

[29] "There results, in effect, a complete State monopoly of practically all inventions and, in virtue of the law as a whole, government control over substantially all inventive activities in the Soviet Union." "Soviet Law on Inventions and Patents," *Journal of the Patent Office Society,* Vol. 43, No. 1, p. 10.

the system for the protection of industrial property, which they adopted from others.[30] Now the disparate elements of a patent system neither fit [31] into their scheme of things nor satisfy [32] the enduring needs of a people.

Here lies the danger: an aggressive "society" [33] such as the Communists are, is particularly responsive to the compulsive drives of its leaders; there is little need for the sublimation of the domineering instincts. They possess none of our inherent restraints. The possibility of achieving similar power for our national defense by similar means—government direction and government edict—may come to be accepted, despite our innate abhorrence of authoritarian practices, as the best way to prepare against the Communist threat, and by an irrational fusion of thought we mistake the salvation of a shadow for the preservation of a healthy, independent and traditional form of democracy. If the present trend toward government control is not soon reversed, if this trend is not vigorously challenged, now, the differences between our systems may lose sharp definition and the enemy accomplish his purpose by gradually transforming us—without too much opposition—into his mirror image.[34]

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[30] "The [Russian Patent] law of 1896 continued in force until after the First World War. In 1919 the new regime confiscated or nationalized all patents, and there was no patent law in effect for a time. In 1924, when some private enterprise was still contemplated, a new patent law was enacted. This law was patterned substantially along the lines of the German patent law, although differing in some details." *Ibid.*, p. 11.

[31] See Agranovski, "Secrets of the [Russian] Patent Library." *PTC J. Res. & Ed.*, Vol. 5, No. 3, pp. 273-279.

[32] "It was not until 1931 that a law was passed providing for the peculiar feature which characterizes the Soviet system relating to inventions, the 'authors' certificate' as a substitute for a patent. The existing patent provisions were substantially retained and, in effect, a dual system of protecting inventions thereafter existed in the law.

"The satute states that the inventor may, at his discretion, request either an author's certificate or a patent, except as to certain subject matter. While this option is broadly stated, conditions are such that ordinarily there is not much choice and Soviety inventors practically always obtain certificates of authorship." *Op. cit., supra,* note 29, pp. 11, 9.

[33] By "society" here is meant primarily all the leaders and subleaders from Khruschchev down to the least important commissar. It includes the ordinary people, but these are for the most part the pawns of the commissars. In the words of Baron Taylor of Harlow (*New York Times Magazine,* Jan. 7, 1962, p. 75) ". . . the fate of the individual, however, distressing, counts for little. Our concern for individual liberty must be as strange to them as their unconcern is to us."

[34] "It is one thing if industry is willingly selling its creativity without collecting anything for it, even if the Government is acquiring ownership of that creativity. If, however, as is the fact, particularly with small contractors, industry is compelled to accept whatever terms the Government may impose, the result, in an economic even if not in a legal sense, is confiscation.

"The leverage of the Government as a purchaser of goods and services, particularly from the electronics industry, is so great, and industry today, particularly the electronics industry and its large segment of small business, is so dependent upon the Government as a customer that the Government can, except in dealing with the strongest and largest of companies with the greatest civilian business, dictate the terms of purchase. Were any

The U. S. patent system may be more complex and, perhaps, entail more effort and consume more time in its utilization than its Soviet counterpart. Perhaps, it may also add some additional cost to new products. But is this not a small price to pay for freedom,[85] for the right to choose—and for the constructive satisfaction of our deepest needs? In view of the positive advantages that can be attributed to the American Patent System, this observation should not be construed as an apology. Indeed, the System offers scope and opportunities for our competitive way of life [86] in the economic realm and for accompanying continued advancement of our well being. *Patents, Research and Management* is one response to the growing awareness of the need for a coordinated attack on the problems of public ignorance and, hence, indifference to the purposes,

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private company to possess the bargaining power of the Government, it would be a source of great concern to the Antitrust Division of the Justice Department.

"The Congress and this subcommittee must appreciate that there is no equality of bargaining with the Government. It must also appreciate that even if a contractor is large enough to refuse to accept defense or space research on what it regards to be inequitable terms, it may incur the wrath and may be castigated in public by Government officials or members of the legislative body." Paul F. Hannah, *op. cit., supra,* note 24, pp. 264-265.

"About 1,900 municipalities have socialized power and light. There may be as many as 700 communities where water and sewerage services are still privately supplied; in all the rest—thousands of towns and cities—these services are socialized. Cities are now operating hotels, growing wheat, producing fertilizer, marketing milk, producing asphalt and cement, operating parking lots, and even running cocktail bars!" *Notes from FEE, op. cit., supra,* note 26.

[85] A great deal has been written on the subject of freedom throughout the ages. See the recently published second volume of Mortimer J. Adler's *The Idea of Freedom,* Doubleday and Company, (1961), particularly his definition and discussion of "self realization," "self perfection," "self determination," and "political liberty."

"Instead of being the natural condition of man and society, freedom is something that a few men in a few places have achieved through effort, dedication, self-discipline and social ingenuity. Freedom is the exception in history, not the rule; it is what men seek rather than what they have.

"But they seek it nonetheless, and therein lies the hope for humanity. The instinct for self-fulfillment through free choice is obviously rooted deep in the human condition. It grows in vigor as education and economic growth and political responsibility liberate man from the chains into which most men are stillborn.

"Freedom is not only hard to get; it is hard to keep. The preservation of freedom requires the fashioning of institutions strong enough to preserve continuity, flexible enough to acknowledge change, resilient enough to transmit vitality and challenging enough to stimulate creativity. It requires, in short, a varied and subtle social discipline.

"But it also requires self-discipline—because freedom emancipates man from external authority and thereby concentrates the obligation of responsibility on his own mind and his own conscience. 'Liberty means responsibility,' said Bernard Shaw. 'That is why most men dread it.'" Arthur Schlesinger, Jr., "No Back-of-the-Book Solutions in Freedom," *The Washington Post* (Jan. 21, 1962) p. E1.

[86] See Harris and Siegel, "Positive Competition and the Patent System," *PTC J. Res. and Ed.* Vol. 3 No. 1 (Spring 1959); Harris and Siegel, "Evolving Court Opinion on Patent Licensing: An Interaction of Positive Competition and the Law" *PTC J. Res. and Ed.* Vol. 5, No. 2 (Summer 1961).

problems, procedures, and accomplishments [87] under our industrial property system.

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[87] "Patents are an important and valuable protection to the electronics industry. For some companies, especially the smaller and newer ones, a sound patent may be the asset which gives them a chance to develop new or larger business ahead of their competition—or time within which to recover their costs of invention, startup tooling, production and marketing—or the inducement to private or public financiers which enables the sale of equity stocks or the borrowing of necessary capital on reasonable terms. To others, a sound patent position means that they can seek out cross-licensing arrangements with other companies, thus obtaining the use of the knowledge and patents obtained by other scientists than their own while making their own achievements available to use by others. To still others, a sound patent position is a defense against attack by other larger or more economically powerful competitors which, if given the free use of the smaller concern's discoveries, could soon put it out of business by superior production or marketing skills. . . .

"The wage scales of our industry are far above foreign wage scales; we can be undersold at home and abroad. If our foreign competition has patents, and we have not, we can be excluded from our own market as well as the foreign market. Our industry needs the full patent strength it can muster with which to compete against the patent strength of foreign concerns both at home and abroad and within which to obtain the use and knowledge of foreign achievements by cross licensing, purchase or other techniques. This is of the utmost importance to the electronics industry." Paul F. Hannah, *op. cit., supra,* note 13, pp. 261-262.

"The costs and risks involved in making new developments and carrying them through to commercialization and then launching the new products and processes are very substantial. If the processes and products can be immediately copied by competitors who have not experienced the heavy costs of technical development and market creation, this produces such unfair and unequal competition that the originator of the new concept is certain to lose. Under these circumstances the rate of introduction of innovations would be much reduced. Patents constitute a means of affording limited protection which inherently contains two safeguards of the public interest: (1) The period of exclusivity is limited; (2) the protection is given only in exchange for adequate disclosure in such form that on the expiration of patent period the invention can be practiced by others. The result of the existence of this limited protection has been the simultaneous rapid development of the patent system and the introduction of new products and processes into industrial and commercial practice with consequent benefits to the public in the form of a wider variety of constantly improving products. . . ." Statement of Helge Holst, Treasurer, Arthur D. Little, Inc., *op. cit., supra,* note 13, p. 348.

"Now I have spoken on the one hand of big companies that are not creative and which do not care about patents, but rather wish they would go away and keep quiet, and on the other hand about big companies whose core of growth depends on the scientific openness that derives from well-administered patents. What then of small companies and of new companies? The answer, I think, is quite simple. It is impossible for a new company involving a major advance in science or technology—first, to be properly financed; second, to go through the extremely difficult periods of study, invention, development, engineering, and production; third, to afford to advertise and to afford to distribute—all this is impossible—without protection by patents. There is much good talk about the role of small business, and it is deeply puzzling to me to see that some of the people who speak sincerely, lovingly, and defensively of the protection of small business, are the ones archaically thinking of patents as a 'militaristic device for the aggrandizement of the interests of big business.' Our people and our legislators must be taught that if young men are to come from our scientific and engineering schools and establish new small companies based on their brilliant insights into the thousands of new opportunities provided by the

Patents, Research and Management

This book appears to have a number of purposes. One is the presentation of knowledge about the patent system by a group of active practitioners. The information, originally intended for a lay audience, merits evaluation as a beginner's course in patent law. Each paper is part of a logical plan: the subject matter discussed in each derives from the preceeding paper. This arrangement is enhanced by a brief chapter introduction. Difficult subjects are pursued by more than one practitioner, affording the benefits of several points of view.

Implicit in this undertaking is the recognition of opportunities for other dedicated members of the patent profession. This book is the consequence of a call from The Engineers' Club of Philadelphia to the Philadelphia Patent Law Association for enlightenment on the "whys and wherefores involved in protecting the advances in technology which pour forth from our industrial, university, and government laboratories each year." For ten consecutive weeks in the fall of 1960, the practitioners who responded to the call presented lectures on carefully prepared papers at The Engineers' Club. After each lecture nascent student views were subjected to the self-correcting function of question and answer periods. These lively and informative discussions are included in the book.

The Philadelphia Patent Law Association and The Engineers' Club of Philadelphia sponsored this course for engineers and executives under the leadership of Joseph Gray Jackson, Joseph Rossman, Virgil E. Woodcock, and Howard I. Forman. Dr. Forman directed the course and edited the

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opening of scientific frontiers, the ideas of these young men must be protected by patents." Dr. Edwin Land, founder of Polaroid Corp., *op. cit., supra,* note 13, p. 470.

"As for your questions, Does a small company benefit by the patent procedures followed now, as against the large companies– I can tell you from my experience, we could not exist, Senator, without a patent system. A company like mine couldn't compete with the giants.

"Let me tell you about some experience I had with a Government license. I invented the magnetic fluid clutch. It now boasts some 300 secondary patents issued to other people. First the Government wanted all rights, but then it found that it had no way of protecting the patents in foreign countries, it had no money to spend in foreign countries. So, the foreign rights were given to me. The American rights were free and public.

The result is that the clutch has been developed here rather slowly. Nobody is going to spend millions of dollars on something that the competitors can pick up. The clutch is used only in a few special devices, such as in a few computer gadgets and in a few very special custom-made machines. In connection with the European rights which were mine, my brother gave me some help. We obtained patents in 22 countries, some 40 patents in toto, I believe. We sold them to a company that eventually licensed Smith of England, and Smith administers the European rights. The clutch is now used in the Peugeot automobile and the Hillman car and in many devices. If you want to use one of the American clutches developed in the United States on Government money, and want to drive a car with that clutch, you have to buy a European car. The American rights just weren't exploited as intensely." Statement by J. Rabinow, *op. cit., supra,* note 13, pp. 492-493.

book. On November 5, 1960, the Patent Office, the Association, and the Club jointly sponsored a special trip to the Patent Office in Washington for those attending the course. The highlight of the trip was the opportunity given the participants actually to search certain sub-classes to solve previously prepared search problems.

BASIC CONCEPTS AND PRELIMINARY STEPS

In the introductory chapter, Mr. Virgil E. Woodcock takes notice of some of the basic elements of patent law and distinguishes other forms of intellectual property, such as trademarks and copyrights. He also refers to some of the vigorous recent argument concerning the patent system. Among other matters given explicit attention by Mr. Woodcock is the nature of patentable invention, including guidelines to determine patentability. The first chapter is ostensibly a broad, relatively brief orientation for the neophyte—no small challenge for a subject like patent law. It provides a general framework most pertinent to the chapters that follow.

Chapter 2 and Appendix B, written by Mr. Jackson, are invaluable practical manuals telling how to keep proper records, and explaining why in simple terms. An examination of this chapter discloses a comprehensive inventory of steps to be taken to protect the invention, "even before determining that it is patentable." The first section of the chapter deals with conception and its proof and is followed in four subsequent sections by a consideration of proof of operativeness, establishing novelty, searching, and actual and constructive reduction to practice. An exacting technical task has been accomplished by Mr. Jackson for the benefit of inventors and executives engaged in activities likely to lead to inventions.

The third chapter consists of a trilogy of papers on "determining patentability before considering application filing." At the third meeting of the course, those attending were divided into three groups according to their interests. Mr. John R. Ewbank addressed those primarily interested in mechanical inventions, Mr. Arthur H. Seidal those concerned with chemical inventions, and Mr. Philip G. Cooper those interested in electrical inventions. These separate undertakings have resulted in somewhat overlapping papers. The subdivision of the broad task into specialized units, however, accomplishes in a relatively small span a, perhaps, unexpected organization of the specialized information. The fortunate juxtaposition of chemical, mechanical and electrical illustrations also contributes to a more profound understanding of the range and complexity of the problems connected with the requisites for patentability. Mr. Ewbank cautions that "there has been so much publicity about the invalidation of patents that businessmen sometimes ignore the critical fact that patents are regularly

sustained as valid in litigation." He supports this statement with a list of cases reported in recent years involving mechanical patents found to be valid. Mr. Ewbank also calls attention to important consequences derived from the ownership of patents, other than the determination of validity.

THE PATENT APPLICATION

Chapter 4 assumes that it has been determined, on the basis of the rules and guidelines set forth in the preceding chapters, that the invention is patentable. This is the logical point to consider the preparation of a patent application and, very appropriately, Mr. John F. A. Earley's paper is devoted to the role of the inventor, the patent attorney, and the executive in preparing a patent application. He explains at the outset that he will examine the patent application to demonstrate how to (1) read it quickly and easily so that it can be made a useful tool in research and development, (2) fully disclose an invention to one's patent attorney, and (3) help the patent attorney protect one's invention. Mr. Earley emphasizes that a patent application is a combined technical and legal document and that, for certain purposes, it is more useful to read the component parts separately. He analyzes these parts, provides a check list for the inventor, and discusses problems in writing the specification. The last portion of the paper is an exposition on understanding claims. On the whole, Mr. Earley's effort must be regarded as an important contribution to the development of an appreciation by the inventor and executive of the complex legal and technical considerations involved in preparing a patent application.

Chapter 5 is an impressive job of getting together information on the "insuperable" bars to the granting of a patent. Dr. Joseph Rossman makes an exhaustive examination of the various factors that might affect an applicant or bar him from obtaining a patent in the United States. The subjects range from whether to patent an invention or keep it secret, to national security secrecy. Dr. Rossman explores numerous pertinent topics such as time as the essence of filing; originality and novelty; public policy behind the fourteen "statutory bars" in Sec. 102 U.S.C.; the date of an invention; "swearing back"; prior publication, sale, knowledge or use; prior art anticipation; abandonment; and benefit of foreign filing date. This chapter is highly recommended for budding patent attorneys.

Mr. Zachary T. Wobensmith directs attention to the proceedings in the Patent Office, in Chapter 6. His paper is devoted to a "consideration of the procedure followed by the Patent Office and the applicant, through his attorney, in connection with the application for patent, and a brief survey of priority contests in the Patent Office between rival inventors." He first discusses the statutory foundation of the examining process and

then explains the actions of the Patent Office Examiner and the actions of the applicant in response. The major sections of Mr. Wobensmith's paper are entitled: Rejections, Amendments, Divisional Applications, Continuation-in-Part, Interviews and Demonstrations, Appeals in Ex Parte Cases, Interferences. The give-and-take with respect to cases in the Patent Office evolves as a compatible and functional procedure. The layman should have no trouble in understanding the clear and simple explanations of Mr. Wobensmith.

THE PATENT IS GRANTED

Chapter 7 includes papers by Mr. Robert B. Frailey and Dr. Worth Wade, who are concerned with "things to do after the patent is obtained." Mr. Frailey's paper considers errors or defects in the patent as issued which should be corrected, patent marking, and the tax treatment of patents. He also takes up the question of dominating patents and arrangements that can be made to deal with domination. Dr. Wade concludes the chapter with a paper providing practical instruction and forms on how to bring a patented product on the market. He describes how to make a product audit, how to get the facts about the new product, and some of the business and legal aspects of selling a patentable product. Both papers stress the practical approach as tested by actual experience. Though brief, they comprise a useful handbook for inventors and executives.

If the inventor does not make or sell the patented invention himself, and he is interested in commercializing it, he should refer to Chapter 8 by Mr. Dexter N. Shaw and Mr. Charles M. Allen. The nature and legal affects of and difference between assignments and licenses are there discussed. Also included is a relatively brief discussion of misuse of patents and foreign patent licensing. The student would be well advised to learn about the subjects included in this chapter. It is essential for a patent practitioner to know how to draw an assignment or license agreement that meets high business and legal standards if he is adequately to protect the rights of his clients.

Although the percentage of patents litigated is relatively small, the "real test is in a suit for infringement." The infringement of patents is discussed by Mr. Charles M. Allen in Chapter 9. He reviews the tests of infringement, the doctrine of equivalents, the questions of repair and reconstruction, and the seller's warranty. It is important for management and the inventor to be aware of the constructive possibilities for upholding property rights in the courts. Although it is not desirable to encourage management or the inventor to burden the court with trivial litigation, it is essential for them to be informed, lest their rights go by default through a lack of understanding.

PROTECTION OF INVENTION BY OTHER MEANS

". . . to patent or not to patent often is the question, but if one wants to sell his invention what other protection is there?" This introduction to Chapter 10 artfully conveys the purpose of the paper. The preceding papers mostly were concerned with the various aspects of patent protection. At this point, Dr. Howard I. Forman calls attention to the possibilities—advantages and disadvantages—of means other than patents available to an inventor or his assignee for the protection of an invention. He first examines in some detail the law and business practices involving trade secrets and disclosures by "outside" inventors. In the second section of his paper, he continues his discussion of trade secrets in context with other factors such as employer-employee relationships. The final section is devoted to an actual case history dealing with proprietary rights in research and development contracting. Dr. Forman also reproduces, in the Appendix, his paper originally published in *The Patent, Trademark, and Copyright Journal of Research and Education* entitled, "Government Patents and Patent Policies." Rounding off the previous discussions on patents with information on other types of protection, comes off conspicuously well. The complementary manner in which this chapter evolves does much to enrich the whole.

An abundant source of information, the Appendix must be given special attention. Reference has already been made to Mr. Jackson's "Records of Research" (Appendix B) and Dr. Forman's "Government Patent and Patent Policies" (Appendix C). Appendix A, a paper on "Searching Patent Office Records" by Mr. Francis J. Bouda and Mr. Carl W. Mortenson provides a handy manual for the new searcher. The authors of each chapter, in conjunction with Dr. Rossman, prepared the Selected Special Bibliography. Some of Dr. Rossman's comprehensive data on authorship of books and other writings on Industrial Property, well known and highly regarded, is incorporated in an annotated Selected General Bibliography. The novice also will obtain essential basic information from a Glossary contributed by Dr. Rossman. A Table of Cases and a Subject Index complete the book.

If the patent bar is properly to perform its function as the negotiator between the inventor, the executive, and society, represented by the law, the inventor and the executive must be taught to recognize patent property and the procedures and standards set up by law as a protection for the profitable use of this property. This book aspires, among other things, to mirror the functions performed by the participants in this process and to create more understanding. It provides one of the more effective channels of information on the patent system prepared by patent attorneys for the benefit of inventors, executives, students and laymen with a general interest in the system.

STUDENT PAPER

The Application of Section 7 of the Clayton Act to Patents, Copyrights, and Trademarks

LES J. WEINSTEIN *

SUMMARY

THIS PAPER PRESENTS THE VIEW that the prohibition against certain forms of "asset acquisitions" found in Section 7 of the Clayton Act (the anti-merger provision) may, in some circumstances, be applicable to the acquisition, by either assignment or license, of patent, copyright, and trademark rights. Since the Clayton Act prohibits incipient violations of the Sherman Act, this may result in a much more strict antitrust standard being applied in future intellectual property transactions than has been applied in the past.

INTRODUCTION

THE PASSAGE OF THE CELLER-KEFAUVER BILL,[1] in 1950, amended Section 7 of the Clayton Act and added a powerful new weapon to the antitrust arsenal. Section 7, as it was originally passed in 1914, was principally designed to stem the rising tide of corporate economic concentration and oligopoly that was being brought about through the rapidly increasing number of mergers which were accomplished via stock acquisitions.[2] In order to prevent evasion of the central purpose of the Clayton Act and close a number of "loopholes," the amendment expanded the prohibitions of the original Act to certain acquisitions by a corporation of the "whole or any part of the assets" of another corporation and thus

* This paper was submitted in fulfillment of the requirements for Research in Patent, Trademark, and Copyright Law, a special graduate course in The George Washington University Law School. Mr. Weinstein is a Trial Attorney, Antitrust Division, United States Department of Justice. The views expressed in this article are those of the author and are not necessarily those of the Department of Justice.

[1] Celler-Kefauver Antimerger Act, December 29, 1950, 64 Stat. 1125 (15 U.S.C. 18).

[2] See e.g. Senate Report No. 698, 63rd Cong., 2nd Session; H. R. Report No. 627, 63rd Cong., 2nd Session; H. R. Report No. 1191, 81st Cong., 1st Session, pp. 2-5.

went far beyond prohibiting mergers or their equivalents. A recent series of antitrust cases indicates that Section 7 covers "assets" in a very broad sense of the word and is no longer merely an antimerger provision. Assignments and licenses of patent, copyright, and trademark rights may be "assets" and subject to the interdictions imposed by the antitrust laws upon other forms of property. The indications are that the Clayton Act may be used to prevent certain types of patent, copyright, and trademark transaction which were previously governed by the less restrictive provisions of the Sherman Act.

Patents, copyrights, and trademarks, as well as other forms of "intellectual property," [8] hereinafter sometimes referred to as "IP," are an integral part of the matrix of a free enterprise system, and in some respects are considered to be quasi-monopolies which have been given a unique but limited exemption from the prohibitions of the antitrust laws; but like other forms of property, if they are used in a manner which transgresses basic antitrust policy and pushed to evil consequences, their use will be restrained.[4] Historically, the Sherman Act [5] has been the statute most often used to restrain and punish anticompetitive commercial conduct. Due to dissatisfaction with the inability of the Sherman Act to deal with specific practices which were but steps in achieving monopolistic ends, Congress, in 1914, passed the Clayton Act which was designed to outlaw specific practices which incipiently led to the ends expressly outlawed by the Sherman Act. The Clayton Act did not, however, subsequent to its passage, displace the Sherman Act as the principal means for attacking trade abuses carried out through the vehicle of IP, because it had only limited application to patents, copyrights, trademarks, etc.[6] As time progressed, the Sherman Act became the main and increasingly more popular tool for limiting the use of IP and reached its apogee within the last few years.[7]

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[8] The term "intellectual property" or "IP" as used herein will include patents, copyrights, and trademarks. It is generally also used to include trade names, service marks, trade secrets, proprietary data, knowhow, good will and other forms of commercial property having intangible form. Terms such as "industrial property" and "intangible property" are sometimes overlappingly used as a synonym for "intellectual property."

[4] See *Standard Sanitary Manufacturing Company* v. *United States,* 226 U.S. 20, 49 (1912).

[5] Sherman Antitrust Act (July 2, 1890, 26 Stat. 209, 15 U.S.C.A. §§ 1-7).

[6] Section 3 of the Clayton Act (15 U.S.C. 14) was expressly made applicable to patented commodities but only applied to exclusive dealing and tying arrangements. Section 2 dealt with price discrimination and Section 7, prior to amendment, dealt with corporate stock acquisitions.

[7] Sections 1 and 2 of the Sherman Act (15 U.S.C. 1-2) state:

> "Every contract, combination . . . or conspiracy in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal. . . .

By virtue of the 1950 amendment to the Clayton Act, it has now become possible to use a much stricter standard in measuring the legality of IP transactions than was formerly possible under the Sherman Act because the Clayton Act is now more directly applicable to IP and prohibits conduct which constitutes incipient violation of the Sherman Act.[8] Section 7, as amended, extended the prohibitions previously applicable only to stock acquisitions to asset acquisitions as well—these assets include patents, copyrights, and trademarks.

Section 7 in its present form states that:

> . . . [N]o corporation subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another corporation engaged also in commerce, where in any line of commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition or to tend to create a monopoly.[9]

The cases that are being brought under Section 7 which challenge the legality of corporate acquisitions of either assignments and licenses of IP are increasing in number and importance. It appears likely that many cases that were previously brought under the Sherman Act will, in the future, be based on Section 7 and, furthermore, that many practices relating to the acquisition and licensing of IP which survived Sherman Act challenges may no longer be lawful if subjected to a Clayton Act challenge. It will be the purpose of this paper to examine briefly and provide the analytical tools for answering questions such as:

1) Can a corporation having a dominant position in an industry purchase or license IP in order to increase or retain its market position?

2) Do previously recognized rights of IP owners, such as the right of a patentee to fix a licensee's selling price, still exist?

3) Are patent pooling arrangements previously sanctioned by the courts under the Sherman Act violations of the Clayton Act?

4) Can the acquisition of a bare non-exclusive license be unlawful under some circumstances?

These questions are just a sampling of those that attorneys and businessmen will be forced to ask themselves in the future.

For the sake of clarity and conciseness, the following discussion will

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> "Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor. . . ."

See *Hartford Empire Co.* v. *United States,* 323 U.S. 386 (1945) (patents); *United States* v. *Paramount Pictures,* 334 U.S. 131 (1948) (copyrights); *United States* v. *Timken Roller Bearing Co.,* 341 U.S. 593 (1951) (trademarks).

[8] S. Rep. No. 1775, 81st Cong., 2d sess., pp. 4-5.

[9] *Supra,* note 1.

mainly focus on one form of IP; i.e., patents. The application of the Clayton Act to the acquisition of patent rights by either assignment or license is principally elaborated upon in this paper. Complex areas of patent-antitrust law such as patent pooling, cross-licensing agreements and restrictive licensing provisions might also be subjected to a re-examination under the Clayton Act similar to that accorded simple acquisitions herein. For most purposes, what is true of patent acquisitions will be at least theoretically true of copyrights, trademarks, and the other forms of IP. In those few cases where obvious distinctions should be drawn because the law as to one form of IP is *sui generis,* the footnotes will so indicate. In equating the various forms of IP, caution is, of course, required because complete equivalency does not exist.

STATUTORY CONSTRUCTION

No asset acquisition is unlawful under Section 7 unless it can be shown that in the appropriate product and geographic markets ("in any line of commerce in any section of the country") the acquisition may have an anticompetitive effect ("may be substantially to lessen competition or . . . tend to create a monopoly").

Before these economic questions are reached, it is necessary to determine first what transactions constitute "asset acquisitions." Assets: Section 7 can be invoked in a jurisdictional sense if a corporation engaged in interstate commerce and subject to the jurisdiction of the Federal Trade Commission [10] acquires "the whole or any part" of the "assets" of another corporation engaged in interstate commerce. It is clear that the acquired assets must be those "of [a] corporation." [11] The Act applies to acquisitions of "the whole or any part of the assets of another corporation" and not only to mergers or their equivalent.[12]

The difficult question to resolve is: what is an asset? Neither the Clayton Act itself nor its legislative history defines the term. The only pertinent language found in the legislative history of the amendment states:

> The bill retains language of the present statute which is broad enough to prevent evasion of the central purpose. It covers not only purchase of assets or stock but also any other method of acquisition, such as for example, lease of assets.[13]

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[10] Corporations engaged in interstate commerce are "subject to the jurisdiction of the Federal Trade Commission" unless they are one of the regulated industries specifically exempted from its jurisdiction by section 5(a)(6) of the Federal Trade Commission Act (15 U.S.C. 45(a)(6)).

[11] *Bender* v. *Hearst,* 152 F. Supp. 569 (D. Conn. 1957); affirmed on other grounds, 263 F. 2d 360 (2d Cir. 1959).

[12] *United States* v. *Columbia Pictures Corp.,* 189 F. Supp. 153, 181-182 (S.D.N.Y. 1960).

[13] H. Rep. No. 1191, 81st Cong., 1st sess., pp. 8-9 (1949).

In the Senate hearings on the bill, a manufacturer's association suggested an amendment which would define "assets" "not [to] include stock in trade, inventories, or other property held by a corporation primarily for sale in the ordinary course of . . . business." [14] No action was taken on the proposal and it has been suggested that this may manifest a Congressional determination to leave the concept of "asset" broad and flexible.[15]

Only two cases have passed on the question. The very first case which challenged an IP acquisition under Section 7 was *In the Matter of Farm Journal.*[16] The Federal Trade Commission proceeded against Farm Journal, Inc., on the ground that its acquisition from the Curtis Publishing Company of the magazine trade names, "Better Farming" and "Country Gentleman," together with the subscriber and advertiser lists of those publications, might tend substantially to lessen competition or tend to create a monopoly. In an unappealed decision, the Commission adopted the opinion of the hearing examiner and held that intangible property constituted "assets" for the purposes of Section 7, stating:

> Respondent . . . [contends] that the current list of subscribers to Country Gentleman, the list of current advertisers in Country Gentleman and the registered names, Country Gentleman and Better Farming . . . are not assets as that term is used in Section 7 of the Clayton Act. This contention was the principal ground of respondent's motion to dismiss the proceeding at the close of the case in chief. The legislative history of the 1950 amendment to Section 7 of the Clayton Act, the amendment itself and its purpose, persuade the hearing examiner that the term, "assets" as used therein means property or property rights, real or personal, tangible or intangible, which is subject to transfer and which has been used by the seller and could be used by the buyer competitively. . . .
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> Finally, it is inconceivable to the hearing examiner . . . that such experienced men in the field as respondent's officials and in respondent's then financial condition would have undertaken to pay several millions of dollars for intangibles of no value, that which is not "assets."

This decision related to the assignment of full title in the intangibles involved therein, and placed emphasis on the assignability of the property transferred.

In the *Screen Gems* case,[17] the Justice Department challenged the acquisition, by Screen Gems, Inc., of a 14-year exclusive license on the copyrighted pre-1948 feature film library of Universal Pictures. The exclusive license acquired by Screen Gems was of very limited scope because it gave to Screen Gems only non-assignable television rights and reserved all other

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[14] Hearings on H.R. 2734 Before a Subcommittee of the Senate Committee on the Judiciary, 81st Cong., 2d sess., 313-15 (1950).

[15] See Kessler and Stern, "Competition, Contract and Vertical Integration," 69 Yale L. J. 1, 76 (1959).

[16] Federal Trade Commission Docket No. 6388 (1956).

[17] *Supra*, note 12.

rights to Universal. Although the Court held that the acquisition did not violate Section 7 because it did not tend to lessen competition substantially, it stated that the receipt of the exclusive license was the acquisition of an asset and that even quantitatively small acquisitions were subject to the Act.[18]

> As used here, the words "acquire" and "assets" are not terms of art or technical legal language. In the context of this statute, they are generic, imprecise terms encompassing a broad spectrum of transactions whereby the acquiring person may accomplish the acquisition by means of purchase, assignment, lease, license or otherwise. The test is pragmatic, the final answer is not in the dictionary.
>
> The statute imposes no specific method of acquisition. It is primarily concerned with the end result of a transfer of a sufficient part of the bundle of legal rights and privileges from the transferring person to the acquiring person to give the transfer economic significance and the proscribed adverse effect.
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> * * * *
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> Consistent with the broadly-drawn language is the word, "assets." It is not a word of art, nor is it given a built-in definition by statute. As used in this statute, and depending upon the factual context, "assets" may mean anything of value.[19]

The *Farm Journal* case applied the term "asset" to an assignment of trade names, and the *Screen Gems* case extended the coverage to a non-assignable exclusive license under a group of copyrights. Both decisions appear to accept the reasoning that an asset is "anything of value." If the dicta of these opinions is carried to a logical conclusion, it would seem that even non-exclusive licenses are within the definition of "asset." [20] This is an extreme position because the very words of Section 7 require that the acquired asset be those "of another corporation." A non-exclusive license is merely a contractual promise not to sue for infringement. Even if a license becomes an asset in the hands of the licensee, it was never an asset "of" the transferor corporation because it first took form at the

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[18] *Id.* at 182: "The broad sweep to be given to the term 'acquire' is also suggested by the circumstance that the following words are unrestricted; i.e., the whole or any part of the assets. Nothing could be more unqualified than the words 'any part.' Those words likewise must be given a liberal interpretation."

[19] *Supra,* note 12.

[20] A non-exclusive license grants no positive rights to the licensee and merely is a promise not to sue him for infringement. *Preload Enterprises, Inc.* v. *Pacific Bridge Co.,* 86 F. Supp. 976, 979 (D. Del. 1949). Therefore, if a mere promise is an asset for the purposes of Section 7, it may be that that section negates the value of proceeding under Section 1 of the Sherman Act insofar as corporate promises (contracts) are acquired. There would be no purpose for travelling the difficult Sherman Act route if the easier Clayton Act "incipiency" avenue is available. See Kessler and Stern "Competition, Contract and Vertical Integration," *supra* note 15 at p. 78. Section 1, under this theory, would still be applicable to non-corporate contracts as well as to combinations and conspiracies. Under Section 1, it is only required that the restraints be imposed on trade or commerce or have a substantial effect on commerce and one or both of the parties to a contract need not necessarily be engaged in commerce.

instant of creation; i.e., when it became the asset of the licensee.[21] The only instance in which a non-exclusive license could truly be said to be an asset of the transferor would be in that limited situation where a non-exclusive licensee (the transferor) was given the right to assign its rights in the license to a third party (the transferee). However, even though a few mental gymnastics are required to enable one to visualize a non-exclusive license as the asset "of" the corporation granting it, courts may conceivably assume them to be "assets" if it can be shown that the non-exclusive licenses have anticompetitive effects, *infra*.[22]

ANTICOMPETITIVE ACQUISITIONS

Up to this point, the analysis has been relatively academic because no acquisition will run afoul of Section 7 unless it is of an anticompetitive nature. A prerequisite to proving a violation of Section 7 is that the effect of the acquisition "in any line of commerce," and "in any section of the country" may *"be substantially to lessen competition or tend to create a monopoly."*

The provisions relating to line of commerce and section of the country are economic guides written into the Act in order that the effect of the acquisition can be measured in any economically significant market. In sum, these phrases provide that asset acquisitions having the proscribed effect in any relevant geographic and product markets are unlawful. Although there are a few "line of commerce" and "section of the country" problems that are peculiar to IP, generally the same considerations will be applicable in the economic analysis of patented, copyrighted or trademarked goods as to other products not having these characteristics.[23] The "market" concepts have been written on extensively and are the subject of much case authority to which the reader is referred.[24]

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[21] This is not true of an exclusive license because the licensee has a property interest. The exclusive licensee is as a matter of form required to join the owner of the IP in order to avoid a multiplicity of suits. See *Waterman* v. *Mackenzie*, 138 U.S. 252 (1891). Cf. *Preload Enterprises, Inc.* v. *Pacific Bridge Co.*, 86 F. Supp. 976 (D. Del. 1949); *Crown Die & Tool Co.* v. *Nye Tool & Machine Works*, 261 U.S. 24 (1923), *Pope Mfg. Co.* v. *Gormully & Jeffery Mfg. Co.*, 144 U.S. 248 (1892).

[22] See *United States* v. *Columbia Pictures, Inc., supra* note 12 at p. 182.

[23] Patents, for example, represent special cases because they *may* in and of themselves define a relevant product market or a line of commerce. See *United States* v. *General Electric Co.*, 80 F. Supp. 989, 1015 (S.D.N.Y. 1948); cf. *Times-Picayune Pub. Co.* v. *United States*, 345 U.S. 594, 611 (1953); *Oxford Varnish Corp.* v. *Ault & Wiborg Corp.*, 83 F. 2d 764, 766 (6th Cir. 1936); *United States* v. *Timken Roller Bearing Co.*, 83 F. Supp. 284, 307 (N.D. Ohio E.D.) affirmed 341 U.S. 593 (1951); *Kobe* v. *Dempsey Pump*, 198 F. 2d 416, 422-423 (10th Cir. 1952). Similarly, the geographic market may be spelled out by the division of markets expressly permitted by the patent law [35 U.S.C. 261].

[24] See *United States* v. *Bethlehem Steel Corp.*, 168 F. Supp. 576 (S.D.N.Y. 1958); *Erie Sand and Gravel Co.* v. *F.T.C.*, 291 F. 2d 279 (3d Cir. 1961); *Hamilton Watch Co.* v.

The ultimate question under Section 7 is whether the acquisition may substantially lessen competition or tend to create a monopoly within the relevant market. The plaintiff [25] meets his burden of proof if it can show that the acquisition will, with reasonable probability, substantially lessen competition or tend to create a monopoly. This is so because "[a] requirement of certainty and actuality of injury to competition is incompatible with an effort to supplement the Sherman Act by reaching incipient restraints." [26]

In order to determine the type of acquisitions which will violate Section 7, it is desirable to review briefly the legislative history in order to ascertain the purposes behind this legislation. The primary purpose of the Section is to limit future increases in the level of economic concentration resulting from corporate mergers and acquisitions.[27] Congress found that a disproportionately large share of industrial assets was in the hands of a relatively small number of corporations. In Section 7, as in other parts of the Clayton Act, the intent was to cope with monopolistic tendencies in their incipiency, well before they attained effects which would warrant a Sherman Act proceeding.[28] Since monopoly can be achieved by a series of small acquisitions, it was believed that the Act should prevent minute accretions of power which were not readily attackable under the Sherman Act.[29]

Section 7, as it was originally enacted in 1914,[30] was intended to go

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Benrus Watch Co., 114 F. Supp. 307 (D. Conn. 1953). The case of *United States* v. *Brown Shoe Co.*, 179 F. Supp. 721 (E.D. Mo. 1959), was argued before the Supreme Court in December of 1961 and the decision, when rendered, is expected to focus the economic considerations more precisely. Cf. *United States* v. *E. I. du Pont de Nemours & Co.*, 353 U.S. 586 (1957), decided under old Section 7.

[25] Suits to enjoin violations of Section 7 of the Clayton Act may be brought by the Attorney General on behalf of the United States (15 U.S.C. 25), by the Federal Trade Commission (15 U.S.C. 21), and by private parties who may suffer injury (15 U.S.C. 26). The United States may recover any damages it sustains due to an unlawful acquisition (15 U.S.C. 15(a)), and a private party is entitled to recover treble damages (15 U.S.C. 15). Antitrust violations are also frequently used as a basis for a counterclaim or as a ground to deny relief (misuse) in infringement actions. See *Morton Salt Co.* v. *Suppinger*, 314 U.S. 488 (1942); *C. K. Williams & Co., Inc.* v. *Armour Research Foundation*, 170 F. Supp. 871 (E.D. Ill. 1959); affirmed, 280 F. 2d 499 (7th Cir., 1960); cert. denied, 365 U.S. 811 (1961).

[26] S. Rep. No. 1775, *supra* note 8, p. 6.

[27] S. Rep. No. 1775, *supra* note 8, p. 3.

[28] *Id.* at pp. 4-5.

[29] *Ibid.*

[30] The 1914 version of Section 7 provides in pertinent part: That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital of another corporation engaged also in commerce where the effect of such acquisition may be to substantially lessen competition between the corporation whose stock is so acquired and the corporation making the acquisition, or to restrain such commerce in any section or community or tend to create a monopoly of any line of commerce.

beyond the Sherman Act and to halt the increasing degree of concentration discussed *supra*. Section 7, however, as originally passed, did not fulfill expectations because it was subject to three main deficiencies: (1) It was limited to stock acquisitions and did not cover asset acquisitions, even in those cases where the asset acquisition resulted from a prior unlawful stock acquisition.[81] (2) The prohibition against stock acquisitions "where the effect of such acquisition may be to substantially lessen competition between the corporation whose stock is so acquired and the corporation making the acquisition," if read literally, might have precluded all mergers between competing firms, including those having little or no significant impact upon competition; therefore, the tendency of the courts was to limit Section 7 by what amounted to a Sherman Act "rule of reason." [82] This, in effect, was a reversion to a test which was undesirable [83] and which, in fact, precipitated the passage of the original Clayton Act in 1914. (3) It was believed that Section 7 did not apply to vertical mergers between non-competitors.[84]

The 1950 amendments sought to correct these shortcomings. The stock acquisition "loophole" was remedied by making the Section applicable to both stock and asset acquisitions. The other two problems were overcome by the elimination of reference to competition between the buyer and seller and by changing the test of illegality to whether "in any line of commerce in any section of the country the effect of [the] acquisition may be to substantially lessen competition or tend to create a monopoly." The purposes and intent of Congress in making these changes is clearly spelled out in the reports of the House and Senate Judiciary Committees and need not be belabored here.[85]

In summary, Section 7, as amended, was designed to prevent stock or asset acquisitions which would have the proscribed anticompetitive effects, irrespective of whether the acquiring company and the one from whom the stock or assets were acquired had any competitive relationship to each other. Section 7 as amended in 1950 was designed to close the previous loopholes while retaining its basic characteristic as a statute which would restrict the trend toward increased concentration and at the same time halt Sherman Act violations in their incipiency.

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[81] See *Federal Trade Commission* v. *Western Meat Co.*, 272 U.S. 554 (1926); *Arrow-Hart and Hegeman Electric Co.* v. *Federal Trade Commission*, 291 U.S. 587 (1934).

[82] See *International Shoe Co.* v. *Federal Trade Commission*, 280 U.S. 291 (1930); *Standard Fashion Co.* v. *Magrane-Houston Co.*, 258 U.S. 346 (1922); *United States* v. *Republic Steel Corp.*, 11 F. Supp. 117, 123-124 (N.D. Ohio 1935).

[83] See e.g. Senate Report, *supra* note 8 at page 4.

[84] This belief proved to be ill-founded. See *United States* v. *E. I. du Pont de Nemours & Co.*, 353 U.S. 586, 590-592 (1957).

[85] See H. R. 2734, 81st Congress; H. Rep. 1191, 81st Congress, 1st sess.; S. Rep. No. 1775, 81st Cong., 2d sess.

In order to determine whether particular conduct is an incipient violation of the Sherman Act, it is necessary to consider the patent antitrust cases brought under that Act. The statutes which govern patents, copyrights and trademarks specifically recognize their assignable nature—a characteristic of property. It has been said that the mere accumulation of patents, no matter how many, is not in and of itself illegal [36] and does not constitute misuse.[37] If, however, the patents, copyrights or trademarks are acquired for the purpose of restraining trade or as part of a plan of monopolization, Sections 1 and 2 problems may arise.[38]

If a company is in a dominant position in an industry, the acquisition of even a relatively small number of patents may evidence efforts to gain monopoly power.[39] As was stated in *United States* v. *United Shoe Machinery Corporation:*[40]

> United contends that the patents acquired by United have been generally to enable it to pursue development which might otherwise have been blocked, or to resolve patent controversies, or for hedging purposes. But most of these purposes could have been served by nonexclusive licenses. Taking the further step of acquiring patents has . . . buttressed United's market power. In some instances . . . the acquisitions made it less likely that United would have competition.

Acquisitions of patents from the government do not fall within the coverage of the Clayton Act because they are not acquired from a "corporation." Even the Sherman Act does not prohibit monopoly when so acquired, for it would defeat the very purposes of the patent system to turn upon the successful competitor merely because his success eliminates competitors—a result which may follow from any lawful "monopoly." The acquisitions which raise antitrust problems are usually those which involve the acquisition of rights from others, not the product of the acquiring company's own research, which are *designed* to eliminate competition. Purchases of assets from others, whether the assets be intangible or not, have always been suspect,[41] while acquisitions resulting from original research are favored.[42] The decided cases illustrate patterns of unlawful conduct with respect to patent acquisitions. Programs designed

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[36] *Automatic Radio Mfg. Co.* v. *Hazeltine Research, Inc.*, 339 U.S. 827, 834 (1950).

[37] See *Zenith Radio Corp.* v. *Radio Corporation of America*, 106 F. Supp. 561 (D. Del. 1952).

[38] See *United States* v. *United States Gypsum Co.*, 333 U.S. 364 (1948); *Stewart-Warner* v. *Staley*, 42 F. Supp. 140 (W.D. Pa. 1941); *Hartford-Empire Co.* v. *United States*, 323 U.S. 386 (1945); *United States* v. *Besser Mfg. Co.*, 96 F. Supp. 304 (E.D. Mich. 1951), affirmed *sub nom Besser Mfg. Co.* v. *United States*, 343 U.S. 444 (1952).

[39] *United States* v. *United Shoe Machinery Corp.*, 110 F. Supp. 295, 333 (D. Mass. 1953), affirmed *per curiam*, 347 U.S. 521 (1954).

[40] *Ibid.*

[41] See, e.g., *United States* v. *Columbia Steel Co.*, 334 U.S. 495 (1948).

[42] See *D. B. Cole* v. *Hughes Tool Co.*, 215 F. 2d 924 (10th Cir. 1954).

to buy up the available technology, thus arresting the growth of competition that would otherwise develop, are unlawful.[43] Some cases involve purchases which have been coupled with assignments of future inventions, agreements to stay out of business which characterize them as anticompetitive arrangements and distinguish them from the simple assignments.[44] Corporations which are dominant in the market must be especially wary in engaging in acquisitions if that conduct will more firmly entrench them in the market.[45] Acquisitions of intellectual property by a *dominant* corporation, whether by assignment or exclusive license, can rarely be justified on economic grounds and are likely to be attacked under the rigorous Clayton Act standards as embodied in Section 7.[46] Assignments [47] and exclusive licenses [48] have been challenged in private actions [49] under the Clayton Act and in cases brought by the Federal Government.[50]

Even a non-exclusive license may have anticompetitive effects if it is acquired by a firm having a monopoly or dominant position in an industry. This is true even though the licensor has complete freedom to license others who would, in theory, compete with the non-exclusive licensee, because the dominant firm may be able to use its accumulated knowhow, skill, and distribution facilities to such advantage as to meet the entire demand for a new product.[51] This would act to discourage anyone else from taking or trying to exploit a mere non-exclusive license, because a substantial investment in the industry by smaller competitors would be difficult to justify on business grounds.[52]

In order to determine whether a particular acquisition will violate the

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[43] See *United States* v. *Besser Mfg. Co.*, 96 F. Supp. 304 (E.D. Mich. 1951), affirmed 343 U.S. 444 (1952); *Kobe* v. *Dempsey Pump Co.*, 198 F. 2d 416. (10th Cir. 1952); cf. *Hartford-Empire Co.* v. *United States*, 323 U.S. 386 (1944).

[44] *Ibid.*

[45] Cf. *United States* v. *Aluminum Company of America*, 148 F. 2d 416 (2nd Cir. 1945).

[46] Cf. *supra*, note 37.

[47] See in the matter of Farm Journal, FTC Docket 6388 (1956); *United States* v. *Lever Brothers Company* (Civil Action No. 135-219, S.D.N.Y. filed July 8, 1958); *United States* v. *Ford Motor Company* (Civil Action No. 21911, E.D. Mich., filed Nov. 27, 1961); *FTC* v. *Hooker Chemical Corp.*, FTC Docket 8034; *Bender* v. *Hearst Corp.*, 152 F. Supp. 569 (D. Conn. 1957); affirmed on other grounds, 263 F. 2d 360 (2d Cir. 1959).

[48] *United States* v. *Columbia Pictures, Inc.*, 189 F. Supp. 153 (S.D.N.Y. 1960). See *C. K. Williams & Co., Inc.* v. *Armour Research Foundation*, 170 F. Supp. 871 (E.D. Ill., 1959); affirmed 280 F. 2d 499 (7th Cir. 1960), cert. denied 365 U.S. 811 (1961); *United States* v. *United Artists Corp.* (Civil Action No. 150-267, filed Sept. 15, 1959), plaintiff's motion to dismiss granted February 5, 1962.

[49] See *Bender* v. *Hearst Corp.*, *supra* note 11; *C. K. Williams & Co., Inc.* v. *Armour Research Foundation*, *supra* note 48.

[50] *Supra*, notes 47 and 48.

[51] *Supra*, note 45.

[52] Antitrust considerations might well sanction asset acquisitions by non-dominant firms for this reason.

law, the acquisition must be examined in its entire context. Factors to be considered include; *inter alia:* [53] (a) The nature, number and value of the assets acquired; b) whether the acquisition adds, subtracts or leaves constant the number of competitors; c) whether the acquisition is intended to resolve conflict and unblock technology; d) the effect of the acquisition on the size of the purchaser; e) whether the acquisition may discourage market entry or foster concentration; and f) whether the acquisition was consummated for the purpose of excluding competitors.

When all relevant factors have been taken into consideration it should be remembered that the Clayton Act does not require proof of monopolization or a restraint of trade but only that the effect of the acquisitions *may be* substantially to lessen the vigor of competition or *tend* to create a monopoly. Accumulations of large numbers of patents, copyrights or trademarks may, in themselves, constitute an evil and under the incipiency test a Court is not required to wait until the power is full blown or exercised but may act to restrain the acquisition.

CONCLUSION

The Clayton Act's ban against corporate asset acquisitions which are of an anticompetitive or monopolistic nature applies to assignments, exclusive licenses and may even possibly be extended to non-exclusive licenses and the exchanges of other types of contractual promises. Transactions which were never before attacked under the Sherman Act, or which marginally survived such challenges, may be subjected to being tested under the Clayton Act's more liberal standards (from the plaintiff's point of view) which are aimed at practices that are incipient violations of the Sherman Act. Every corporation which engages in acquiring intangible rights, whether they are patents, copyrights, trademarks, good will, trade secrets, knowhow, proprietary data, etc., or licenses under those rights, should carefully review its policies and practices with respect to those transactions in light of the contemporary law as embodied in the Clayton Act. Although the number of judicial decisions are few, caution in this new area of the law is required.

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[53] See Report of Attorney General's National Committee to Study the Antitrust Laws, (1955), p. 227.

FORUM

This section is designed to exchange different informed opinions and stimulate additional study.

A Statistical Analysis of Patent Renewal Data for Three Countries

THOMAS DERNBURG AND NORMAN GHARRITY *

INTRODUCTION

THE PRESENT INVESTIGATION has as its *raison d'etre* the presumption that much can be learned from an examination of foreign patent systems that is of use in attempting to understand the patent system of the United States. This has already been amply demonstrated by similar studies made by P. J. Federico.[1] It is the essential aim of this paper to supplement Federico's work by applying, to the statistical data, a simple statistical model and to discuss what if any, light the data shed on such questions as, for example, the use rate of patented inventions and the length of time it takes for the average patented invention to become obsolete.

The patent systems of several foreign countries require renewal fees. Although we do not have such a system in the United States, the absence

* The authors are Associate Professor and Research Aide at Oberlin College and Princeton University respectively. The paper is one in a series of studies conducted by a group of economists engaged in research on the economics of invention and innovation under the supervision of Professor Fritz Machlup. Thanks are due to Professor Machlup for careful reading and criticism and to Mr. P. J. Federico, Chief Examiner of the Patent Office, for giving liberally of his time and advice and for making the library of the Patent Office available to us.

[1] P. J. Federico, "Taxation and Survival of Patents," *Journal of the Patent Office Society*, Vol. XIX, No. 9 (September 1937); and "Renewal Fees and Other Patent Fees in Foreign Countries," Study No. 17 of the Subcommittee on Patents, Trademarks and Copyrights, of the Committee on the Judiciary, United States Senate, 1958.

of mandatory payment of fees to keep patents from expiring is the exception rather than the rule. For three countries—Great Britain, Switzerland, and Germany—we have fairly complete data that enable us to trace the proportion of the patents issued at a particular time that are renewed at subsequent renewal dates and to trace changes in these proportions that take place both secularly and cyclically. Because there are differences in the characteristics of the patent systems of the three countries it may be possible, by comparing the renewal curves of the countries, to make some inferences regarding the use rate of patented inventions and the effects of differences in renewal fees.

STATISTICAL MODELS

IF ONE PLOTS THE NUMBER OF PATENTS that are renewed in subsequent years out of a cohort of patents applied for in a given year, one generally observes a scatter of points that follow the outline of a negatively sloped exponential curve. Thus if $P(T)$ is the number of patents renewed where T is the number of years between application and the renewal date (so that $T=0$ is the date of application), we may write

$$P(T)=P(0)e^{bT}, \tag{1}$$

where the coefficient, b, must be negative (or zero) because patents once expired cannot subsequently be renewed.

For our purposes it is more convenient to work with the per cent of patents that are renewed rather than with the absolute number. Hence let us rewrite expression (1) as

$$R(T)=e^{bT}, \tag{2}$$

where $R(T)=P(T)/P(0)$.

We may familiarize ourselves with the nature of expression (2) and with the characteristics of the data by considering a diagram of a hypothetical renewal curve. If we assume some arbitrary value for b and plot the curve, we obtain a configuration such as the smooth curve of Figure I. We assume $T=0$ to be the date of application, $T=r$ to be the date of the first renewal, and $T=f$ to be the date of the last possible renewal. The dates r and f, of course, depend upon the patent law of the particular country.

At the date of application, $T=0$, the value of R must, by definition, be 100 per cent. If possible renewals of potentially perpetual patents were to continue indefinitely, the value of R would approach zero. The observable points are given where the histogram (the discontinuous curve) touches the smooth curve. The smooth curve represents the statistical estimate. Since the observable values do not go beyond $T=f$,

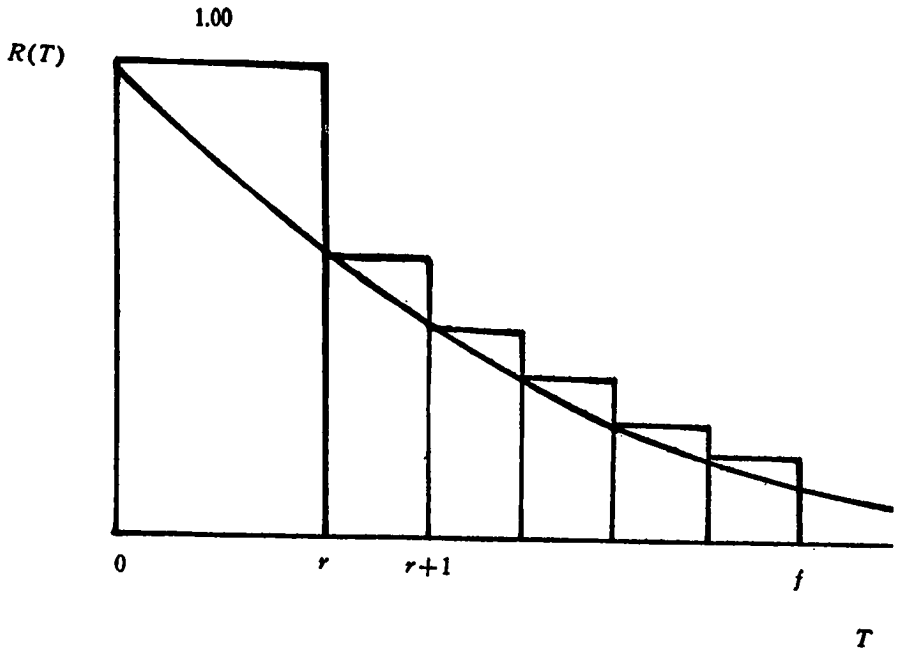


Figure I

points along the curve to the right of f represent extrapolations. Each bar of the histogram represents the proportion of the patents that are in force at any one time. Thus between $T=0$ and $T=r$ all of the patents are in force while at $T=r$ the percent of patents in force drops by the proportion that is not renewed at the first renewal date.

Expression (2) has the linear transformation

$$X(T)=bT, \tag{3}$$

where $X(T)=\log_e R(T)$. Because one of our main purposes is to observe whether the renewal curves rotate with the passage of time, we treat b not as a constant but as a variable subject to change with the passage of historic time, t. We therefore introduce the interaction hypothesis

$$b=a_0+a_1t.$$

Substituting this expression into (3) gives the basic statistical model

$$X(T,t)=a_0T+a_1tT. \tag{4}$$

The equation states that the proportion of patents renewed varies with the renewal date, and the degree to which the proportion varies depends upon historic time.

Upon estimation of the coefficients a_0 and a_1 by the method of least

squares, it is possible to summarize various characteristics of the data:

(i) For any arbitrary renewal date, T^*, one can observe how the proportion of renewals has changed with the passage of historic time.

(ii) One may examine residuals—i.e., the difference between the actual values of percentage renewals and the estimated values—in order to determine how the proportion of renewals varies in the short run.

(iii) For any arbitrary value of historic time, t^*, one may compute the value of T for which a particular proportion of patents are renewed. Thus if we wish to determine how long it takes for only k per cent of the patents to be renewed, we have

$$T(k)=\frac{\log_e k}{(a_0+a_1 t^*)}. \tag{5}$$

(iv) By varying t in the above expression we may compare whether the time required until only k per cent of the patents are renewed has changed secularly.

The discussion thus far has presented the general outline of the basic statistical model. However, the model as given by expression (4) requires a certain amount of amendment to suit the particular case of post-World War II British data. These data differ from the pre-war data in that the initial number of patents, $P(0)$, is not reported. We cannot therefore compute the statistic $R(T)=P(T)/P(0)$ directly. We do, however, know the number of patents that were renewed at the different renewal dates. The first known value for Great Britain is at the first renewal date, $T=4$. If we assume that the data follow the outline of the exponential, we may define

$$P(T)=P(0)e^{bT} \tag{1}$$

so that

$$P(4)=P(0)e^{4b}.$$

The statistic $S(T)=P(T)/P(4)$ is therefore given by

$$S(T)=e^{b(T-4)}, \tag{6}$$

which has the linear transformation

$$\log_e S(T)=b(T-4). \tag{7}$$

Since $S(T)$ can be computed from the reported information, the coefficient, b, can be estimated. Since, in addition, we know that

$$\log_e R(T)=bT,$$

it follows that

$$\log_e R(T)=\log_e S(T)+4b. \tag{8}$$

The choice of using the number of patents renewed at $T=4$ as a base is quite arbitrary. The number of renewals at any other time will serve

just as well. We need in fact only be given two observations in order to identify the entire renewal curve and, if we wish, estimate the initial number of patents, $P(0)$.

APPLICATIONS OF THE MODEL: GREAT BRITAIN

A. Institutional Factors

In order to maintain a patent in force in Great Britain a renewal fee must be paid four years (at the beginning of the fifth year) after the date of application for a patent. Fees must subsequently be paid annually, the last fee being payable at the beginning of the sixteenth year. The maximum length of life of a patent is, therefore, sixteen years. Renewal fees are graduated in scale. The initial fee is £5 and the final fee is £20. The annual increases do not follow a smoothly graduated scale. There is a £1 increase in the sixth year over the fifth, a £2 increase between the seventh and eighth, and no increase at all between the fifteenth and the sixteenth years.

The examination of applications is confined to the search for prior art covered only in British patents and the applications are examined for novelty but not for invention. The patent system provides for opposition proceedings. Unlike that in the United States, the patent term runs for sixteen years after the date of application, not the date of issue. Renewal fees similarly date from the application rather than from the date of issue.

There have been a few significant changes in patent law. Prior to 1904 there was no examination of patent applications whatsoever. In 1920, the patent term was increased from fourteen to sixteen years. The increase in term was made retroactive, applying to all patents then in force.

The change in law in 1920 and the extraordinary circumstances brought about by World War II are the main determinants of the number of years covered by our analysis and the way in which the data have been grouped. Because the law of 1920 increased the patent term retroactively, it is possible to treat the data beginning with 1906 as a unit. There were, to be sure, disturbances introduced by the change in the law and by World War I, but these disturbances are not sufficient to warrant fragmentation of the data. The disturbances will, in any case, come to the surface in our subsequent analysis of short-run fluctuations. Consequently, we take 1906 as our beginning date.[2]

By 1939 the Patent Office had begun to fall behind in processing applications. The consequence of this was that many patents did not

[2] Source of the data is "Patents, Designs and Trademarks," *Annual Report of the Controller General of Patents.*

issue until after the time at which the first renewal fee would have been paid. In such cases payment of the first fee could be deferred until three months after the patents issue. It was, in addition, possible during World War II to renew patents that had previously expired. As a consequence of these disturbances, the data for the war years are probably not very significant and are, in any case, not comparable to the prewar data. We have therefore taken 1938 as the last year included in our analysis of the years prior to World War II. The analysis of the years after World War II includes data covering the period 1947-1956.

B. Statistical Results

For the period 1906-1938 we obtain the estimating equation

$$X(T,t)_o = \underset{(47.24^{**})}{-.1626T} + \underset{(9.77^{**})}{.0033(t-1922)T}, \tag{9}$$

where the values in brackets beneath the coefficients are Student "*t*" distribution statistics obtained by dividing the regression coefficients by their respective standard errors. The double asterisks indicate .01 level of significance. Although there are altogether 395 observations, the observations from a particular cohort of patents are not independent. Hence, the standard errors were computed using the total number of cohorts minus the number of estimated parameters as the appropriate number of degrees of freedom. The fit, as indicated by a value of 99.0 for the coefficient of multiple codetermination, is extremely good.

As pointed out earlier, the fact that the initial number of patents, $P(0)$, is not reported for the postwar years makes it impossible to use $R(T)$ as the dependent variable. However, the statistic $S(T)=P(T)/P(4)$ can be used as the dependent variable. The regression equation is

$$\log_e S(T,t)_o = -.1201(T-4) + \underset{(.504)}{.0008(t-1947)(T-4)}.$$

Since the coefficient of the interaction term, $(t-1947)(T-4)$, is not even close to being significantly different from zero at the .05 level, we have eliminated the interaction variable and have recomputed the equation. We now obtain

$$\log_e S(T) = \underset{(49.93^{**})}{-.1189(T-4)}, \tag{10}$$

where the regression coefficient is significant at the .01 level and the value of the coefficient of multiple co-determination is 99.6. Since the coefficient of the interaction term was found not to be significantly different from zero, expression (10) serves as the estimating equation for any of the postwar years (1947-1956) covered by the data.

Applying expression (8) to (10) gives the equation in terms of the logarithm of percentage renewals—i.e.,

$$X(T)_o = -.1189T, \tag{11}$$

which becomes our estimating equation for the postwar years. We cannot go beyond 1956 because there is a four-year spread between application and the first renewal. Consequently, the most recently published data would not give information for patents whose applications are less than four years old.

C. Secular Changes

The estimated values of the per cent of patents renewed for the years 1900, 1920, 1940 and 1950 are shown in Figure II. The 1900, 1920 and 1940 curves were obtained from the single estimating equation (9) while the 1950 curve is obtained from equation (11). As can be seen from the chart, there was a pronounced secular upward rotation of the renewal curve between 1900 and 1940. This means that the proportion of patents that are renewed at any renewal date (value of T) increased during the period. Similarly, if one looks across Figure II horizontally at an R value of fifty per cent, it is apparent that the length of time required until only fifty per cent of the patents are renewed increased during the period.

The upward rotation of the renewal curve apparently has not continued into the postwar period. Although the curve for 1950 is slightly lower than the estimate for 1940, the difference is so slight that we cannot, on the basis of the evidence, assert that the trend has been reversed. It has, however, been severely arrested.

For 1900 the estimated number of years that pass before only fifty per cent of the patents are renewed is 2.95; for 1920 it is 4.10; for 1940 it is 6.72; and for 1950 it is 5.83. Interestingly enough, the value for 1900 is less than the length of time between the application for a patent and the time that elapses before the first renewal, and the 1920 value is only slightly more than this. Half the patents were not even worth renewing once. In 1950 it paid to renew the average patent only twice. Thus while there has been some change, a large proportion of British patents remain in the relatively useless category.

Table I reports the estimated length of time elapsed for no more than thirty-three, fifty, and sixty-seven per cent—the k value of expression (5)—of all patents to be renewed.

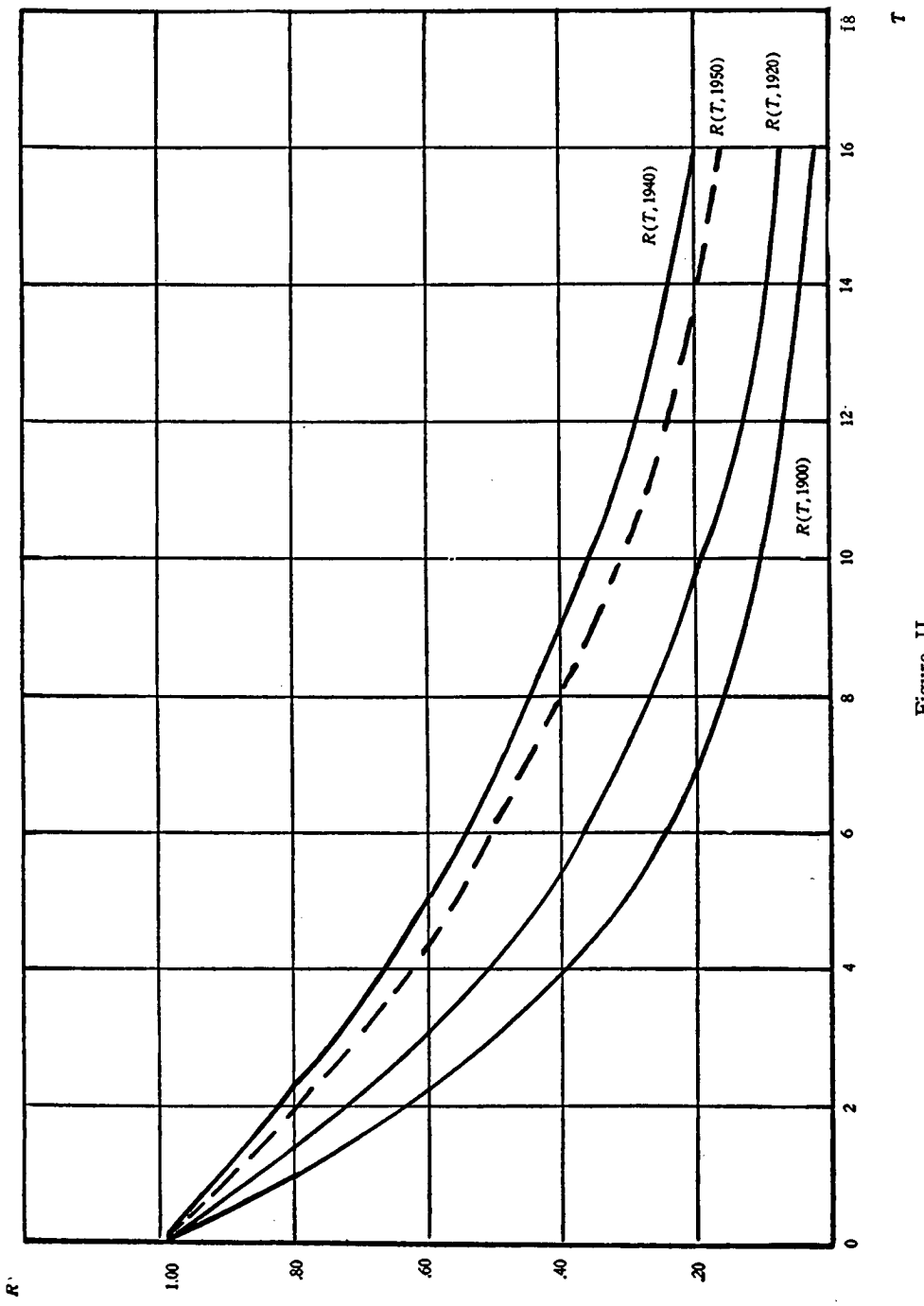


Figure II
Estimated Percentage Renewals Great Britain

TABLE I

Estimated Length of Time Elapsed for No More Than k Per Cent of British Patents to Be Renewed

Year \ Value of k	.33	.50	.67
1900	4.68	2.95	1.73
1920	6.50	4.10	2.40
1940	10.66	6.72	3.94
1950	9.25	5.83	3.42

TABLE II

Estimated Proportion of British Patents Renewed at the First, Seventh, and Twelfth Renewals

Year \ Renewal	First $T=4$	Seventh $T=10$	Eleventh $T=14$
1900	39	10	4
1920	51	19	9
1940	66	36	23
1950	62	31	19

The estimated proportion of patents renewed at the first renewal ($T=4$) was thirty-nine in 1900, fifty-one in 1920, sixty-six in 1940 and sixty-two in 1950. Table II gives the estimates for these years for the first ($T=4$), seventh, ($T=10$), and eleventh ($T=14$) renewals.

SWITZERLAND

A. Institutional Factors

The patent term in Switzerland at present is eighteen years from the date the application for patent is filed. Before 1942 the term was only fourteen years. There is an application fee of sixty francs. After that time the patent must be renewed annually beginning with the second year. The renewal fee for the first renewal (beginning of the second year) is thirty francs. Thereafter it increases by ten francs per year until the seventh year, after which the annual increment is twenty francs. Thus the fee at the last renewal (beginning of the eighteenth year) is 300 francs or approximately $70.

Patents are issued automatically in Switzerland. There is no search, and applications are examined as to form only. There are, in addition, no opposition proceedings.

As with Great Britain, we divide the data into two periods, before and after World War II, chiefly because of the change in the patent term. The prewar data cover the period 1900-1937 and the postwar data cover the period 1947-1956.[8]

[8] Source of the Swiss data is their annual index of patents: *Catalogue Annuel des Brevets d'invention et des Depots de dessins et modeles.*

B. Statistical Results

The statistical treatment of the Swiss data will be the same as that of the prewar data for Great Britain. For the prewar period we obtain the estimating equation

$$X(T,t)_c = \underset{(43.99^{**})}{-.2206T} + \underset{(3.35^{**})}{.0013(t-1919)T}. \tag{12}$$

Both regression coefficients are significantly different from zero at the .01 level of significance, and the value of the coefficient of multiple codetermination is a highly satisfactory 98.3. Although the fit is not quite as good as for the prewar British data it is nevertheless very close.

For the postwar period covering the years 1947-1956 we obtain

$$X(T,t)_c = \underset{(20.43^{**})}{-.1324T} + \underset{(4.60^{**})}{.0101(t-1947)T}. \tag{13}$$

The coefficient of multiple codetermination is 98.7 indicating an excellent fit. Unlike the postwar British regression equation, the coefficient of the interaction variable, $(t-1947)T$, is significant at the .01 level. The renewal curve in Switzerland therefore rotated upwards significantly between 1947 and 1956, and it did so even faster than before the war.

C. Secular Changes

The estimated values for percentage renewals for the years 1900, 1920, 1940, and 1950 are shown in Figure III. The prewar estimates are derived from equation (12) while the postwar estimate is derived from equation (13).

As can be observed from inspection of Figure III and from equation (12) there is a significant upward rotation in the Swiss curve during the period 1900-1940, though it is not as pronounced as in Great Britain. The postwar results are altogether different; whereas the postwar renewal curve for Great Britain was somewhat below the estimated curve for 1940, the Swiss postwar curve is much higher than the 1940 curve and the extent of the increase suggests that the phenomena that have been tending to rotate renewal curves in the upward direction have been intensified rather than reduced.

The upward rotation, of course, means that the proportion of patents renewed at any renewal date has been increasing, and that the length of time required until only k per cent of the patents are renewed has been increasing. Tables III and IV convey information for Switzerland of the same type as was reported for Great Britain in Tables I and II. Table III gives the estimated length of time that passes until only thirty-three, fifty, and sixty-seven per cent of the patents are renewed

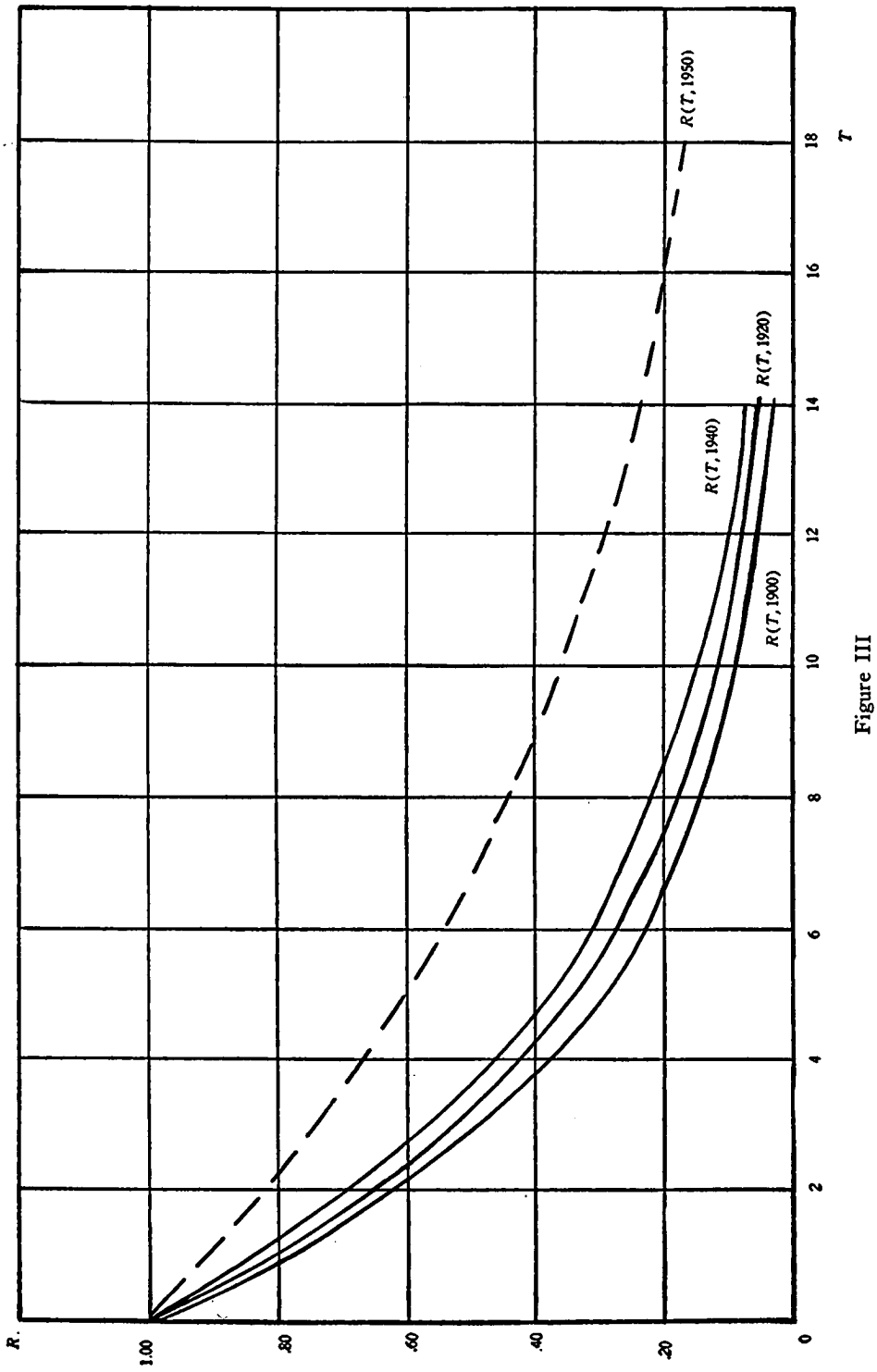


Figure III
Estimated Percentage Renewals Switzerland

TABLE III

Estimated Length of Time Elapsed for No More Than k Per Cent of Swiss Patents to Be Renewed

Year \ Value of k	.33	.50	.67
1900	4.48	2.83	1.66
1920	5.01	3.16	1.85
1940	5.69	3.59	2.10
1950	10.77	6.79	3.98

TABLE IV

Estimated Proportion of Swiss Patents Renewed Four, Ten, and Fourteen Years After the Date of the Application

Year \ Renewal	Fourth	Tenth	Fourteenth
1900	37	8	3
1920	42	12	5
1940	46	15	6
1950	67	36	24

for the years 1900, 1920, 1940, and 1950. Table IV gives the proportion of patents that are renewed at the fourth, tenth, and fourteenth renewal dates.

GERMANY

A. Institutional Factors

Since 1904 the patent term in Germany has been eighteen years. Renewal fees until 1936 were payable annually beginning with the first year. Since 1936 the fees have commenced at the second year. The fees are considerably higher in Germany than in Great Britain or Switzerland. After World War II the first renewal fee was 50 DM. The cost of subsequent renewals increases rapidly rising to a maximum of 1,700 DM in the eighteenth year. Before World War II, the first renewal fee amounted to 30 Reichsmarks and the last to 1,200 Reichsmarks.

Standards of patentability in Germany are clearly much higher than in Switzerland and Great Britain. There is a careful examination of the prior art contained in patents of several leading industrial countries.[4]

Published figures are available until 1942 after which no figures appear until 1948. Because there is a one-year lag between the date of application and the payment of the first renewal and since there are seventeen renewals in all, the last year of patent applications for which the data

[4] The ratio of patents issued to applications in Germany is far less than in the United States.

are complete is 1933. This does not, however, prevent us from including such data as are available for succeeding years. 1935 has been chosen as the cutoff date because of the change in the date at which the first renewal fee is due. 1905 has been taken as the first year. For the postwar years we have data covering the period 1948-1959.[5]

B. Statistical Results

Utilizing the data covering the period 1905-1935 for Germany we obtain the estimating equation

$$X(T,t)_o = \underset{(12.86^{**})}{-.1994T} + \underset{(2.49^{*})}{.0047(t-1920)T}. \tag{14}$$

As indicated by the double asterisk, the coefficient of T is significant at the .01 level. The coefficient of the interaction term, however, is, as indicated by a single asterisk, significant only at the .05 level.

Nevertheless, significance at the .05 level is acceptable and we may therefore conclude that the upward rotation of the renewal curve that is observable in the German data is not likely to be due to chance. The coefficient of multiple codetermination is 88.1, a value that is considerably less than the value obtained for Great Britain and Switzerland. The reason for this is not hard to find; if we plot the actually observed values of the proportion of patents that are renewed for the patents issued in a particular year against the values estimated by equation (14) we would observe that for the low values of T the observed values are greater than the estimated values and that if the actual values had been connected by freehand, the renewal curve thus obtained would have exhibited an inflection point. This phenomenon is probably due to the fact that because of the more rigorous tests of patentability applied in Germany, most of the patents that issue are worth renewing as long as the renewal fee does not become too burdensome. But the rapid rise of the renewal fee causes the rate of decline in renewals to accelerate for a short time, after which the rate of decline slows down as more and more marginal patents are allowed to expire.

For the postwar period we obtain

$$X(T,t)_o = \underset{(7.305^{**})}{-.1151T} + \underset{(2.086)}{.0111(t-1948)T}. \tag{15}$$

The coefficient of the interaction variable is not statistically significant at the .05 level. However, the Student "t" value is very close to the critical value of 2.262 for nine degrees of freedom, and would be significant if we accepted significance at the .10 level. We have therefore

[5] Source for the German data is the official periodical of the German Patent Office, *Blatt für Patent, Muster, und Zeichenwesen.*

decided to retain the interaction term rather than to eliminate it and to recompute the regression. The coefficient of multiple codetermination is 89.0. Thus again, the fit is less good for Germany than for the other two countries.

C. Secular Changes

The estimated values for percentage renewals for the years 1900, 1920, 1940, and 1950 are shown in Figure IV. Figure IV confirms the fact that the renewal curve in Germany has been rotating upwards. The rotation, moreover, continues into the postwar period. The behavior of the German renewal curve therefore is similar to the Swiss curve but different from that of Great Britain where the postwar estimate lies below the estimate for 1940.

Again, the upward rotation of the renewal curve means that the proportion of patents renewed at any renewal date has been increasing and that the length of time elapsed until no more than k per cent of the patents are renewed has been increasing. Tables V and VI report information for Germany of the same type as was reported for Great Britain and Switzerland. Table V gives the estimated length of time that passes until only thirty-three, fifty, and sixty-seven per cent of the patents are renewed for the years 1900, 1920, 1940, and 1950. Table VI gives the proportion of patents that are renewed four, ten, and fourteen years after the patent application.

TABLE V

Estimated Length of Time Elapsed for No More Than k Per Cent of German Patents to Be Renewed

Year \ Value of k	.33	.50	.67
1900	3.75	2.36	1.39
1920	5.51	3.48	2.04
1940	10.53	6.58	3.86
1950	11.84	7.46	4.38

TABLE VI

Estimated Proportion of German Patents Renewed Four, Ten, and Fourteen Years After the Date of Application

Year \ Renewal	Four	Ten	Fourteen
1900	31	5	1.5
1920	45	14	6
1940	66	35	23
1950	69	40	27

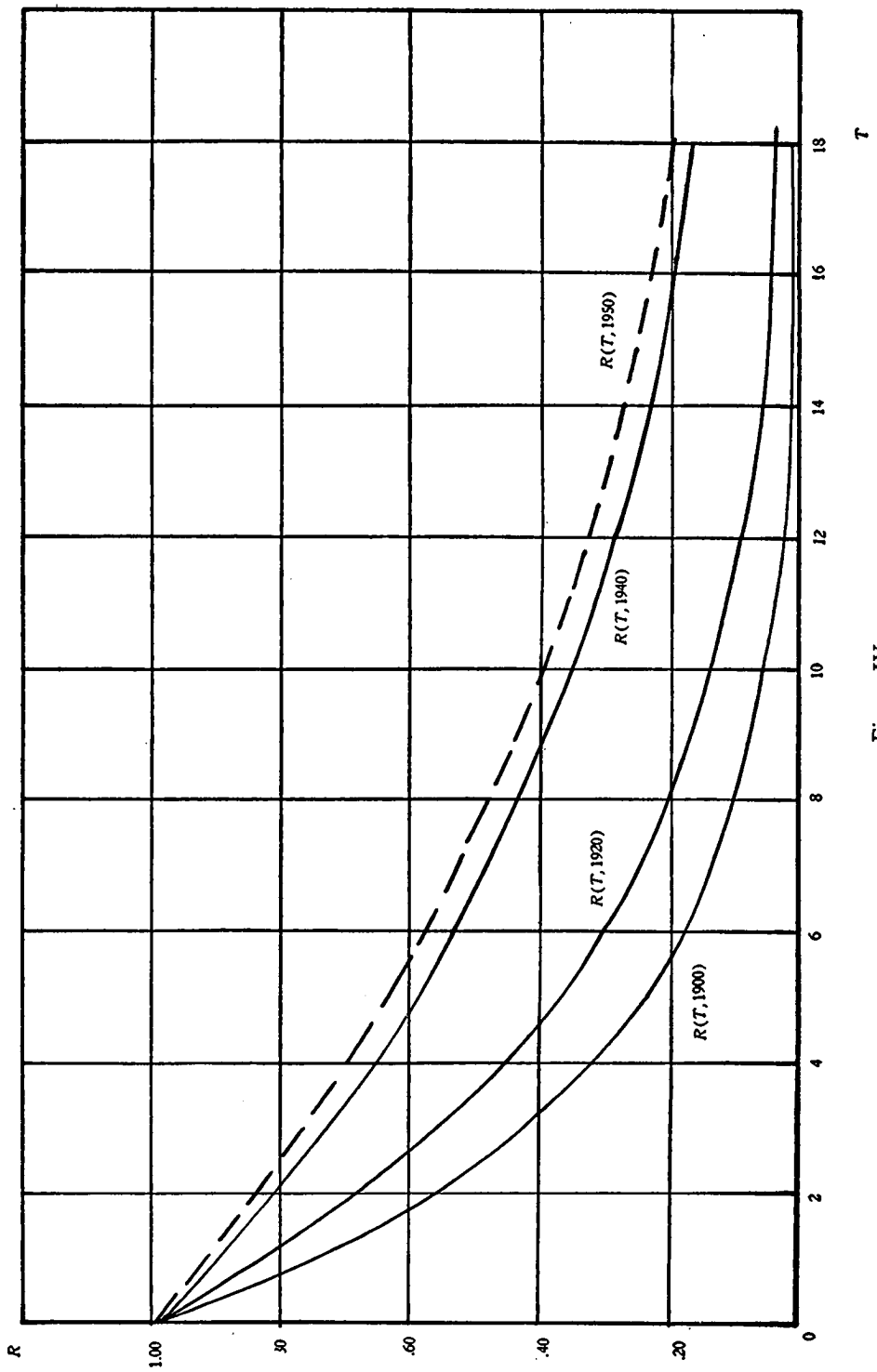


Figure IV
Estimated Percentage Renewals Germany

COMPARISONS BETWEEN THE COUNTRIES

All three countries are similar in that during the period 1900-1940 the patent renewal curves exhibit secular upward rotation. In Germany and Switzerland the rotation continues into the postwar period. In Great Britain, on the other hand, the postwar renewal curve is quite similar to the 1940 curve.

As between the three countries the prewar renewal curve of Switzerland rotated by less than that for the other two countries and the German curve exhibited the most pronounced degree of rotation. Thus the estimated proportion of patents renewed four years after the date of application increased from thirty-seven to forty-six per cent in Switzerland between 1900 and 1940. It increased from thirty-nine to sixty-six per cent in Great Britain and from thirty-one to sixty-six per cent in Germany. Similarly, the estimated proportion of patents renewed fourteen years after the date of application rose from three to six per cent in Switzerland; from four to twenty-three per cent in Great Britain; and from 1.5 to twenty-three per cent in Germany.

The British renewal curves were the highest at each of the three dates, 1900, 1920, and 1940. In 1900, the Swiss renewal curve was somewhat higher than the German. But for 1920 and 1940 the German curves are in second place. For 1950 the 1900 order is exactly reversed: the continued rotation of the German and Swiss curves places Germany in the lead, Switzerland in second place and Great Britain third.

SHORT-RUN VARIATIONS

How do the renewal curves shift in the short run? Because the renewal curves of the three countries seem to be essentially similar we attempt an answer to this question with an analysis of only one of the countries. Let us consider Great Britain and confine ourselves to the prewar period.

Short-run variations in the renewal curve may be gauged by observing residuals—i.e., the difference between the actually observed values and the values estimated by the regression equation. Arbitrarily picking $T=4$ and $T=10$ as the renewal dates at which we wish to observe short-run fluctuations, the residuals as derived from the observed data and equation (9) become, respectively,

$$(16') \qquad X(4,t)_a - X(4,t)_c = X(4,t)_a + .6504 - .0132(t-1922),$$

and

$$(16'') \qquad X(10,t)_a - X(10,t)_c = X(10,t)_a + 1.626 - .0330\,(t-1922)\,.$$

The residual series are plotted in Figure V. The solid lined curve traces out the residuals for $T=10$ (the sixth renewal) and the broken line

gives the residuals for $T=4$ (the first renewal). Figure V also traces the path of general business activity, the solid line representing national income in billions of pounds at current prices.[6]

Comparison of the broken lined and the dotted curves brings out just what one would expect—namely, there is a strong association between peaks and troughs in patent renewal and peaks and troughs in general business activity. Concentrating on the coincidence of peaks and troughs we may observe that in 1907 both series reach a peak. The 1908 national income trough is followed one year later by a trough in the proportion of patents renewed at the first renewal. Similarly, the 1913 national income peak is followed one year later by a renewal peak. The business upturn that starts after the 1914 trough and continues until 1920 is accompanied by a rise in renewals; both series reaching their peak in 1920. There then follows a slump ending in 1923 which is accompanied by a trough in renewals in 1924. The 1929 business peak is again accompanied by a renewal peak, and the 1933 low point in business activity is followed two years later by a cyclical low in renewals. Prosperity apparently brings with it increased optimism and a willingness to renew patents that, during periods of slack activity, would be allowed to expire.

The proportion of patents renewed at the sixth renewal ($T=10$) also seems to follow a cyclical course although, as we might expect, the relationship to general business activity is not nearly as close as in the case of the first renewal. Comparison of the first renewal with the sixth (the broken line against the solid line) brings out an interesting phenomenon—namely, the sixth renewal curve frequently lags behind the first renewal curve by a year. In other words the fall in the proportion of patents renewed for the sixth time lags a year behind that of the proportion renewed for the first time. In explanation of this circumstance we may venture the following hypothesis: By the time a patent comes up for its sixth renewal most of the uncertainty regarding the economic value of the patent will have been eliminated. The owners, in other words, will have a much clearer idea of just how valuable the patent is to them the older is the patent. It would appear reasonable therefore to suppose that the owners of older patents that would be renewed under normal circumstances will wait longer before the deterioration of business conditions causes them to allow the patents to expire.

In comparing the peaks of the two series, we observe that the sixth year renewal lags behind the first year renewal curve three times. In explanation of this we may propose a hypothesis similar to the one above—namely, the owners of the patents that survive to the sixth

[6] Source: "Economic Development in the United Kingdom, 1850-1950," Labor Information, ECA Mission to the United Kingdom, Chart #3.

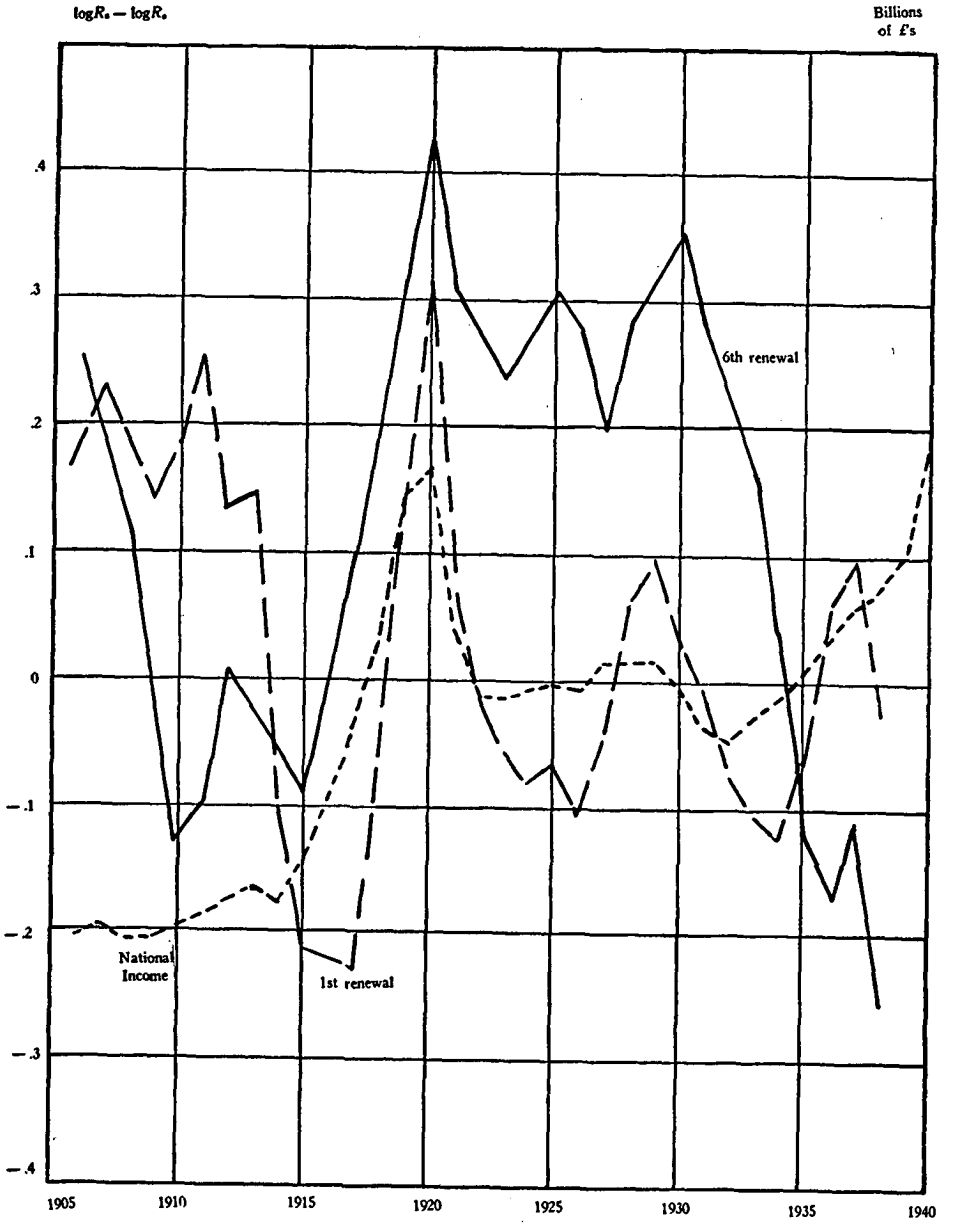

$\log R_s - \log R_s$
Billions of £'s
.4
.3
.2
.1
0
−.1
−.2
−.3
−.4
1905
1910
1915
1920
1925
1930
1935
1940
6th renewal
National Income
1st renewal

Figure V

renewal will have a fairly certain idea of the value of the patent. A more pronounced improvement in business conditions will therefore be required in order to make the owners of the patents that would have been allowed to expire at the sixth renewal decide to renew the patents rather than to allow them to expire.

CAN THE TRENDS BE EXPLAINED?

The most conspicuous characteristic of the renewal curves in the three countries is their upward rotation through time. Can these trends be explained and what, if anything, can be inferred from a study of the renewal curves?

I. *The effect of renewal fees.* It is difficult to gain much of an inkling of the possible effects that different renewal-fee scales have upon the renewal curves. The only possible indication comes from the fact that the renewal curve for Germany exhibits a greater degree of rotation than the curves for the other two countries. The German patent system is characterized by the fact that the standards of patentability are higher and that the renewal fees are both greater and increase more rapidly than in the other two countries. Now it is possible to argue that the more rapid upward rotation of the German curve is due to the falling real value of the renewal fee caused by a rising price level.[7] Combining this phenomenon with the fact of high standards of patentability—which suggests that potentially many patents would be kept in force if the fee were not high—gives one possible explanation for the more pronounced change in Germany. It should be emphasized, however, that this is a mere hypothesis consistent with the data but by no means implied by them.

II. *The use rate of patented inventions.* Is it possible to infer from the upward rotation of the renewal curves that the use rate of patented inventions has been rising? Or, alternatively, is renewal synonymous with use? It is certainly tempting to infer that it is, since the present analysis would then offer a ready explanation for the apparently contradictory results of various studies of the use rate of patented inventions in the United States.

The answer to the question depends upon what we mean by use. A patented invention may be regarded as used if: 1) the patented invention is actually exploited commercially, 2) the patent is of value to its owner for purposes of building up a dominant market position or for bargaining

[7] The renewal fee would become less burdensome even if the price level did not change. As long as economic growth is taking place, markets are expanding so that the absolute value of the average patented invention would tend to rise as time passes. For a discussion of this point see, Thomas Dernburg, "The Quality of Invention: An Economic Interpretation," Princeton University (mimeographed).

for cross-licenses, etc., 3) the patent is considered potentially useful because of the possibility that either the invention or the patent will be used in the future. If use is defined as incorporating all three of the above connotations then use and renewal are close enough together to be regarded as synonymous.

However, a more meaningful definition of use is to regard patented inventions as used only if the specific technologies are being exploited commercially. On this definition, obviously, a rise in the renewal curve does not necessarily imply that the use rate has been rising. There is, to be sure, a strong presumption that the use rate in this stricter sense has risen; but since we cannot infer from the fact that a pie has grown larger that an individual slice has also grown, we cannot state with any degree of confidence that a rise in the renewal curve implies that the use rate of patented inventions has risen.

III. *The quality of patented inventions.* It has been suggested that the rising renewal rates imply that the quality of patented inventions has been on the increase.[8] The issue of the quality of patented inventions is at the heart of current patent controversy. It has been shown that, although the annual number of patent applications and issues has remained constant in the United States, the quantity of research input and output has grown rapidly.[9] The inference derived from these data is that the patent system has declined in relative importance. Those who take issue with this view have argued that the numbers are misleading and that, although the number of patents is the same, the average patent is of a higher quality.[10]

In an earlier paper [11] one of the present authors examined the concept "quality of invention" and concluded, on the basis of the definition of the economic quality of an invention as comprising the percentage contribution to the real national income that the invention makes possible, that a constant annual rate of patenting was not inconsistent with (but indeed implied) exponential productivity growth even though the economic quality of inventions remained constant and even though the useful new technology was assumed to be entirely embodied in patented inventions or the useful new technology embodied in patented inventions was assumed to be proportional to the total.

In examining the argument that rising renewal rates implied rising

[8] I. Jordan Kunik, "A Patent Attorney Takes Issue," *Technology and Culture* (Summer 1960).

[9] Fritz Machlup, "Patents and Inventive Effort," *Science,* Vol. 133, No. 3463 (1961); and S. C. Gilfillan, "An Attempt to Measure the Rise of American Inventing and the Decline of Patenting," *Technology and Culture* (Summer 1960).

[10] For example, Kunik, *op. cit.*

[11] Dernburg, *op. cit.*

quality of patented inventions it was pointed out that constant average quality of patented inventions might very well be accompanied by a higher renewal rate owing to a reduction in the dispersion of quality about the average level. In other words it is possible that there is less trivia patented nowadays, but that this is offset by the fact that there are fewer patented inventions (relative to the sum total) of outstanding economic value. Secondly, it is possible that a rising renewal rate may reflect a reduction in the rate of obsolescence of inventions. This might imply that inventions are increasingly directed towards lengthening the life of equipment. It might also imply that the rate of technological progress has declined. In either case we would be likely to observe a rising renewal curve but this certainly cannot be taken to imply that the quality of patented inventions has risen.

Looking at the concept of quality from the point of view of the businessman or the patent lawyer as opposed to the point of view of an economist, the quality of a patent (not the patented invention) might be regarded as the commercial value of the patent to its owner. This, in turn, depends upon the degree to which the patent right is legally enforceable. In order to answer the question of whether quality has improved in this sense, one would have to make a study of the judicial history of patent enforcement in the three countries. The only intelligence possessed by the authors on this score comes from the United States and suggests that the quality of patents in this sense has certainly not improved. Indeed, many exponents of the theory of "judicial erosion" of the patent system would argue that quality has actually deteriorated. Counter to this is the fact that due to the expansion of markets resulting from general economic growth, the commercial value of individual patents has undoubtedly grown, and this may account, in part, for the rising renewal curves.

IV. *Obsolescence.* It would be a happy development, indeed, if we could infer from our data that because the time elapsed before no more than fifty percent of the patents were renewed has increased the length of time required for the average patented invention to become obsolete has changed. If we could so infer, our renewal curves would give us a ready-made measure of the rate of technical progress.

Unfortunately, the connection between renewal and obsolescence is even more tenuous than the connection between renewal and use. Inventions may be obsolescent even though they are used in the sense that superior alternatives exist but are not currently exploited commercially because of sunk costs in earlier techniques. There is therefore no presumption that the rising renewal curve suggests a slowing down in the rate of obsolescence and technical change.

V. *Corporate patents.* As is well known, there has, during the first half of the Twentieth Century, been a significant increase in the proportion of patents held by corporations. It seems safe to say that the average established corporation with its productive, financial, and marketing resources will be in a better position to make use of a patent and/or a patented invention than will a private individual who lacks these resources. Clearly the value of a patent to an individual who is incapable of exploiting the patent commercially will be far less than the value of the patent would be in the event that the financial, marketing, and productive resources were at hand. Thus the fact that an increasing proportion of patents have found their way into corporate patent holdings suggests that the commercial value of patents is increasing and this, in turn, may help to explain the rise in the renewal curves.

COMMENT

by Barkev S. Sanders

Before publication in the Journal, *papers are reviewed and suggestions made by members of the Editorial Committee intimately concerned and competent in the aspects of the subject matter discussed therein. The author may include or reject their suggestions. If these suggestions are not accepted by the author, in whole or in part, the reviewer may, if he so desires, publish a comment on the paper. Accordingly, Dr. Barkev S. Sanders, a statistician on the staff of the Foundation and a member of the Editorial Committee, desires to make the following comments on the paper entitled "A Statistical Analysis of Patent Renewal Data for Three Countries," by Thomas Dernburg and Norman Gharrity.*

The factual information underlying the article has been presented by Federico more extensively, in greater detail and with greater insights as to its probable significance on percentage of patented inventions put to commercial use.[1]

Federico also pointed out that the percentage of patents renewed in successive years could be fitted by an exponential. Federico's work showed the closeness of fit of the exponential—bringing out the fact that the fit was not too good in the initial and terminal years. This deviation is in all probability significant in the interpretation of these renewal rates.

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[1] P. J. Federico, "Taxation and Survival of Patents," *Journal of the Patent Office Society,* September 1937, Vol. XIX, No. 9; and "Renewal Fees and Other Patent Fees in Foreign Countries," Study No. 17 of the Subcommittee on Patents, Trademarks and Copyrights, of the Committee on the Judiciary, United States Senate, 1958.

Federico also called attention to the fact that over the years in England, Germany, Switzerland, Sweden, and The Netherlands the proportion of patents renewed has been increasing sharply and progressively.

In statistics, curve fitting is used sometimes for purely descriptive purpose. However, where the data are used for analytic purpose, a mathematical function must be justified on theoretical grounds and not simply in terms of pragmatic evidence of a fit. The authors treat the empirically fitted curve as if it were an underlying law, using it for extrapolation with no evidence, whatsoever, that such use is warranted. Thus, they give the percentage of British patents issued in 1900 which were renewed first, seventh, an eleventh times as 39, 10 and 4. The actual percentages were 32.7, 7.6 and 4.0, considerably different. And a five-year average centered at 1900 gives percentages not much different from the one-year figures, i.e. 33.7, 8.0, 4.0—which is appreciably different from estimates given by the authors of renewal percentages based on their curve.

The authors make a point that in Britain the increase in percentage of patents renewed declined after 1940 instead of increasing. They fail to sense the danger that this apparent decline could be entirely spurious, since the 1940 figures are based on extrapolation of the curve fitted to the observations for 1906 to 1938, while the 1950 figures are based on another curve, fitted to observations for the years 1947-1956. The first curve has an increment factor, the second does not. The discontinuity of these curves can not be defended, and the differences between 1940 and 1950 could result from this discontinuity.[2]

In this article there is an attempt to correlate the first and sixth renewal

[2] It should be observed that for the post World War II period the theoretical curve was fitted to the percentage of patents issued in the years 1947 through 1956, respectively. For Great Britain, this would mean that for patents issued in 1956 only the first renewal was available for this fitting; for 1955 issues, the first and the second, and so on. Of the patents issued in 1947, the first through the tenth renewal were available for fitting. None of the eleventh and twelfth renewals were available for this period. The converse was the case for the series 1906-1938. It is obvious, therefore, that the curve from which the 1950 figures were derived was based predominantly on early renewals; the converse was true for the other curve, on which the 1940 estimates were based. In fact, in Table II the estimate of nineteen per cent for the eleventh renewal is not based on any observation in this period; it is an extrapolation. It is, therefore, difficult to place too much reliance on the comparative figures for either terminal year, 1940 or 1950.

The comparison of 1950 and 1940 might be questionable for all three countries on another ground as well. According to Federico, the information on renewals for patents in the 1947-56 period is in terms of the year of issue; for the period 1906-1938 apparently the statistics are in terms of year of renewal payments in a given year. (See page 31 of Federico's 1958 publication, given in footnote 1). It would appear, therefore, that the interval separating the 1940 estimate from that of 1950 may not be in terms comparable to that separating 1940 from 1920. One may, therefore, question the appropriateness of the comparisons in Tables I through VI and in the three charts presumably comparing the renewal rates of cohorts of patents issued in specific years.

rate with national income in Great Britain. The evidence is shown in Figure V. The authors see a "strong association between peaks and troughs in renewal and peaks and troughs in general business activity" (p. 357). I fail to see this, except for the sharp rise of 1920 in all three series considered, and a subsequent drop which could be interpreted in terms of the effect of World War I on patents issued during the war and on the national income. If we exclude this post-war period there is very little evidence left of any consistent association. For instance, in 1915 the percentage of patents renewed for the first time reached its lowest trough, while the income curve was rising sharply.[3] In the years before 1915, there is hardly any evidence of significant association in the magnitude and direction of variation in the income curve in relation to the patent renewal curve and this is true for the period 1925 and after.[4]

The authors might have tested their hypothesis by marshalling additional evidence from the postwar period in Great Britain, from second, third and so on renewal rates, from German and Swiss data, but none of these. The evidence in support of the hypothesis advanced is nil and considering the resistance of renewal rates to vary in response to variation in renewal fees, I am inclined to dismiss the reasoning of a direct synchronous association between income and number of patents renewed.[5]

With respect to the effect of the amount of the renewal fee on the percentage of patents renewed, the authors say it is not possible to assess it. We interpret this to mean they could not find any effect. Yet, this would seem to fly in the face of their hypothesis that the rise and fall of renewal percentage is determined directly by the income level at the time of payment.

In Chart I, we show the renewal rates of patents for certain countries with varying amounts of renewal fees.[6] To bring out the parallelism in the rates of decline of renewed patents with passage of time, the initial

[3] Patents on which the first renewal fell due in 1920 were issued in 1915. In other words, most of them were developed after the war started, in all probability more of them were foreign and corporation owned (judging from U. S. experience). Thus they were different from the run-of-mine patented inventions of preceding years.

[4] The authors indicate that disturbances during and after World War II were such as to render the patent statistics useless. Their evidence of association holds true only for the period when both income and the patent series were affected by World War I and, therefore, not much reliance should be placed on this evidence.

[5] In the United States, we find no consistent association between changes in national income and the number of patent applications in different years.

[6] The data used are renewal rates of patents issued in 1930-39 in Germany, Great Britain, Switzerland, Sweden and Netherlands. The data come from the Federico article of 1958 cited in footnote 1. The renewal fees for these countries are: Germany, $1,745 (increased to $2,435 in 1955); Netherlands, $915; Sweden, $710; Switzerland, $589; and Great Britain, $462.

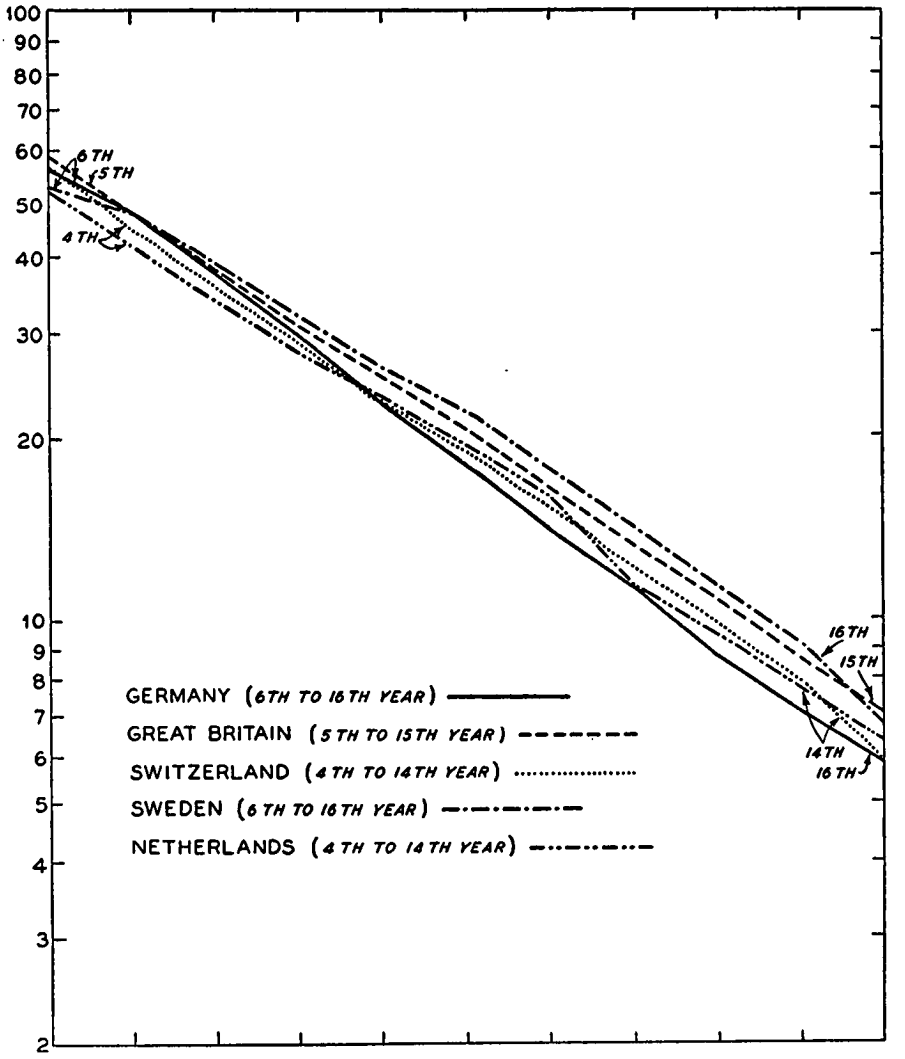


Chart I. Comparative rate of decline in the percentage of patents renewed in selected countries from a point in time where these rates come close to one another. For patents issued during 1930-39.

year plotted was selected so as to bring the rates for different countries close to one another.[7] This was done to overcome the differential selec-

[7] For Germany, the initial year was the sixth year at which time 56.2 per cent of the patents issued were renewed. For Great Britain, it was the fifth year with 59.9 per cent renewed; for Switzerland, the fourth year, with 56.8 per cent renewed; for Sweden the sixth year, with 52.6 per cent renewed; and finally for Netherlands the fourth year with 51.6 per cent renewed. The number of years lapsed, and the percentage of patents renewed reflect quite clearly the standard of patentability in the respective countries. In countries like Germany, where the standard is most exacting, the decline in the curve takes longer. In countries where the standards are low, the decline takes less time.

tivity of the patents issued in different countries. Once this selectivity is allowed for, the rate of decline appears to be almost uniform for the different countries. This would indicate that the effect of larger renewal fees must be small if any.[8]

The most direct interpretation of these relationships is, that in countries with exacting tests of patentability the inventions which are patented are of greater economic significance and, therefore, they are renewed over a longer period of time compared to patented inventions of countries with less exacting requirements or no requirements at all. However, the payment of renewal fees forces rapid elimination of the less worthwhile patents. It would follow, therefore, that the progressive increase in the percentage of patents renewed in different countries over the years means there has been a progressive trend among patentees in all of these countries to patent only the more significant inventions. That is, there has been a progressive upgrading of inventions which are patented despite the presence or absence of standards of patentability required.

The authors commenting on the percentage of British patents that are not renewed on the fifth anniversary of the date of issue regard these patents as useless. With respect to patents that are renewed for one or more times in Great Britain and in other countries they have this to say:

"Is it possible to infer from the upward rotation of the renewal curves that the use rate of patented inventions has been rising? Or, alternatively, is renewal synonymous with use? It is certainly tempting to infer that it is, since the present analysis would then offer a ready explanation for the apparently contradictory results of various studies of the use rate of patented inventions in the United States."

I would like to comment first on the last sentence of the above quotation in which the authors refer to "contradictory results of various studies." They fail to cite a single study. The only study on utilization of the United States patents to date, is the study made by the Patent, Trademark, and Copyright Foundation. If any authority is needed for this assertion, let me quote Federico, who was the discussant of the report on Patent Utilization at the first public Conference, held by the Foundation.[9] With respect to the findings that fifty to sixty per cent of assigned United States patents were put to commercial use Federico had this to say:

"If you ask what's been done before you can reasonably answer,

[8] Federico approaches this problem from another angle. He compares the effect of increased renewal fees in England, Switzerland, Netherlands, and Germany on the percentage of renewals for different years immediately before the new fee schedule came into effect and after it came into effect, and finds no differences. He, therefore, concludes: ". . . the amount of the annual fees has little or no effect on the keeping of patents in force." Page 32 of Federico's 1958 study, cited in footnote 1.

[9] *PTC J. Res. & Ed.*, Vol. 1, 1957, Conference Supplement, pp. 75-77.

'Practically nothing.' Several years ago I had occasion to investigate what existed in the field on this subject, and I'll give you a brief survey of what there is."

He cites two unproductive attempts. He then refers to data bearing on use found in certain court records in antitrust cases and then concludes:

"Now, we have the various guesses that have been made, both respectable and otherwise. These have been made by all kinds of people in different circumstances, ranging from the Commissioners of Patents down to people who hardly know what a patent is." [10]

With respect to the question, "Is renewal synonymous with use?" my answer would be no. But neither is a failure to renew per se evidence of non-use or discontinuance of use. It is the opinion of this writer that as the time span between the date of issue and the current renewal date widens, a larger and larger proportion of the patents that are renewed are limited to those that are in current use. I would be almost certain that in any of these countries a patent which is renewed on its tenth anniversary is almost certain to be in current use. I am also of the opinion that a very large proportion of patents on their fifth anniversary that are renewed would be in commercial use. I believe these inferences are strengthened by evidence on the percentage of patents renewed after specified years shown in Chart I. The negligible effect of different renewal fees on the percentage of patents renewed is such as to suggest these patents to be in commercial use. When a patent is in commercial use, the economic returns are usually so great that the amount of renewal fee required would be of trifling significance.[11]

From what has been said, it should not be inferred that patents which are not renewed at all are necessarily all useless. First of all a patent may be useful even if not used commercially. In our patent utilization study we found many patents not used commercially which the assignees deemed useful. Thus some of these patents were licensed. Others were said to have led to better inventions which were in use and other reasons for usefulness were cited by assignees. In all, seventy-five per cent of assigned patents on which we obtained information from assignees were considered useful.

In Great Britain, the first renewal fee is not paid until the fifth anniversary from the date of application. In Switzerland, the first renewal fee starts on the second anniversary. In Germany at present, the first

[10] *Ibid.*, p. 75.

[11] For the high economic returns from patented inventions put to use, see Sanders, B. S., Rossman, J., and Harris, J. L., "The Economic Impact of Patents, *PTC J. Res. & Ed.*, Vol. 2, No. 3 (September 1958), pp. 340-362.

renewal fee becomes payable on the third anniversary. It is conceivable that some patents may come into use and become obsolete before the first renewal fee falls due. In the United States, we have found that about forty per cent of the assigned patented inventions that are put to commercial use are put to such use prior to filing. We assume that this practice may also be common to corporations holding patents in these countries as well.

Nor is one justified to assume that patented inventions which are not renewed represent patents no longer in use. It would appear reasonable that certain corporations find themselves in circumstances under which they deem it safe to discontinue paying renewal fees to maintain the patent protection even though the patented invention remains in use—one can conceive many circumstances that would allow a corporation to follow this course. This inference is strengthened by the fact that according to assignee replies in the Patent Utilization Study over half of all the 1938 patented inventions put into commercial use were still in use, and the mean duration over which these patents had been in commercial use was in excess of nineteen years.[12]

The preceding are inferences based on the patterns of renewal and our insights gained from the Patent Utilization Study. Precise assertions can not be made without a first hand study of the patented inventions of these countries by a procedure paralleling that used in the Patent Utilization Study.

The discussion by the authors, that "use" could have many meanings should be obvious. In the Patent Utilization Study we defined use as: "making or selling the patented invention, or using the patented invention in the production of goods and services." [13]

In summary, this author feels that the percentage of patented inventions renewed after the fifth or sixth anniversary from the date of application, even though they may not be all inventions that are in commercial use, nevertheless probably approximates patented inventions in a given country that are commercially exploited.

With respect to quality of patented inventions as with respect to "use," the authors indulge in useless speculation. The consistent increase of the proportion of patents renewed in recent years in comparison to earlier years for every country for which we have available data means an up-

[12] The rate of decline in renewed patents for the different European countries given by Federico shows a tendency for the decline to become accelerated in the terminal one or two years. This would suggest that many companies take stock of their inventions as the final expiration date approaches and some of them decide that they can hold their own without relying on the patent protection any longer.

[13] *PTC J. Res. & Ed.*, Vol. 1, No. 1, 1957, p. 108.

grading of patents. The analogy of the pie may impress the authors but it appears worthless to me—designed to confuse not to enlighten.[14]

In scientific inference, the hypothesis which is the most simple and direct and comes closest to accounting for all observed facts is the hypothesis accepted tentatively until an alternate hypothesis proves more cogent. On this basis the most plausible explanation of progressive rise in the percentage of patents that are kept in force in every country for which information is available and over several decades means a progressive upgrading of inventions that are patented.[15] This upgrading, in turn, suggests strongly: (1) a higher proportion of patents are put to commercial use in recent decades as compared with prior decades; (2) patented inventions put into commercial use in recent decades are apt to remain in use on the average for a more protracted period than what was true of patents in earlier decades. We shall accept these in the absence of cogent evidence to the contrary. We do this more readily since these inferences are consistent with our own findings from the Patent Utilization Study and other information supplied to us with respect to patents in the United States.[16]

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[14] If I have a family of five and I buy a larger pie Monday than I bought last Monday, in the absence of any other information, the most probable inference would be that each member will get a larger piece of pie.

[15] Some of the underlying factors for this upgrading could be; (a) a progressive shift from individual inventor to inventors working for corporations; (b) proportionate increase of inventions filed for by foreigners; (c) putting patented inventions to commercial use prior to patent application and discarding those which prove economically unproductive, etc.

[16] We find the percentage of patented inventions utilized in 1952 higher than that for 1938 or 1948. Moreover, both for assigned and unassigned patents, the utilization rate for patented inventions included in our sample are appreciably higher than the percentage of all patents issued to those inventors of sampled patents that were put to commercial use.

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Contains an 18-page historical outline and a bibliography of publications on the subject of the book. The abridgements are reproductions of abstracts of British patents issued by the British Patent Office, but no drawings are reproduced. Patent No. 418 of 1717 discloses variously shaped bullets, some "for shooting square bullets against Turks" and others for shooting "round bullets against Christians."

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"Four chapters are devoted to public policy in the United States, Great Britain, Germany, and other European countries. Separate chapters are devoted to the development of the European Steel and Coal Community and the European Common Market. . . . A study of the role of patents in public policy points up the problems of reconciling the grant of limited monopoly with a policy of competition." Chapter 8, entitled "The Role of Patents in Public Policy," is written by Alfred E. Kahn.

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A selected list of paperbound science books. Annotated, selected listing of 679 titles recommended for high school students, college undergraduates, teachers, and laymen.

DeWitt, Nicholas. *Education and Professional Employment in the U.S.S.R.* Copies of the book are available from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.

900-page study is the result of a three-year research project undertaken by Mr. DeWitt for the National Science Foundation under a grant administered by the Office of Scientific Personnel of the National Academy of Sciences-National Research Council. Analysis

of Soviet education indicates that the Soviet Union is producing two to three times as many scientific and technical professional graduates yearly as the United States. The professional instruction provided, though extensive in fundamentals of sciences and engineering, was found directed toward narrowly defined specialties. The Soviets have been operating a much more selective educational system than the United States on all levels beyond the elementary. Educational reforms have particularly intensified training in vocational-technical subjects. In 1959 the total higher education enrollment in the Soviet Union was about two-thirds the size of resident enrollment in U.S. colleges and universities. More than one half of all Soviet higher education graduates are women who comprise one-third of all engineering field professionals. The United States graduates many more non-applied scientists in the physical and biological sciences. The author concludes, after extensive surveys of curricula, that although qualitative variation in the Soviet effort is substantial, Soviet professional higher education in most scientific and engineering fields is at least equivalent to, and sometimes more extensive than in the United States or West European institutions of higher learning.

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The case of General Electric (sales after disclosure of criminal wrongdoing by GE executives continued upward, topping those before disclosures) would seem to indicate that the real value of a corporate image lies in the quality of a company's products and services and its reputation for reliability. These aspects are the most influential components of an effective image. The public service aspect of a corporate image apparently is rather remote to the consumer.

Crews, M. A., "Three Patent Incentives—A Reappraisal," *Journal of the Patent Office Society,* 43 :554 (August 1961) ; *Ohio Bar,* 34 :821 (August 7, 1961).

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The author points out that Novelty, Utility, and Non-Obviousness "are key requirements which influence the validity and the value of patents in both countries." Mr. Fasse discusses these requirements and Technical Progress, a fourth requirement in Germany. He concludes that "introducing the technical progress concept in our patent system would to a certain degree improve the value of U.S. patents . . . make it easier to clearly distinguish between inventive faculty criteria and advance of the art criteria which at present are freely mixed" and require "somewhat less inventive faculty in cases where there is no doubt about the extraordinary . . . contribution to the art . . . Insignificant contributions could be limited by requiring a higher standard of invention."

Guttag, Alvin, "The Hass-Henze Doctrine," *Journal of the Patent Office Society,* 43 :808.

John S. Roberts, Chairman of the Hass-Henze Subcommittee of the Chemical Practice Committee of the American Patent Law Association, prepared a draft report which the author revised into this paper. "The Hass-Henze Doctrine is concerned with one phase of the problem of equivalence. More specifically it relates to situations where a novel compound is being claimed and a closely related compound is old in the art." The paper discusses the doctrine as it applies to homologues, analogues and isomers. The author considers the kind of showing necessary where a compound has been established to be a homologue, isomer or analogue and divides the case situations into two categories. He

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He suggests criminal penalties for the divulging of trade secrets by employees.

Klotz, Michael, "What to Avoid in the U.S. Specification When Its Counterpart Is Intended to Be Filed in Foreign Countries," *Journal of the Patent Office Society,* Vol. 44, No. 1 (January 1962), pp. 17-26.

The author in this talk presented to the New Jersey Patent Law Association in October of 1961 discusses problems encountered when the U.S. drafted specification is prosecuted or litigated abroad. He points out that in chemical cases "the U.S. specification is not as a rule concerned with the processes for their preparation." He refers also to the problems connected with the patenting of processes for intermediate chemical compounds and, in British practice, the necessity of "complete accuracy of each and every statement in the body of the specification." Among other topics he touches upon is "the almost universal requirement that the claims be coextensive with the invention as described in the specification." The author concludes with some observations on the "difficult questions of diconformity," and suggests "that perhaps one way of avoiding many of the difficulties I mentioned would be to file in the United States as the 'first application' a specification drafted in accordance with the requirements . . . of the practice of the group of foreign countries in which the counterpart of the U.S. specification will later be filed."

Knopp, Otto R. H., "The World's Major Patent Systems," *Journal of the Patent Office Society,* Vol. 44, No. 1 (January 1962).

"A brief glimpse of their legal origins and basic conceptual differences."

Lawlor, R. C., "Public Interest: Government Patent Policy and Equity," *American Bar Association Journal,* 47:492 (October 1961).

Lawlor, R. C., "Public Interest in Non-Governmental Ownership of Patents," *Journal of the Patent Office Society,* 43:447 (July 1961).

"Legal Aspects of Competitive Practices," University of California Extension Department of Continuing Education of the Bar, Berkeley, Calif., 1961.

Machlup, Fritz, "The Supply of Inventors and Inventions," (in English) *Weltwirtschaftliches Archiv,* Vol. 85, Part 2 (1960), 210-254.

Maltby, W. R., "Division of Rights between the Sponsor and the Originator of an Invention," *Federal Bar Journal,* 21:258 (Spring 1961).

Mayo, Louis H., "The New Technology and National Goals: Some Implications for Legal-Policy Decision Making," *Notre Dame Lawyer,* Vol. 37 (Symposium 1961), pp. 33-69.

The author advocates that the legal profession provide "creative, experimental thinking" in the legal policy area. He encourages the use of "model-thinking" as an analytical tool, and suggests the need for such thinking now at the legal policy level in earth satellite development. "To make maximum effective use of our vast scientific and technological resources we must employ realistic models of the extremely complex socio-political-technological interactions within which we move today." The author concludes with a recommendation that law schools establish "continuing programs directed to selected legal-policy areas." The paper is well footnoted. Some indications of the approach and the scope of the paper can be obtained from the subtitles: "General Orientation: The New Technology and National Goals"; "Major Forces, Movements, and Trends in the Contemporary World"; "Legal-Policy Decisional Procedures and the Scientific-Technological Component"; "The Need for Cross-Disciplinary Approach to Legal-Policy Problems"; "Conceptual-Model Thinking at the Legal-Policy Level."

"McKesson to Push Generic Rx Drug Line," *Drug Trade News* (October 16, 1961), pp. 1, 8-14.

McKesson intends to produce value line pharmaceuticals manufactured to the very highest quality standards that will carry McKesson label.

Melton, Jessica S., and Bensing, Robert C., "Searching Legal Literature Electronically: Results of a Test Program," *Minnesota Law Review* (December 1960), pp. 229-248.

"Merchandising Sells a Trademark," *Printers' Ink* (November 3, 1961), pp. 86-87.

Red umbrella, chosen as Travellers' trademark two years ago, is highly successful in dramatizing business of the company—insurance. Lends itself easily to wide merchandising, especially on rainy days when red umbrellas of Traveller employees blanket downtown.

Mills, Bert, "The Packaging Inquisition," *Sales Management* (October 20, 1961), pp. 40-41, 112-115.

Author fears bad publicity resulting from Senator Hart's three-day hearing in June, 1961, on packaging may hurt legitimate packagers. Author's chief complaint is that TV and newspaper headlines make a witch hunt rather than an investigation.

Nahstoll, R. W., "Observation and Memory of Witnesses," *American Bar Association Journal,* Vol. 48, No. 1 (January 1962).

"The validity of the litigation process depends on the observation and memory of witnesses, yet the legal profession has been apathetic, perhaps hostile, to the insights offered by experimental psychology. Mr. Nahstoll tells us it is time to let the psychologists help us learn about phenomena in these fields."

Neumeyer, F., "Unification of European Patent Legislation on the Common Market," *Modern Law Review,* 24:725 (November 1961).

"New Symbol Will Link All 3 M Divisions . . . Symbol Will Identify 27,000 Products, 140 Brands

in Many Fields," *Advertising Age* (July 21, 1961), pp. 3, 90.

Minnesota, Mining and Manufacturing Company is introducing a new corporate trademark to stamp all products made by the company with the same corporate symbol so that consumers will know they are buying a 3M product.

Pearlman, Robert I., "Plea for a Realistic Approach to Rule 131 Practice," *Journal of the Patent Office Society,* Vol. 43 (December 1961), pp. 805-875.

Ex parte Blair 129 U.S.P.Q. 424 is criticized as unnecessarily limiting *In re Stempel* 113 U.S.P.Q. 77 and puts "applicants under a burden not in accord with the patent statutes, as well as common sense." The author contends that "all the applicant should be required to show under Rule 131 practice is priority with respect to the claimed subject matter or all that is relevant in the cited reference disclosure."

Prager, Frank D., "Historic Background and Foundation of American Patent Law," *American Journal of Legal History,* Vol. 15 (October 1961), pp. 309-325.

The author examines early patent customs and notes the change in attitude toward patents by the crown. He makes the point that the basic characteristics of patent law nevertheless remained unchanged during the pre-American patent law period. He discusses some of the early problems relating to novelty, and other questions, such as whether the king had the common-law duty to issue a patent when an invention was presented. The first section of the paper deals with the "privilege" custom, 1400-1700. This sections is followed by three subsequent period divisions entitled: "Opinion and Controversy on 'Intellectual Property,' 1700-1774"; "The Synthesis of 1775-1788"; and "The Legislation of 1789-90." The paper concludes with an enumeration of some of the contributions that can be attributed to the American Patent Act of 1790 and areas in which it failed to show progress. The paper is well footnoted.

Prince, Eugene M., "Law Books, Unlimited," *American Bar Association Journal,* 50:2 (February 1962), 134-137.

"The Bar has viewed the gargantuan growth of law books with incredible apathy. While a few concrete efforts have been made to solve the problem of too many books, nothing has yet been accomplished. The crux of the matter is the reported case with its retinue of citators, digests and annotations. The basic objective must be to see that cases serving no purpose as lasting precedents are not preserved in the permanently bound books." The foregoing is from the headnote to Mr. Prince's article.

"Question of Trademarks, The," *Modern Packaging* (September 1961), pp. 95, 241-244.

Immense recent diversification of companies and products makes trademark planning and strategy far more complicated than it was in the first half of the century when many brilliant trademarks evolved.

Reichel, Dr. Ing. Wilhelm, and Frishauf, Stephen H., "Opposition Proceedings in the German Patent Office in the Light of the Sixth Transfer Law Effective July 1, 1961," *Journal of the Patent Office Society,* Vol. 44, No. 1 (January 1962), pp. 52-66.

"They [opposition proceedings] are intended to be an aid in the

examination and to assure that only valid patents are granted by the Patent Office. While ordinarily conducted as an advisory proceeding, the final control over the proceeding rests with the Patent Office . . . regardless as to whether an applicant actively contests an opposition. . . . Unless unusual and complicated questions arise, or unless appeals are entered, such proceedings are comparatively inexpensive, . . . The advantage of the proceeding to the public is that literature references can be discovered and applied against patent claims, before grant of the patent, from collections which are not ordinarily available to the search facilities of the Patent Office. . . . The right to claim damages for infringement starts from the time of publication of the patent application and thus, with respect to damages for infringement, the period during which a patent is under opposition is not lost to the patentee, . . . Hearings and judicial review, by appeal to the new Federal Patent Court from determinations of the Application Department in opposition proceedings are provided for."

Rostow, Eugene V., "The Lawyer and His Client," *American Bar Association Journal,* 48:1 (January 1962).

This is the first part of the Alexander F. Morrison Foundation Lecture of 1961, delivered by the author at the annual meeting of the State Bar of California. This portion of the lecture is devoted for the most part to a contrast of "The English, and more generally the British view of the lawyer's relation to his client with that which prevails among us."

Rostow, Eugene V., "The Lawyer and His Client," *American Bar Association Journal,* 48:2 (February 1962), 146-151.

This is the second and concluding part of the Alexander F. Morrison Foundation Lecture for 1961. Dean Rostow sets forth a series of steps "in the interest of strengthening the professional independence of the Bar, and of dramatizing that position in the consciousness of the American people." He suggests that "lawyers reconsider their established habit in many types of cases of accepting only clients on one side of the battle. . . ." Another suggestion is that "our government agencies, national, state, and municipal, could do much to develop the professional independence of the Bar by enlarging the practice of retaining outside counsel to represent them. . . ." Dean Rostow also recommends that we "re-examine the practice of lawyers serving as directors of corporations, or officers of trade unions." He points out that "the provision of legal services to the poor . . . is in most communities of the nation scandalously inadequate" and that "protecting the constitutional rights of persons involved in controversies which stir great passions . . . presents the simplest and most searching test of our legal system. . . ." Two areas of Bar action are particularly stressed: "the defense of the courts against misguided and unwarranted public attack, and the establishment of arrangements which could assure the leadership of the Bar itself, and of its ablest members, in the preparation and presentation of cases involving civil liberties."

Saunders, Stuart T., "Law and Business: Cornerstones of Our Economy," *American Bar Association Journal,* 48:2 (February 1962), 152-155.

". . . lawyers and businessmen work in areas that are not as separate and distinct as one might believe: basically, both are trained in

close factual analysis and both are essentially problem solvers. Furthermore, the dividing line between the work of the lawyer and the work of the businessman is becoming more blurred all the time. Lawyers are now frequently called upon to make decisions in business matters, and businessmen must often decide a course of action that has distinct legal implications." The foregoing is from the headnote to Mr. Saunders's article.

Schramm, F. B., "Function of Corporate Patent Counsel," *Journal of the Patent Office Society,* 43: 722 (October 1961).

Smith, A. M., "Muse of Fire," *Journal of the Patent Office Society,* 43:701 (October 1961).

Storm, Bill, "Changing an Image by Changing a Trademark," *Advertising and Sales Promotion* (October 1961), pp. 125-128.

A Philadelphia diaper service found that a new design program, from its trucks to its letterheads, increased its prestige and its business.

"344 of Leading 410 Rx Items in 1960 Were Branded Drugs," *American Druggist* (September 4, 1961), p. 14.

Stiles' (director of market development for Abbott laboratories) report shows generic products accounted for 10.3 per cent of new Rx's, 5.8 per cent of volume, in 1960.

"Trademark Licensing—Domestic and Foreign," *The Trademark Reporter,* Vol. 51, No. 10 (October 1961).

Transcript of a program presented by the United States Trademark Association on the first day of its 1961 Annual Meeting. Comprises "a simulated conference of management experts in combination with outside consultants pursuing the goal" of licensing a trademark. The program consists of two sessions, a morning session devoted to the discussion of domestic licensing and an afternoon session covering the problems of foreign licensing. The treatment is informal and the transcript includes some very useful information offered in the form of an artfully contrived theatrical by a cast of experts in the field.

Travaglini, V. D., "Industrial Property Rights and Foreign Trade," *Trademark Reporter,* 51:545 (June 1961).

Tyler, William D., "Treat Brandmarks Like Women—Never Underestimate Their Power," *Advertising Age* (August 14, 1961), p. 70.

There is a large percentage of buyers for whom "advertising comes down to nothing more than the comforting repetition of familiar, trusted trademarks like the Lucky Strike bullseye, the red and white Campbell can, the GE circle or the moon and stars of Procter and Gamble."

Van Taay, W. E., "How to Win the Race for America," *Journal of the Patent Office Society,* 43:508 (July 1961).

Westerman, Lt. Col. George F., USA, "Patent Provisions in Defense Contracts," *Journal of the Patent Office Society,* Vol. 44, No. 1 (January 1962), pp. 38-51.

The author states that "relatively little difficulty has been encountered in operations under these clauses, and the former gap alleged to exist between policy and administration of policy has been pretty well closed." The scope of his discussion is reflected in the subtitles of several sections of the paper: "Government Acqui-

sition and Use of Patent Rights"; "Liability of the Government for Patent Infringement"; "Classified Contracts."

Wheeler, S. L., "General Lawyer's Interest in Patents," *Wisconsin Bar Bulletin,* 34:33 (August 1961).

"Will Private Cigarette Labels Become a Threat to Major Brands?" *Printers' Ink* (October 27, 1961), p. 18.

Success at one large supermarket in New Jersey has triggered the introduction of private label cigarettes by several market chains. As yet, the six largest cigarette makers are not acting concerned or planning to enter competition.

Wragg, L. P., "Private Suits under the Sherman Act," *Wayne Law Review,* 7 (1961), 535-70.

REPORTS AND HEARINGS

Design Protection, Hearings before the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, Eighty-seventh Congress, U.S. Senate, on S. 1884, August 1961.

Drug Industry Antitrust Act, Hearings before the Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, Eighty-seventh Congress, U.S. Senate, First Session, on S. 52.

Government Patent Policy, Hearings before the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, Eighty-seventh Congress, U.S. Senate, First Session, on S. 1084 and S. 1176.

Patent Practices of the Department of Agriculture, Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate, Eighty-seventh Congress, First Session, pursuant to S. Res. 55.

Patent Practices of the Department of Commerce, Preliminary Report of the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, United States Senate, Eighty-seventh Congress, First Session, pursuant to S. Res. 55.

Publication of Basic Research Findings in Industry 1957-59, NSF 61-62. National Science Foundation.

"The publication policies of industrial firms performing basic research have important bearing upon the availability of basic research findings to the scientific community. Industrial firms have accounted for nearly one-third of the Nation's annual dollar volume of basic research performance in recent years. Thus, a selected group of industrial firms performing relatively large amounts of basic research were surveyed in order to obtain information on their company publication policies and practices. This report summarizes the results of the survey."

Proceedings of a Conference on Academic and Industrial Basic Research, Princeton University (November 1960). Sponsored by the National Science Foundation, NSF 61-39.

"We observed during the proceedings of the Conference that the central problem in the training of scientists is the maturing of their scientific insight—their ability to use their scientific knowledge creatively. . . . The Conference dis-

cussants felt that the postdoctoral years should be spent in the university environment, with few conflicting responsibilities and the greatest possible freedom and stimulation. . . . The universities must balance the needs of the scientist and their students. They must seek financial help for the large-scale programs in research to replace the present year-to-year contractual support which drains off the energies of their best scientists. . . . [W]e were unanimous in urging that the organization of scientific research be directed toward providing an environment in which scientists can explore widely and deeply any area. . . ." The foregoing quotation is from the Preface by Sir Hugh Taylor.

Registration and Protection of Trademarks, Hearing before Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, Eighty-seventh Congress, U.S. Senate, on S. 1396, June 1961.

Scientific Research and Development of Nonprofit Organizations Expenditures and Manpower 1957, NSF 61-37. National Science Foundation, Surveys of Science Resources Series.

"This study is one part of the statistical program of the National Science Foundation to assess periodically the resources allocated to research and development. . . . The present study concerns the sector of the economy termed 'other nonprofit institutions.' The report presents information obtained from a survey of these organizations on expenditures for personnel engaged in scientific research and development for the year 1957."

NOTES

Vannevar Bush Chosen to Receive Kettering Award

Noted scientist Vannevar Bush will receive the Kettering Award for the year 1961. The award, which is presented annually by the Patent, Trademark, and Copyright Foundation of George Washington University, is given for outstanding work in the field of patents, trademarks, and related areas.

As the recipient, Dr. Bush will receive an honorarium and an appropriate citation. The presentation will be made at the sixth Annual Public Conference of the Foundation, to be held June 14 at the Mayflower Hotel in Washington.

Both Dr. Bush and the late Dr. Charles F. Kettering, in whose honor the award is named, were among the six national leaders in research who were named honorary members of the Foundation at its inception. Both aided in its formal establishment, and both formerly served as members of its advisory council.

A graduate of Tufts College, Dr. Bush received doctoral degrees in engineering from both Harvard and Massachusetts Institute of Technology, and has received honorary degrees from nineteen other institutions. He has taught at both Tufts and M.I.T., and has served as dean of M.I.T.'s School of Engineering. For seventeen years, until his retirement in 1955, he served as president of one of the outstanding scientific research organizations in the world, the Carnegie Institution of Washington. He is now chairman of the board of Merck and Company.

Dr. Bush has also made outstanding contributions in numerous governmental assignments. During World War I, he did research on submarine detection for the United States Navy. In World War II, he served first as chairman of the National Defense Research Committee and later as director of the Office of Scientific Research and Development, in charge of defense research mobilization in all fields. After the war, he became the first chairman of the newly established Research and Development Board of the National Military Establishment. From 1953 to 1955, he was a member of the National Science Foundation Advisory Committee on Government-University Relationships.

Dr. Bush has long been interested in the operation of the Patent Office, and has served as chairman of the Advisory Committee on the Application of Machines to Patent Office Operations. He was the author of Study Number 1 for the Patent, Trademark, and Copyright Subcommittee of the Senate Judiciary Committee, entitled "Proposals for Improving the Patent System," published in 1956. In 1943, he was appointed chairman of the President's Science Advisory Board to study the patent system, and was a member of a similar Patents Survey Committee created in 1945.

Dr. Bush is a noted inventor in the fields of electronics and physics, and holds numerous patents. At M.I.T., he

and his staff developed first a network analyzer and later a differential analyzer which would solve problems in atomic physics, acoustics, ballistics, and other areas. He has received patents on gaseous conduction devices and on cathode arrangements and coatings for grid-controlled arcs. He developed a rapid selector which scans and selects wanted items from microfilm, and a justifying typewriter which in one operation produces typescript with an even right-hand margin. He also encouraged the development of a photographic type-composing machine which makes it possible to dispense with movable type.

Dr. Bush is a prolific author; one of his most famous works was a 1949 Book-of-the-Month Club selection, *Modern Arms and Free Men,* which has been translated into French, Spanish, Swedish, and Japanese. He has received some twenty awards and medals in recognition of his contributions to science.

Nominations for the Kettering Award are made by representatives of the Foundation's advisory council, national directors, research staff, and national and area committees. Final selection of Dr. Bush to receive the award was made by a seven-man board of review: Thomas H. Carroll, President of the university; Oswald S. Colclough, Director of the Foundation and Provost of the University; L. James Harris, Executive Director of the Foundation; Robert C. Watson, Chairman of the Foundation's Advisory Council and former United States Commissioner of Patents; John C. Green, Executive Director of the National Inventor's Council, representing the Foundation's research staff; S. Chesterfield Oppenheim, Professor of Law at the University of Michigan and Advisor on Research to the Foundation; and Fulton B. Flick, of the Pittsburgh law firm of Brown, Critchlow, Flick and Peckham, representing the Foundation's national and area committees.

Professor Oppenheim and Mr. Watson were recipients of the award in previous years. Other previous winners were Frank A. Howard, New York research consultant and Chairman of the Sloan-Kettering Institute for Cancer Research, and Jo Baily Brown, of the Pittsburgh law firm of Brown, Critchlow, Flick and Peckham.

Foundation Adds New Information Medium

The Foundation made an addition to its media of information in February with the issuance of its first news release *directed primarily to its membership.* The Foundation will continue to issue news releases directed primarily to the press. The heading of the News Release to members is dignified yet striking with overprinting and reverse printing on two shades of blue. The name of the Foundation is prominent.

The first release called attention to the expectation that certain antitrust regulations of the Treaty of Rome would become effective soon. The regulations provide a comprehensive system for examining agreements and investigating and regulating practices that come within the purview of Article 85, section 1, and Article 86 of the Treaty.

These regulations will be discussed in future issues of this *Journal* as part of the Foundation's studies of the effects of developments in European Economic Community upon United States interests. Volume 5, Number 3,

the Fall 1961 issue, included papers on "The Proposed New European Patent" and "The Convention for European Industrial Property Rights." Articles on related topics such as "foreign licensing" have appeared in earlier issues of the *Journal.*

The News Release is intended as a continuing service to members. It will be distributed from time to time and will feature Foundation news or current developments, domestic or foreign, relating to its Research, Education, Publication, or Organizational programs that might be of interest or importance to the membership.

Foundation's Film Being Test Surveyed

The interest of television audiences and adult groups in the film "Fuel to the Fire," which was presented by and produced under the supervision of the Foundation, is being test surveyed during February and March in several of the larger cities in the country.

Prints of the film were made available for television showing in San Francisco, New York, Cincinnati, Dallas, Chicago, and Washington. The survey is seeking to evaluate the interest of adult groups that see the film and to measure the response of television stations. This will help us to plan the film's future most efficaciously.

Fifth Booklet Goes to Press

A fifth booklet entitled "How Inventions Are Put to Work" in the popular *Patent System All Around You* series published by the Foundation for young people has gone to press and will be ready for distribution soon. The booklet provides guidance to the inventor in language easy to understand to help him to make his creative idea for which he has been granted a patent a practical reality for the benefit of both himself and society. Booklets are available for fifteen cents each on request to the Foundation.

Booklet No. 1 is a general introduction to the patent system, No. 2 tells how to get a patent today, No. 3 tells how to protect the rights of the first inventor, No. 4 tells how to tap the well of information in the Patent Office from anywhere in the country, and No. 5 tells how inventions are put to work.

Foundation Requests Library Books

The Foundation asks readers to contribute second copies of reports, periodicals, books, and manuscripts to its specialized library, which it maintains for students, researchers, and professional people. All contributions will be entered and book plates marked in the name of the donor.

Thomas Alva Edison Fellowship

by the

Thomas Alva Edison Foundation

The $3,000 a year Thomas Alva Edison Fellowship for graduate study of the patent and related systems is made available annually to The Patent, Trademark, and Copyright Foundation of The George Washington University by the Thomas Alva Edison Foundation for award to a qualified graduate student in one of the schools of the University. Special assistance from the McGraw Foundation makes possible this fellowship.

Candidates for the annual fellowship are nominated by The Patent, Trademark, and Copyright Foundation, and final selection of the winner is made by a screening committee of five, composed of the President, Executive Director, and a trustee of the Edison Foundation; the President of the Thomas A. Edison Research Laboratory, a division of the McGraw-Edison Company; and a representative of The Patent, Trademark, and Copyright Foundation.

The recipient of the fellowship would be expected to follow an approved program of research under the supervision of a member of the Research Staff of The Patent, Trademark, and Copyright Foundation assigned as Counselor to the Fellow. He must satisfactorily complete the degree requirements, including a thesis on a subject in a field of the Foundation's interest.

Time when application must be submitted:

Not later than May 1, 1962.

Amount of scholarship:

$3,000.

Eligibility:

The applicant must be a candidate for a graduate degree in one of the schools of The George Washington University. Acceptance in the University as a degree candidate will be subject to the University's regular admissions procedures. This fellowship should be particularly helpful to students and teachers specializing in law, science, engineering, business administration, political and social sciences who seek graduate experience in the patent and related systems.

Instructions:

Applications should be submitted not later than May 1 preceding the period for which the fellowship is to be made. They should be directed to The Patent, Trademark, and Copyright Foundation of The George Washington University, Washington 6, D. C. Applications should include (1) evidence of high intellectual and personal qualifications for productive scholarship; (2) proposed outline of thesis; and (3) letters of recommendation from two professors with whom the applicant has studied or worked.

Thomas Alva Edison Fellowship

The Patent, Trademark, and Copyright Foundation

of

The George Washington University

Washington 6, D. C.

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The Patent, Trademark, and Copyright Journal of Research and Education



PANEL DISCUSSION OF RESEARCH FINDINGS OF THE FOUNDATION

Taxation; Foreign Licensing; Antitrust; Executive Decision-Making; Trademark Effectiveness; Development of Procedures and Standards; Sources and Uses of Patented Inventions; Small Business; Government Patent Policies

CURRENT ISSUES SESSION:

The Patent System and the Public Interest; The Nature of the Right in Trademarks; The Patent System from a Scientist's Point of View; The Impact of Technology on Venture Capital; The Role of Patents in Industrial Progress; The Problems of a Small Research Organization; Armed Services Procurement Regulations; Role of the Inventor in Dealing with Government; Management of Government Patents

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THE CONFERENCE

THE ANNUAL PUBLIC CONFERENCE, broadcast nationally, is the occasion for presenting and discussing the research findings of the Foundation and discussing also current issues important in the fields of its interest through which the Foundation may be guided in planning its future work.

The Conference also provides an opportunity for people from different branches of learning and fields of endeavor who share a common interest in the patent and related systems to meet and enlarge their perspectives by participating in the stimulating and productive exchanges and contacts of the Conference.

The research of the Foundation represents the first university attempt at a comprehensive study of the patent, trademark, copyright, and related systems in the United States. This study is systematically planned and coordinated. Different specialties, such as economics, statistics, psychology, sociology, and law, are utilized. The study is based on the facts gathered by the staff on the actual operation of the systems.

The fifth Annual Public Conference was attended by key representatives of commerce, education, science, manufacturing, labor, finance, and the professions from throughout the nation.

The proceedings of the Conference are published in this issue of *The Patent, Trademark, and Copyright Journal of Research and Education.* It contains a summary, an edited transcript of the proceedings, which includes research by the staff of the Foundation until the Conference, comments on this research by the panel, the presentation of current issues by qualified discussants, questions from the floor and answers, and an appendix.

When discussants are invited to participate in the Conference, they are, of course, assured of freedom to say what they wish, either as individuals or members of their organizations. Their remarks pertain both to staff reports and various aspects of the patent and related systems.

A Summary of the Proceedings

I. THURSDAY SESSION

The first session of the Conference on Thursday included a Panel Discussion of Research Findings, and a Brief Presentation of New Studies of the Foundation. Members of the panel were the Foundation Adviser on Research, Professor S. Chesterfield Oppenheim, who acted as Moderator; the Director, O. S. Colclough, Acting President of the University; the Executive Director, L. James Harris; the Chairman of the Advisory Council, Robert C. Watson; Ex-Officio Member of the Advisory Council, David L. Ladd, Commissioner of Patents, and the Principal Investigators, Robert B. Bangs, Jack N. Behrman, George E. Frost, Jesse W. Markham, James N. Mosel, Joseph Rossman, Barkev S. Sanders, Irving H. Siegel, and Donald S. Watson.

The first phase of the panel discussion consisted of a brief presentation by each research-staff member. This phase provided the basis for the second phase, an interchange of questions, answers, and commentaries among panel members. The first two phases served in turn as the background for the third phase of the panel program, during which questions were submitted by the audience to the panel.

Professor Oppenheim opened the session with an introduction of Director Colclough, Executive Director Harris, Chairman Robert C. Watson, and Commissioner Ladd. Director Colclough welcomed the participants in the Conference on behalf of the Foundation and the University. Executive Director Harris described briefly the procedures, development and objectives of the Conference.

The Award Dinner, held Thursday evening, honored Jo. Baily Brown, of Brown, Critchlow, Flick, and Peckham, recipient of the 1960 Charles F. Kettering Award for Meritorious Work in Patent, Trademark, and Copyright Research and Education. Mr. Brown gave an extemporaneous address on the status of patent attorneys, the courts, the judges of the United States Court of Customs and Patent Appeals, entry of the government into the patent field, and other topics.

Panel Discussion of Research Findings of the Foundation

Professor Oppenheim briefly described the Foundation's new research format. He specified the Foundation's areas of interest as individual, industrial, governmental, public, and international. In that of the individual, such problems as creativeness and incentives are investigated. The industrial area embraces problems of economic growth, research and development, diversification, executive decision-making, and antitrust. He said that in the governmental area we examine problems of legislation, administrative regulations and procedures, terms of contracts with private firms, judicial actions, and taxation. The public area of interest

includes studies in the general opinion or knowledge of patents and related matters as indicated by polls and the press. Researchers in the international area explore foreign licensing and other transactions.

FOREIGN LICENSING

Dr. Behrman reported that the flow of licensing under grantbacks into the United States was not so significant as expected, that U. S. companies were not paying much attention to such rights. He pointed out, however, that there was a growing interest in Europe concerning licensing into the United States under separate licenses. He referred to the Foundation studies now being conducted on the impact of antitrust legislation on foreign licensing. He also stated that a series of periodic reviews of the developments in the Common Market with reference to licensing and direct investment have been undertaken, and that a follow-up study is planned on the information so far gathered with respect to changes in practice, and the extent and direction of licensing activity.

The panel then discussed differences in problems of drafting patent licenses in Europe and the United States, as well as the direction of geographic pattern of foreign licensing, the relationship between licensing and equity investment by U. S. companies, a common patent system for the Common Market, and the International Convention.

SOURCES AND USES OF PATENTED INVENTIONS

Dr. Sanders summarized in table form certain findings of the Patent Utilization project concerning assigned patented inventions. These tables indicate most patented inventions put to commercial use are so used before issue, and about half are continued in use well beyond the seventeen-year patent term. He pointed out that seventy-five per cent of these patents are deemed useful by the assignee. If net sales are used as a measure of size, this percentage is highest for the largest and smallest companies. Dr. Sanders noted that the proportion of patented inventions put to commercial use and the impact of that use on sales are highest for the smallest companies. In the largest companies, patented inventions primarily affect production costs.

General discussion later was held on the net gains or losses of commercially used patented inventions, sampling theory, and definition of "use."

GOVERNMENT PATENT POLICIES

Dr. Watson proposed that the Foundation study why few patented inventions emerge from federally financed research and development. The "government contracts" study reported in Volume 4, Number 4 of this *Journal,* showed that only six per cent of all patented inventions came out of R & D paid for by the federal government, which was roughly fifty per cent of all R & D in the postwar period.

Dr. Watson's paper prompted a general discussion as to why patented inventions result from government-financed research at different rates than from private research. Also discussed was the value of the findings of the "government contracts" study.

TAXATION

Dr. Bangs stated that this past year the taxation study was concentrated primarily on large corporations that own numerous patents. Information on tax experience has been obtained from corporations owning more than fifteen per cent of all U. S. unexpired corporately owned patents. Dr. Bangs finds that these corporations rarely buy and sell patents in the tax sense, but when they do, they have no difficulty in qualifying the transactions for capital-gains treatment. Corporations do have problems with depreciation of purchased patents and with patent valuation for tax purposes. Foundation studies are being made on both of these subjects.

At the conclusion of Dr. Bang's presentation, the panel discussed whether tax considerations are taken into account by inventors in determining their use of patents. Views also were exchanged on the most important problems of the individual inventor, differences in tax experience among different industries, the reason why individual inventors fail to take greater advantage of capital-gains treatment, and the bearing of corporate size on tax experience.

SMALL BUSINESS

Dr. Siegel pointed out that he has expanded his area of primary interest, the role of patents in the creation of small firms, to embrace opportunities available to established firms to diversify and grow through patent ownership and licensing. He cautioned that relatively few of the small companies were organized to exploit patents. He noted that the Foundation case studies of particular industries have been limited to those known to afford opportunities for small businesses. Thus far, seven industries have come under study and two additional industries are under consideration. To illustrate another of the research interests of the Foundation, he referred to his systematic inquiry into annual reports to see how patents are treated by companies. It appears, he said, that companies do not take full advantage of the medium of the annual report to demonstrate their interest in patents.

Dr. Siegel's remarks produced a discussion of the information available on patents in the trade-journal literature and in the various brochures and statements presented at conventions.

ANTITRUST

Mr. Frost referred to the objectives and findings of the antitrust studies completed by the Foundation on the concrete-block-making machine, parking meter, and color motion picture industries. He emphasized that the compulsory licensing provisions of the *Besser,* the *Vehicular Parking,* and the *Technicolor* cases, had a limited effect. Mr. Frost noted that in the pharmaceutical industry there have been some antitrust decrees that have also had a limited effect, due perhaps to the rapid strides in technology.

During the interchange of questions, answers and commentaries, discussion on the following subjects among others developed: Compulsory disclosure of know-how, the economic affects of the patent provisions of the RCA, IBM, and AT&T decrees, criminal versus civil antitrust prosecution, compulsory licensing in foreign countries compared with compulsory licensing in the United States.

EXECUTIVE DECISION-MAKING

Dr. Markham reported that he has catalogued information on about thirty corporations, concerning the role of the patent system in executive decision-making. He stated that he was able to identify a wide variety of things that the patent system affected in terms of how decisions are made. It affects the number and type of scientific personnel that corporations employ, the size and composition of the legal staff, the publication freedom given scientific personnel working for corporations, the amount of R & D funds allocated, the emphasis of the R & D effort, the types of markets firms enter and what firms enter these markets. Dr. Markham noted that he was currently concentrating on the relationship between the patent system and that portion of the total research outlays that is accounted for by private corporations in the American economy.

DEVELOPMENT OF PROCEDURES AND STANDARDS

Dr. Rossman reported on a series of studies he is undertaking, concerning the development of patent procedures and standards. The first study relates to the rewards and incentives for employee inventors. Some of the questions on which he will seek information are: to what extent do large and small companies require assignment of their employees' inventions? Do such agreements tend to produce inventor productivity? What are the present types of incentives and rewards being offered to employee inventors? Are they effective in stimulating invention? How do the inventive and reward systems in Russia and other European countries compare with practices in this country?

The second study will survey the extent to which new ideas are currently being adopted by companies from outside individual inventors. In a third study, he will examine the increasing complexity of patent disclosures. A fourth study will be concerned with the development of standards for assessing the validity of patents under section 103 of the Patent Act.

TRADEMARK EFFECTIVENESS

Professor Mosel reported on a study he plans to conduct to determine whether it is possible to measure trademark infringement in behavioral terms. There are two broad problems involved: (1) the technological problem concerning the development of a methodology for measuring the conceptual confusion of trademarks in the public mind. (2) the legal or value judgment problem to establish cut-off points or standards that would be acceptable as an index of infringement.

II. FRIDAY SESSION

Special Session Devoted to Discussion of Current Issues

The Friday session was organized as a Panel Discussion of Current Issues by experts from the fields of patents, trademarks, science, finance, industrial research, small business and government. Those in attendance were encouraged to participate. The session provided a broad and representative perspective for comments on the work of the Foundation and for exploring suggestions for future study.

John C. Green, Consultant to the Foundation, was Moderator. The speakers included Roberts B. Larson, Larson & Taylor, Washington, D. C., President of the American Patent Law Association; Beverly W. Pattishall, Woodson, Pattishall & Garner, Chicago; Charles Stark Draper, Head of the Department of Aeronautics and Astronautics, Director of the Instrumentation Laboratory, Massachusetts Institute of Technology, Cambridge; William H. Congleton, Vice-President, American Research and Development Corp., Boston; Earl P. Stevenson, Chairman of the Board, Arthur D. Little, Inc., Cambridge, Mass.; Joseph M. Dunn, President, Dunn Engineering Corp., Cambridge, Mass.; R. Tenney Johnson, Attorney for Research and Development, Office of the Assistant General Counsel (Logistics), Department of Defense, Washington, D. C.; Neil D. Naiden, General Counsel, Atomic Energy Commission, Washington, D. C., and John A. Johnson, General Counsel, National Aeronautics and Space Administration, Washington, D. C.

THE PATENT SYSTEM AND THE PUBLIC INTEREST

Mr. Larson discussed the patent system in relation to the public interest. He proposed that, where the national public interest appears strong enough to warrant the government in taking title to inventions, inventors retain title but the public interest be protected by a sensible, compulsory public-license provision. Mr. Larson informed the Conference that a proposal having some of the features he suggests had the approval of the Government Patent Policy Committee of the American Patent Law Association, and was recently put before a Senate Committee. He further suggested that similar proposals be advanced as substitutes for the present Atomic Energy and NASA law provisions and in other instances where it is provided that the government take title. Mr. Larson also addressed himself to whether the inventor employed by a company is being provided personally with sufficient incentive by the patent system through profit sharing from the benefits of his patent or otherwise. He referred to the Soviets, West Germany, Austria, and Sweden as directing much effort toward providing incentive to the individual inventor. He asked whether it would not be advantageous to adopt into law some plan for financial participation by the inventor in the profits accruing from his invention if American industry itself does not provide more real incentive for its inventors.

THE NATURE OF THE RIGHT IN TRADEMARKS

Mr. Pattishall discussed the nature of the right in trademarks. He observed that there was widespread misunderstanding in equating trademark rights with those of patents and copyrights. He pointed out that the scope of the right in a trademark in this country under the common law and the statutes, is likelihood of confusion as to source of goods or services involved. It is not a governmental grant, limited or otherwise. Questions of invention, prior art, originality, copying and the like are largely irrelevant to the issue of the trademark right. The United States did not adopt the code countries' solution which is more or less one of monopolistic grants. The American courts found that the wrong involved in adopting a trademark similar to that of another to be a tort in the nature of deceit. Recently there have

evolved concepts such as "commercial magnetism" of a mark and "dilution" of the distinctive quality of a mark. They are not yet the basic law.

During the general discussion period the question of whether trademarks increase prices was considered. Commercial magnetism and dilution of the mark also were discussed.

THE PATENT SYSTEM FROM A SCIENTIST'S POINT OF VIEW

Dr. Draper observed that patents and the patent system provide meaning, structure, and stability for the processes by which the frontiers of technology are pushed back into the unknown. He expressed the opinion that rewards in our society go to the people who exploit the inventions rather than to those who create them. He credited the system with providing rules that have made it possible for individuals, firms, and industries to achieve stability and progress. He said that a patent gives a satisfying published proof that a contribution was made. He recommended that first, a system of awards be set up for innovators of valuable inventions; second, the law be modified to include uniform guide lines governing the manipulation of patents by industrial and government organizations; third, a special commission be set up to hear the facts involving the disposition of patent rights among organizations interested in such rights.

THE IMPACT OF TECHNOLOGY ON VENTURE CAPITAL

Mr. Congleton observed that today technology is a major driving force helping to promote our economic progress, and the entrepreneur possessing creative technological competence occupies an increasingly significant position. Much of today's pioneering with new products and processes is being done by young companies. He stated that professional venture capital investment firms generally provide creative capital and specialized management assistance to small enterprises during their frequently difficult formative years and that most of these firms have prospered reasonably well. Several of the major national investment banking firms have broadened their activities to include uproven technological enterprises. In addition, the federal government through the Small Business Administration has authorized the establishment of privately-financed small business investment companies. Mr. Congleton cautioned, however, that an abnormally high rate of disappointments in science oriented young companies appears much greater today than in the recent past. Patents, he stated, frequently play an important defensive role but seldom a decisive offensive role during the formative years of a new technological undertaking. Nevertheless, it is always helpful if well executed fundamental patents are available to nurture the growth of the new enterprise. As certain companies become more soundly established, patents acquire greater significance and often develop into major assets of a corporation.

THE ROLE OF PATENTS IN INDUSTRIAL PROGRESS

Mr. Stevenson examined industrial research in historical perspective. He pointed out that a very large part of the money spent on industrial research is and will continue to be devoted to the military effort. He noted that the pattern has changed

greatly in the past forty years. Research has become big business. He questioned whether we will continue to grow in a projection of the past. Mr. Stevenson observed the dichotomy of the aspiration for growth in the military area with our national aspiration for arms reduction. He also cautioned that progress now largely identified with technological advance may become associated with different values if the consumer spends fewer dollars on things that technology produces. The responsibility of industrial research, he stated, is to meet or create a market for products or services. This requires greater emphasis upon science, and inventions are seldom involved in undertakings to derive new knowledge, to develop understandings. However, in many industrial laboratories today there is a growing interest in the question of innovation. In many of the more progressive research organizations our patent system still provides motivations. The issue of a patent measures a research accomplishment.

THE PROBLEMS OF A SMALL RESEARCH ORGANIZATION

Mr. Dunn discussed three major problems of small business: (1) the dissemination of technical information; (2) the distribution of R & D funds spent by the government; and (3) the corporate income-tax structure. He proposed that the problem of adequately protecting the small companies which own proprietary data in connection with technical information the government receives from its contractors and through its contractors from their suppliers and vendors, be solved by the creation of industrial boards concerned primarily with restrictive practices and determining fair value for proprietary data. He noted the trend of government R & D money away from small business, and suggested that an additional step in the corporate income-tax structure be added, a tax of forty per cent instead of fifty-two per cent on income between $25,000 and $500,000.

ARMED SERVICES PROCUREMENT REGULATIONS

Mr. R. Tenney Johnson stated the starting point of the Defense Department's re-examination of patent policy was the work of the House Committee on Science and Astronautics. Based on this work and subsequent discussions within the Armed Services Procurement Regulations Committee, a revision to ASPR section on patent policy, paragraph 9-107, was prepared, approved, and is now in effect. The new regulation points out that in the usual case a license of free use is sufficient to protect the government interest in an invention produced under a military R & D contract. The Department, however, recognizes that there may be some situations in which it will be desirable in the public interest to obtain full title, for example: in a new technological field where there is no significant non-governmental experience and inventions would be likely to dominate the field or be of critical significance, where the services of the contractor are largely those of co-ordinating and directing the work of others, or in inventions in fields directly relating to the health or safety of the public if their availability for public use will not depend on patent incentives. Mr. Johnson observed that it would be better to shape government patent policies to the purpose of the government agencies, rather than to more abstract considerations of what is best for the patent system in general or how the

equities of the parties in contributing ideas on the one hand and money on the other are measured.

ROLE OF THE INVENTOR IN DEALING WITH GOVERNMENT

Mr. Naiden observed that the inventor sells his future inventions before he knows their value, and he, sitting on the government side of the table, was concerned about it. He also noted the length of time it takes to get a patent. He raised the question whether the seventeen-year patent term may be too long in view of the speed with which advances are made today. In Russia, Mr. Naiden remarked, the individual inventor receives help from the government without cost in perfecting his application. The application must be granted or denied within six months. If granted, reward or other kind of recognition is given directly by the state to the inventor. The government then sends technical men around the country to make sure the invention is used. In the United States, Mr. Naiden noted, the inventor is not benefited directly, although he does get the security of corporate life, regular pay checks, advancement, honorariums, and recognition. In closing, Mr. Naiden referred to the importance of the technical data clause in AEC contracts.

MANAGEMENT OF GOVERNMENT PATENTS

Mr. John Johnson stated that in the exercise of statutory discretion, NASA has issued regulations and carried out policies and procedures that have been very liberal toward the contractor so far as retention of title to inventions is concerned. He maintained that the government has a legitimate interest, in all inventions coming out of research and development work primarily financed with government funds, in seeing to it that such inventions are given a practical application and that their benefits are actually made available to the public. If at the end of eight years following the grant of the waiver or five years following the issuance of the patent, whichever is the shorter period, the contractor is unable to demonstrate that it has given practical application to the invention so as to make its benefits accessible to the public or has been willing to license the invention at a reasonable royalty rate, then under the NASA regulations the property rights in the invention will revert to the government. Mr. Johnson said that after non-exclusive licenses are outstanding for a certain defined period of years and if it appears that the benefits of the invention are not being made available to the public, then his agency should consider the value of exclusive licensing. Finally, he observed that we ought to re-examine what the function of the patent really is today under our present system of industrial organization in such sectors of the economy as the defense and space fields.

The Proceedings of the Conference

Thursday Session

June 15, 1961

The fifth Annual Public Conference was convened at 1:40 P.M., S. Chesterfield Oppenheim, Moderator, presiding.

PROFESSOR OPPENHEIM: Members of the Conference and guests: We open this fifth Annual Public Conference of the Foundation with a cordial welcome to all of you. We know that your presence here manifests a serious interest in the Foundation's objectives and activities. We appreciate this as the best evidence of your belief that this occasion merits your attendance and participation.

These Conferences of the University's Foundation may lay claim to distinctiveness because they constitute a meeting ground of various viewpoints. The distinctive feature I think is found in our resort to concepts and practices in other areas that impinge upon law.

On our research staff, for example, we have persons in the fields of economics, law, psychology and statistics. And in this audience we are privileged to have representatives from law, from government, from science, from industry, and from the allied fields of endeavor.

This multiplicity of interests will enliven today's session and I'm sure it will enliven tomorrow's session on current issues concerning industrial property, enterprise, and government.

At this Conference the Foundation throws a public spotlight on the fruits of its year's work and progress and its educational activities so that you may join us in giving us the benefit of your comments and your questions.

It is my privilege first to call upon, in the order named, two Foundation officers and two representatives of the Foundation—the Chairman of the Advisory Council and the Commissioner of Patents.

First, the Foundation's Director. Exceptional is the man who has many talents which enable him to score achievements in various endeavors. One can choose, with equal validity from a number of titles, a title to introduce our Director, for in each sphere of his activity he has been outstanding: Vice Admiral (Retired) of the United States Navy; in previous years Dean of the Law School and Dean of the Faculties, Acting President of the University; and presently the Provost and Dean of the Faculties.

Is there more I need say to attest to the breadth and depth of his career?

Admiral Colclough.

WELCOME

DIRECTOR O. S. COLCLOUGH: Thank you, Oppie.

Regardless of all that, as Professor Oppenheim has said we're delighted to have you here. This is the fifth Annual Conference and the seventh year of the Foundation's work.

Our work to be successful depends upon ladies and gentlemen like yourselves, because the dissemination of the results of our work, first the understanding of it and then the dissemination of it, is the very key to our existence.

We have planned this Conference for you, not for ourselves. We do our staff work throughout the year. We're not trying to resolve these questions today among ourselves, although we all will do a lot of talking I suppose, but we've planned it for you. And I hope we have planned it well.

Certainly the out-of-towners will agree we planned the weather rather well for Washington. We've had ninety degrees for the last two or three days, but we shut it off for the period of this Conference.

One thing is important to us all, gentlemen, and that is, with respect to the matters which we're going to discuss, the evidenced great interest of the Congress in what we do.

I have received letters from scores of Congressmen and Senators about this Conference. The House and the Senate are convening this afternoon, and, therefore, many of them had to say they couldn't be here, but very many of them, particularly those who are on committees or subcommittees that deal with the patent, trademark, and copyright systems have spoken of their great interest and the fact that they would be represented here.

Also, the audience for this Fifth Conference is nationwide, because the Mutual Broadcasting Company in the back of the room—its representative—is cutting a tape on our entire proceedings, which will be edited to be nationally broadcast.

So what is said here today will reach a much larger audience than we have with us, and we're going to have a large audience here as the proceedings go on.

Therefore, gentlemen, the last thing I would say is that, since these Conferences are planned for the dissemination of the results of the Foundation's work, and they must be well planned, we are always very happy after such a Conference as this to receive your comments as to how we might have done it better. Please do not hesitate to give us your suggestions.

Thank you, Professor Oppenheim.

PROFESSOR OPPENHEIM: Thank you, Dean.

As you know, each year we have this annual Conference, but I suppose we might reflect on the fact that in the 364 days before the Conference is held, there is one person who is constantly concerned with the operations and the research and educational programs of the Foundation, our Executive Director.

Of course, he is the director of a large team. It means that he is constantly in touch with the research staff, with the Advisory Council members, with other members of the Foundation, with outside sources, in communications and consultations.

So I think all of us would recognize that to have a Conference of this sort there is always someone who has the day-to-day operations under his responsibility and leadership, and this man is the one I'm presenting now, as a real dynamo of the Foundation, Executive Director Louis Harris.

Lou.

EXECUTIVE DIRECTOR L. JAMES HARRIS: Thank you, Oppie.

For those of you who intended to reserve single rooms and find yourselves in suites, I think the experience I had at a well known chain of hotels will perhaps give you some comfort.

On one of my fund-raising trips for the Foundation several years ago, my flight to Boston was cancelled because of inclement weather. This meant that I had to take the Pennsylvania Railroad to New York, taxi to Grand Central, and from there take the train to Buffalo.

There were exactly fifteen minutes between the arrival of the New York train and the departure of the Buffalo train, and when the conductor informed me that we were late, I rode the rest of the trip with some uneasiness.

On arriving in New York, in a heavy rain, during rush hour, I managed to get a cabbie to maneuver across Manhattan in nine minutes flat. I was carrying luggage in both hands. I raced to the Buffalo gate, and I reached it just as it closed. The next train left several hours late, and I arrived in Buffalo about three o'clock in the morning.

The clerk at the hotel told me that my reservation had been given to another since I hadn't arrived at the eleven o'clock cancellation hour, and they were full except for several suites. However, I wasn't ready to spend the money for a suite. My reservation had been for a $6.00 room.

After some discussion, I asked him the price of the suite and he said $12.00. Remember, this was Buffalo. I had some mental reservations about occupying suites on a fund-raising trip, but feeling that the difference in price plus my mental reservations was less uncomfortable than a park bench, I took the suite.

At six-thirty in the morning I was awakened by a terrific racket. When I called down, I was told that they were sand-blasting my side of the hotel. This apparently was why the suites were available.

I brought to their attention that it was only six-thirty in the morning and that I had arrived after three. I wondered why they couldn't do their cleaning at a more civilized hour.

I was informed that they were very sorry but since the company had a contract and a deadline to meet, they had to sand-blast in the morning.

Well, thereafter you can be sure that my reservations were confirmed before I left town.

I won't say very much more except that I sympathize with those of you who have had some disappointment with your reservations.

This is the fifth Annual Public Conference of the Foundation. Each year we try to change the format somewhat to improve the balance of our presentation for a broad appeal to this audience of diverse composition, and to maximize participation from the floor. We want you to participate.

An innovation this year is the theme for our current-issues session. You will see it in your programs. It is "Industrial Property, Enterprise, and Government."

We are presenting this trilogy in view of the present interest in these subjects and in their relationship.

We consider this Conference as an aspect of our education program. The Con-

ference not only serves to synthesize and integrate our research and to act as a sounding board for new ideas, but also is a very effective technique for the dissemination of our research findings.

The proceedings of the Conference, as is customary, will be edited and published in the *Journal* of the Foundation. You can order a copy at the registration desk in the lobby. You may also wish to enter your subscription to the Foundation's quarterly *Journal* at the same time.

Also, arrangements have been made to tape and broadcast the Conference nationally. These tapes will be available at a nominal fee to individuals and to organizations.

Let me repeat what I said last year: that our researchers come from different fields, and we're presenting our findings to you, an audience of diverse composition. Accordingly, please remember that what may be known to some is intended to inform those who have not had the occasion to attend conferences such as this.

Other dimensions of our educational program which have been developed since the last Conference include the Thomas Alva Edison Fellowship for graduate study of the patent and related systems, which will be awarded for the 1961-62 school year very shortly. A fund of $3,000 will be made available annually to the Foundation to enable graduate students to follow a program of research under the supervision of a member of the Foundation's research staff.

The first Patent Office Society student award will be presented this year, too. This award will go to the student who has written the best paper in the Foundation's seminar-lecture series. One of the purposes of this award is to encourage our student research program, which has been developing as a continuing series of student papers on various aspects of the industrial and intellectual property systems.

Student papers have already been published on confidential disclosures, antitrust decrees affecting foreign patents, pendent unfair competition jurisdiction, NASA and AEC patent provisions, standard of invention, Armstrong controversies, eminent domain aspects of USC 1498, Title 28, protection for fabric designs, trade secret cases, and so forth.

We are presently engaged in the production of a color motion picture entitled "Fuel to the Fire." The picture is being prepared so that it might also be used for TV. The picture provides a clear and memorable impression of what our patent system is, how it came to be, why it is important, and what it means to the individual, and vividly illustrates the fact that this nation's unprecedented progress and prosperity took place under the American patent system.

You will find in the kits which were issued to you as you registered, several publications which the Foundation has been distributing as part of our educational program. I want to call special attention to the need to educate the younger generation in our traditions in regard to the patent and related systems. The fourth of a series of booklets addressed to young people, "The Patent System All Around You," and I hold the booklet up, has been distributed to secondary schools and selected libraries throughout the nation. This booklet is entitled, "Looking Into the Fascinating World of Invention." It explains how students may examine patents in their hometown libraries.

Before closing, I should like to bring to your attention that the Foundation offices and library have moved to a newly renovated building at 708 22nd Street, Northwest. The new quarters afford space for our specialized library.

We would appreciate it if you would send second copies of your books, manuscripts, and reports to our library so that we could catalog and arrange them for easy accessibility for the use of students, researchers, and professional people.

I close, as I generally do at these Conferences, by bringing to your attention that the Foundation needs your support and the support of all those with an interest in patent and related fields, both financially and otherwise. I will be very happy to discuss membership in the Foundation with you.

I hope that this Conference will be a stimulating and productive experience for all.

Thank you, Mr. Chairman.

PROFESSOR OPPENHEIM: Thank you, Lou.

If you have looked into the origin of this Foundation, you will have noted that there is one person who joined a group who were primarily responsible for the creation of this Foundation, and I am about to introduce that person. As I'm sure all of you know, he has made impressive contributions in various areas.

It goes without saying that as Commissioner of Patents from 1953 to recent date he has made an impressive record of accomplishment.

He also has been interested in the area of education. He has served on the board of his alma mater, Lehigh University, and now we are privileged to have him join us in this educational enterprise as Chairman of the Advisory Council.

Some years ago I testified before a committee of the House of Representatives, and I suppose in my enthusiam I gave the chairman the impression that I was quite excited and perhaps tinged with a little emotional feeling about what I was testifying about, and he stopped me and said, "Professor Oppenheim, I want you to feel assured that I have great respect and esteem for you and, I may add, great affection."

When the proceedings came out I found that he had deleted the "great affection." (Laughter)

But while none of those appellations might be applicable to me, I think that the patent bar of this country and government recognize that Robert C. Watson is held in great esteem, in great admiration, and I'm sure there will never be edited out "in great affection."

Bob.

MR. ROBERT C. WATSON: Thank you, Oppie.

Ladies and gentlemen of the Conference, at no time in my career would I have been willing to say that I did not have for Professor Oppenheim a very considerable affection.

Ladies and gentlemen, I am presently the Chairman of the Advisory Council of the Foundation, which is a position which I consider to be a most important and honorable one, and it gives me great pleasure to say that I have recently been elected to that position.

Having recently graduated from the Patent Office—or been fired, you might say, depending on how you look at it—(laughter)—I am in position to spend some time in the effort in which, as the Professor has said, I have always been interested. And I think that it is a most important effort.

The Advisory Council is provided for in the Declaration of Trust. It is, in my opinion, an important Council although of purely advisory character. It, however, will do what it can to suggest to the Director, as the Declaration of Trust points out is one of its duties, those subjects which in its opinion should be taken up by the Foundation and submitted to the research group for action.

Just a few minutes ago we concluded a very pleasant informal lunch at which those members of the Advisory Council, of whom there are twenty-one all told, in attendance here discussed to some extent the nature of a number of the problems which might be taken under consideration by the Foundation.

We realize in our Council that the Foundation is not a substitute for all of the bar associations of the country. We also realize—and nobody realizes this more than I do, having served on so many bar association committees—that there are certain things which the bar associations cannot accomplish by reason of the fact that the tasks are most difficult and the members of their committees are so busy. This Foundation is in a most excellent position to supplement the work of all of the groups of the organized bar and to collect the information, factual information, which must underlie every sound conclusion, and to publish it. It is the function of the Foundation, as stated in the Declaration of Trust, to inform fully those who are interested in the welfare of the patent, trademark, and copyright systems of this country and the Advisory Council will endeavor to aid the Foundation in this effort in every possible way.

Thank you very much.

PROFESSOR OPPENHEIM: Thank you, Chairman Watson.

This afternoon we are honored to have on this platform the successor to Commissioner Watson. As a matter of fact, today was my first opportunity to meet him personally, and I took some pride in that, because, in my years in Washington, I came here when Commissioner Robertson was in that office, and then there were, in succession, Commissioners Coe, Kingsland, Ooms, Marzel, Bob Watson, and now Commissioner Ladd. It is a great pleasure to me to have this first opportunity to see him in person rather than in photographs that I have seen.

I also feel that I am informed about his professional qualifications for the post he now occupies. They are well known to you I am sure.

During his law school residence at the University of Chicago, he manifested a deep interest in the patent field by becoming assistant to former Commissioner Ooms, for whom I have great admiration and who will be long remembered I am sure for the dynamic Commissioner he was and, I might say, in his writings and addresses, a provocative thinker, which I think has been good for all of us.

After receiving his law degree, Commissioner Ladd became associated with the firm of Ooms, McDougal, Williams and Hersh in Chicago, specializing in patent matters and also in the cognate trademark and copyright fields.

Every Commissioner in the history of the patent system has been confronted

with manifold and complex problems that inhere in the nature of the patent laws and the patent system. So I am sure we can anticipate that Commissioner Ladd will continue to build upon the accomplishments of the past.

It is characteristic of this system and the laws that it is an evolving institution, and there is never an end to the prospect for improvements in substantive and procedural aspects.

It is also gratifying that in a recent public address, excerpts of which I read in the *New York Times,* our present Commissioner has added his official voice to proposals that were made in the past for increasing the salaries, and thereby the prestige and the status, of the examining corps of the Patent Office. Because, as all of us know, one of the perennial problems is how to get a real breakthrough on the terrific workload of the Patent Office, which so many of the former Commissioners have tried to do, and which I am sure Commissioner Ladd is fully aware of as a continuing problem.

I think it is very sound for him, as for the others, to take the position that if we are ever to solve the problem of turnover in the examining corps, if we are ever to get to the point where we can have a prospect for real career service in an area which I think is so well suited to careerism, this effort must be made to induce the Congress to increase the salaries of the examining corps so as to avoid the temptations of their being lured away from that into other pursuits that offer greater compensation, which is well merited of course.

I think that this is one of the present problems that has long continued and of which we are very gratified to know that Commissioner Ladd is so fully aware.

So I present to you the Honorable Commissioner of Patents, David Lowell Ladd, who I am proud to say is also an ex officio member of our Advisory Council.

Commissioner Ladd.

COMMISSIONER DAVID L. LADD: Thank you, Professor Oppenheim.

I am very pleased to be here today to meet with you. As a matter of fact, it wasn't easy. As Professor Oppenheim has told you, the Congress is in session today, and a subcommittee of the House Judiciary Committee is this afternoon having hearings on two bills relating to the patent system.

Initially I was requested to be present. I went up and talked with the chairman of that subcommittee yesterday and persuaded him that since Pat Federico knows everything about patents and patent law that he could get all of the information he needed from Mr. Federico. With that explanation I was excused from appearing this afternoon so I could be here today.

I'm interested in the comments that Professor Oppenheim made about the continuing problems in the Patent Office. I was told shortly after I arrived here that if I would look back through the relevant papers I would find that the problems facing the Patent Office today are the same as those which have faced every incoming Commissioner of Patents for the last, well, at least sixty years.

I took the trouble to check back, and I find that backlog and the retention of personnel in the Patent Office are recurrent themes in the statements of Commissioners for sixty years or more.

As a matter of fact, I got a letter of greetings from the Canadian Patent Commissioner congratulating me on my installation in office and saying, "We have the same problems that you do, only yours are bigger."

When I first came to Washington, I was, of course, staggered by the responsibilities of this office, and, as a matter of fact, the first two days that I was here I could hardly eat and I lost six pounds. My weight is now back up to its usual level of overweight; so I assume the worst is over. (Laughter)

Commissioner Watson has said that he has graduated from the Patent Office. And like every respectable institution, we who are in the undergraduate body honor our alumni association. When I tell you that I was staggered when I first came here, that is true, and I began to regain my balance only when I realized that there is enormous help available within the government and outside at the mere price of asking for it.

I am deeply grateful for the help that I have received from many of you who are here in this audience today, from the staff of the Patent Office, and from Commissioner Watson himself. I am very grateful for that indeed.

Professor Oppenheim has referred to my coming into patent law as a result of my acquaintance with Casper Ooms at the University of Chicago. That is true. Mr. Ooms taught a seminar there in patent law, and I became very much interested in a problem of the patentability of therapeutic methods in medicine.

I became incensed by an old case in the Patent Office, *Ex Parte Brinkerhoff,* and worked myself up into quite a self-righteous wrath about that.

I sent a copy of the paper off to Pat Federico, and while he didn't tell me anything in reviewing the paper, the implication of the letter was, "Cool down."

Sure enough, it wasn't much later that a decision came out of the Patent Office, in which Mr. Federico figured, and this unholy precedent against which I had inveighed so bitterly was virtually wiped out.

Among the other things that I am grateful for after having come to Washington is the extension of the opportunity to become a member of the Advisory Council. I am perfectly frank to say that I expect to learn a great deal more than I can reveal.

I look forward to what I can learn in this meeting today. I am very proud to be here with you, and I look forward to our association in the coming years.

PROFESSOR OPPENHEIM: We are certainly happy to have you with us, Commissioner.

I now come to the part of the printed program in your hands which is headed "Panel Discussion of Findings."

PANEL DISCUSSION OF FINDINGS

PROFESSOR OPPENHEIM: As you will note, the principal research staff is listed, and the area of primary interest of each of the researchers is also indicated on the right-hand side.

If you will look on the back cover of the program, you will have a description of the professional status of each of these research members.

I may say with pardonable pride that we think at the Foundation we are indeed fortunate to be able to attract men of this stature and activity and induce them to spend part of their research efforts in the Foundation's research program.

I think it is also appropriate perhaps to remind you that while we are a foundation, we are not a foundation with a plenitude of financial wealth, and sometimes we are asked why as a foundation we seek money from other foundations. This has led us to wonder whether we ought to call ourselves by some other name.

But, be that as it may, I think it is appropriate to say that this staff of research members, with their distinguished positions and professional competence and recognition, are interested in working on research problems because they are exciting, and they are exciting because they are on the borderlands—I refrain from saying "frontiers" because that has other connotations today—borderlands where law, economics, statistics, science, technology and other areas meet.

I think it is this that makes them have a fire that burns within them to work for us even though I must say that, as Commissioner Ladd feels about the compensation of the examining corps, there is much to be said for increasing the compensation of our staff members.

But we have no problem on that because I'm sure that it is their inner desire to participate in this frontier work that permits us to have them with us on a continuing basis.

May I take the privilege before opening the panel discussion in just a few minutes to give you a little backdrop of our research program. Perhaps this year this is needed because we have redefined our fields of interest, and I would like briefly to describe them to you so that they may become more meaningful.

The research and educational programs of the Foundation are the two headwaters of our activities. Now, at times, these programs are integrated; at other times the educational program has a goal of its own which is somewhat different from what we call a research goal.

In the past year we have attempted to clarify our approach to the research programs by defining five general fields of interest within the framework of the patent, trademark, and copyright systems, and we have done this from the standpoint of what is the focus of the research inquiry.

A brief description might serve the purpose of showing you the thinking behind the redefinitions.

The first is the field of the individual. In other words, we all recognize that in one general field of interest we're concerned with the role of individual contributions to the system. That's the central theme. What are the forces, what are the factors which account for individual motivations and creative contributions? What kind of an environment is most favorable for invigorating original talent and ability? What are the economic, the legal and the social sources of assuring a proper balance between a desire for gain and activity which benefits the public, all of them being compatible with the goals of these systems?

The second field we have labeled the industrial. Here the research is aimed at probing into the relation of the systems to the industrial forces from which stem research and development directed toward technological innovation.

In this field fall also problems of economic growth, of diversification of industrial activity, of the part played by the large and the small and sometimes we add the medium-sized firm, of executive decision-making and antitrust policy.

Then there is a third field that we have characterized as the governmental. What is the impact of government on all levels, the executive, the legislative, the administrative, and the judicial? Here we are concerned with policies such as taxation, government patent policies, government rules and regulations, and others that fall in the area.

A fourth field has its focus in the standing of the system in the public mind or the public forums. What do we know about this? What can we find out about this so that we know the public attitudes toward the system? What is the state of public knowledge or public opinion regarding the systems as reflected in the media of communication or in polls and surveys?

Then we have a field of the educational program which also is important in relation to public attitudes, and this feeds into and out of the research program.

And, finally, as you may well recognize, we have the international field, one of increasing magnitude and interest in recent years. And here the systems are related to international trade and investment, to foreign licensing programs, to the European Common Market of the Inner Six foreign countries and the Outer Seven.

It is important to note, I think, that when we describe these five general fields under these designations we are not changing the content of the Foundation's research program at all. As a matter of fact, all of the activities in the research areas which we formerly described in terms of studies and areas are within the framework of these five general fields of interest.

But these fields of interest serve the purpose of emphasizing in our minds that as our research work took place, we were building up a great pool of knowledge and analysis and that these bodies of knowledge derived from the research findings could fall into more than one field, cut across and interpenetrate the fields, and this gives emphasis to the reality that no matter what study we undertake—for example, on the sources and uses of inventions, which we have called "Patent Utilization"—it may have an aspect of the individual incentive. It may also have an aspect of the governmental impact. It may even get into the international field of use, and so on.

So we think that this interpenetration which necessarily exists will create a better understanding and a more effective communication of the research results, which cannot be cabined, as you know, within any rigid category.

So we have, we think, a descriptive structure that permits greater flexibility, emphasizes the coordination in combining and recombining these research studies as one of them contributes to another field and as they play across the different fields.

If you will examine the publications and reports of the Foundation since 1957, you will note that there is a wide range of subject matters. They all can be fitted into these five general fields, and some of them, as I say, may involve more than one.

Finally, may I point out that we are continuously examining and reassessing our research programs, and, as you may well imagine, not only in terms of available

research manpower but in terms of financial means. Some of the studies are very specific and they have a short production cycle, so that we can be confident of continuously producing what can be done with integrity within a short time. Others cover a relatively large range of topics and, of course, require a greater production cycle.

In this program, we have certain studies that are on the planning board and those which we are contemplating to put into effect at a future time. I think this might give you a way of looking at the overall program in a more meaningful manner.

So now I come to the discussion of the findings of the research staff.

May I say that this year we are following the same procedure as at last year's Conference, which breaks down into three phases:

First, I shall call upon each member of the principal research staff for a spot summary of the work in his area or field. This may mean something that is current, or it may mean something that is prospective.

Secondly, we will have questions addressed to the panel members and responses and an interchange, and we hope to do this as informally as we can.

Then finally, and I want to say as most important of all from our point of view, as Director Colclough has indicated, that this Conference enables us to benefit from your questions and your comments. So I have in mind reserving a substantial amount of time for this third and final phase of submitting questions that come to us from the floor.

May I say that in your kit you have a pad and pencil, and we'd appreciate it greatly if you will formulate questions. They will be picked up as the discussion progresses. And I do hope that we'll have a plethora of them.

Maybe if time does run out, we may not have time to have them all answered, but I can assure you we will not be selective and will try to have all of them up for discussion.

So now I am going to open the panel discussion phase with some order of topics, because I think that will provide for a more orderly progression. We are going to begin with foreign licensing.

I'm going to be candid in saying that we are doing this because our principal research-staff member, Professor Behrman, is required to be at a meeting within a relatively short time.

Jack, I think I'll take the privilege, as I suppose no one can override me in so doing, of asking you the first question on this.

I was wondering what we may expect from licensing into the United States from abroad. Are there any significant developments in this area, particularly the availability of that from the standpoint of grantback licenses?

FOREIGN LICENSING

DR. JACK N. BEHRMAN: Well, Oppie, this is something we have recently done a piece on. We became concerned with the flow into the United States of technical knowhow and license rights after our fairly extensive research on the outflow.

Before answering that specifically, if I may, Oppie, let me brief the study that we did on the outflow as a comparison for the study we did on the inflow of technical rights.

When I first joined the Foundation about six years ago, Lou told me that this would be a short-term pilot project mainly to find out what we could do in the area of investigation of licensing, and we set out to find, first, a rather large section of empirical information on precisely what licenses were being granted abroad, where they were going, and so on, what the problems were, whether they were tax problems, antitrust problems, negotiating problems, contract provisions, and so on.

We also were eager to find out what the contribution to the foreign economy was from the outflow of these license rights.

As a result of these studies, which were really pilot studies, we have interested the Department of Commerce in undertaking empirical investigations, gathering statistics, and in undertaking some investigation of the direction of flow of these license rights.

You might say that our pilot project was successful enough to make us feel that there must be some reason to study the reverse flow; to see if the United States itself was benefiting from the licensing of rights held in the United States by foreigners.

This breaks down into two subjects, as you mentioned in your question, Oppie, one the individual licenses coming from abroad and the other the grantbacks under licenses which we had extended.

I think we would have to say that the flow into the United States was by no means as significant as we had thought it would be or probably as we should hope it would be.

The experience that we found was that United States companies were not paying a great deal of attention to license rights which they might obtain under grantbacks.

Engineering units inside the U. S. companies, U. S. licensors, seemed to be complacent about developments abroad. They were not eagerly looking for them.

Most of the contracts are worded in such a way that these grantback developments are not automatically sent back to the licensor but the licensor has to ask for them. That means it puts him on the initiative to find out what they are.

As to separate licenses, we found that this was growing. There was a growing interest in Europe particularly in licensing into the United States. This is the technique which they can use to get into a market which is larger than they feel they can service through direct sale sometimes because of the advertising, packaging, and so on, and also which is so large that they do not have the capital required to invest in it.

We would say, then, specifically in answer, Oppie, that this is a technique—that is, the flow back into the United States—which is really just beginning but one which we can expect much more of in the future.

PROFESSOR OPPENHEIM: Jack, I may say that in my eagerness to make sure you could get to your appointed place on time, I put a question to you without first giving you a chance to summarize your current study. If you want to make some kind of a spot summary of your work before any further questions are asked, this would be the time to do it.

DR. BEHRMAN: Well, I finessed you on part of it anyway.

PROFESSOR OPPENHEIM: Good.

DR. BEHRMAN: But I will go on, if I may, and indicate what we are doing currently.

As I say, as a result of the success of the pilot investigation we felt it desirable to go on into some specific portions such as antitrust aspects of licensing. We have had on the docket for some months now a program to study the trend in consent decrees, to see if there is any change in the attitude of the government toward the antitrust problems in licensing.

We have been thwarted in this by the demand for our researcher by the government. Every time we get set up to do something he gets called in on a spot piece or a several months' tour with the government, and we're still in the initial phases of this study, unfortunately.

We did, however, feel that the Common Market development was an area in which we could provide continuous research results for our readers and have started on a series of either annual or at least periodic reviews of the developments in the Common Market with reference to licensing and direct investment.

We have published one article on that and will, we hope, expand this investigation into the EFTA area and any other effects on licensing arising from regional associations.

Finally, we intend to carry out a followup study on what has happened, say, after four or five years of our initial study as to the increases in licensing activity, the direction of its movement, and the practices.

I might comment just a bit more on the results. I think we have found that we have provided the corporate and law firm clientele with a considerably broader base on which to assess their international operations. And it is true also we have provided the government, at least the Congress, with material out of which more adequate testimony could be given them on international operations, particularly licensing but also joint ventures and direct investment, which has been presented to them in the past twelve months.

Those are the results, Oppie, and I'll be glad to entertain other questions if there are such.

PROFESSOR OPPENHEIM: Thank you.

MR. ROBERT C. WATSON: I would like to ask a question. How do the problems incident to the drafting of patent licenses in Europe differ from those met with in the drafting of patent licenses in this country, as experienced by the lawyers of this country who have drawn up licenses under patents issued by European countries?

DR. BEHRMAN: Well, this is a difficult one to generalize on, but I spent several weeks this spring talking with European companies. I found them much more ready to talk than I had been told they would be. I was constantly reminded that the American lawyer or corporated official must keep two fundamental things in mind. One, obviously he is concerned with a diversity of systems in Europe—patent systems, trademark systems, legal systems, and, therefore, a diversity also of markets, despite the fact that the Common Market is becoming tighter. Second,

that in licensing he will be competing against, let's say, a German potential licensor in France or in Italy, and the offer which the German licensor will make is not always similar to what the American licensor would make.

For example, the German licensor is less reluctant to put restrictive clauses into the agreement concerning resale prices, concerning control over the product or distribution, concerning the territories.

There may already be between European companies an overriding technical exchange agreement under which the license is readily negotiated, giving the European competitor, competing licensor, a more ready entree into the licensing market—at least within Europe.

This doesn't apply in third markets as readily. That is, I think we are as readily able to compete in licensing in third markets outside of Europe as is any European potential licensor.

EXECUTIVE DIRECTOR HARRIS: Mr. Chairman, may I ask one question?

PROFESSOR OPPENHEIM: Yes.

EXECUTIVE DIRECTOR HARRIS: Has there been any recent shift in the geographic pattern of foreign licensing by U. S. licensors, Jack?

DR. BEHRMAN: Shift in geographic pattern? I think there is in one respect. I don't think we would find necessarily a relative increase in the direction of licensing to, let's say, the unindustrialized or the developing countries, but we are finding a greater interest, a considerably greater interest, in the less developed countries, and in Asia, by the American licensor.

In Europe there is still a very high rate of expansion I think in licensing, but the fact that licensors are looking at India and even South Asia from the United States shows a broadening of their interest anyway.

DR. BARKEV S. SANDERS: Mr. Chairman,—

PROFESSOR OPPENHEIM: Yes, Barkev?

DR. SANDERS: May I ask Professor Behrman a question?

PROFESSOR OPPENHEIM: Yes indeed.

DR. SANDERS: From your studies, Dr. Behrman, what would you say are the relationships between the licensing and equity investment by United States companies in Europe?

DR. BEHRMAN: Well, I mentioned the fact that we are interested in both of these. We are. We found, a little to my surprise, that there is a rather stable relationship among a large number of U. S. companies between licensing and equity investment, in that they will license formally the foreign subsidiary for reasons of legal precision or tax problems, tax aspects. We had an average of about eighty per cent.

That is, about eighty per cent of the foreign subsidiaries of United States companies were formally licensed. That is, there is a formal license agreement rather than just the rights being handed over.

So that I would say wherever you find foreign investments you will very closely find licensing, which means the transfer of technical know-how, patent rights, trademark rights, and frequently management skills.

Therefore, when we speak of foreign investment—this is the aspect that I would like to emphasize—when we speak of foreign investment we are not speaking of capital. We are speaking of the transfer of skills, of knowledge, which is not always in book respects but which is very necessary to making the capital itself profitable and to making the maximum contribution in both the growth of Europe and the less developed countries.

Now, there is also a growth relationship in the sense that there are a good many companies that use licensing as a precursor to investment. That is, they will test the market, take a look at the problem, with licensing reducing their capital commitment, and then going in on an equity basis when they find it is successful.

PROFESSOR OPPENHEIM: Joe?

DR. JOSEPH ROSSMAN: Jack, have you made any observations recently regarding the possibility of a common patent system for the Common Market?

As a patent attorney, I have recently filed quite a number of foreign applications, and, of course, as you know, we prosecute each one separately, and we have our problems in each patent office.

Now, if there were a common patent system, would we have to pay fees, for example, in each of the countries who are members of the Common Market? Or woud it cut down our expenses here for American companies?

DR. BEHRMAN: Well, the last part of it is a rather specific question which I find even the Europeans aren't sure about.

They are certain of this, at least in my experience in talking with them recently: They are sure that there is going to be an arrangement anyway to simplify the filing, so that you can at least make one filing.

Whether or not there will be a common patent system is something that they consider to be quite far in the future for determination. But a relief of your filing problems they anticipate is first on the agenda.

How the fees would be shared is something that they're even a little reluctant to talk about. But probably at least they are looking forward to a central fee-receiving office which would then farm it out on some sort of pro rata basis, so at least to reduce your administrative cost, though it may not necessarily reduce your total costs.

PROFESSOR OPPENHEIM: Are there any other questions from this panel?

(No response)

If not, Jack, if you feel that you have a few minutes before getting into a cab to go to your meeting place, I would like to invite questions from the floor on this topic since you won't be here at the final phase of this session.

Are there any questions that you gentlemen would like to address?

Yes? Will you state your name?

MR. DANIEL C. WILKERSON: [1] You gentlemen will recall that we touched lightly last year on the possibility of extending our strength to widening the International Convention procedures on the American continent.

My question is related to that, in asking Professor Behrman if he has noticed any inclination in his researches for the countries who belong to the Convention to make it easier to have a mutual exchange of licensing among those who are of the Convention.

DR. BEHRMAN: In what way? Mutual exchange of license rights in patents, trademarks, or the whole thing?

MR. WILKERSON: Either one, for that matter. What I'm trying to drive at is the advisability of strengthening the International Convention as against this fractional political sort of thing that might eventuate if the Common Market sets up its own internal patent and cross-licensing machinery.

DR. BEHRMAN: I think one of the more important areas of co-operation would be in those countries which are developing, non-industrialized countries, to bring them in, to strengthen their participation.

I have not gotten into those areas personally to investigate their attitudes, but neither have I found, either in Europe or the United States, any evidence that there is real recognition of this problem in the less developed countries as yet.

This is something we're going to have to work on.

PROFESSOR OPPENHEIM: Any other questions?

(No response)

Thank you, Jack.

DR. BEHRMAN: May I say, Oppie, that I have been addressed as "professor." I have left that. And it's the Secretary who is waiting, Mr. Ladd's boss and mine. This doesn't wait as well as professorial meetings.

PROFESSOR OPPENHEIM: Fine, only I think, like the Kentucky colonels, once a professor always a professor, too. (Laughter)

Now I'm going to return to the original plan I had in mind by calling on the members of the principal research staff for a spot summary before we subject them to questioning.

I am not going to follow the exact order in the program. And so I come down to the area of sources and uses of patented inventions.

I think some of you who have been here in previous years will remember one segment of that under the heading "Patent Utilization."

I'm going to call on Dr. Sanders to make his spot summary.

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[1] Daniel C. Wilkerson, representative of the Michigan Patent Law Association and consulting patent attorney and engineer.

SOURCES AND USES OF PATENTED INVENTIONS

DR. BARKEV S. SANDERS: [2] Thank you, Professor Oppenheim.

As Commissioner Watson stressed in his statement, one might regard as the keystone of the Foundation's effort the making of objective, factual studies and observations of how the patent system is operating and has operated.

In order to crystallize some of the findings in this respect, I have summarized some of my findings on the workings of the American patent system in a series of tables. I hope that you have these tables, and I shall merely skim over them to give you some idea of the type of things we are finding.

The findings appear exciting to me. I hope they are found of interest by you too.

The first table, Table A, shows the proportion of assigned patented inventions put to commercial use before patent application, after application but before issue, and after issue. You will notice that a comparatively small proportion of patented inventions is put to commercial use after issue. Almost forty per cent are put to use before an application is made. Nearly fifty per cent are used while the patent is pending. Only some thirteen per cent are put to use for the first time after issue.

In Table B, you notice that a great preponderance of patented inventions are put to commercial use immediately after filing. If you look at the fourth column of Table B, the last column, it shows the propensity of a patented invention being used in the year in which it is filed. If we regard that rate as 100, in the subsequent year it drops to less than half, and by the third or fourth year it peters out to almost nothing.

Turning to Table C, these are patented inventions that were put to use after issue. If we look to Column 4 of the table, again we see the greatest concentration of these inventions being put to use for the first time is in the year in which the patent was issued, and this rate declines very sharply after that. That is, in the year after the year that it is issued the rate of being put to commercial use for the first time is one-twelfth or less of what it was in the year of issue. You see that there is this great propensity for patented inventions to be put to use almost as rapidly as it is possible, and comparatively very few such inventions are put to use if they are not used before the fourth or fifth year after issue.

Turning to Table D, in this Table we are considering another aspect of the workings of our patent system. That is, once a patented invention is put to commercial use, how long does it remain in such use? The patented inventions in Table D are the ones that at the time when our questionnaire was answered were no longer in commercial use. So you might say they are select, representing patented inventions that have relatively shorter use. But still you see that for the 1938 cohort, the average duration of commercial use was for more than five years. For 1948 we had an average of over four years that these patented inventions had remained in use before they became obsolete. The average was three years for patented inventions issued in 1952.

Turning to Table E, these are the patented inventions that were still in use at the

[2] Certain changes and additions have been made in Dr. Sanders's presentation. The tables referred to are reproduced in the appendix.

time when our questionnaire was being answered. You will notice that in the 1938 cohort of patents they had already been in commercial use for an average of nineteen years, and all of them were still in use. I guesstimate that the average for all patents would probably be thirty or forty years, during which they would remain in commercial use. It should be observed that the average period over which these patented inventions have been in commercial use exceeds the statutory period of seventeen years of patent protection. And if it were possible to follow these patented inventions over time until all of them become obsolete, the average years of commercial use would be two to three times the statutory period of patent protection.

These tables revolve around the main theme; that is, the pattern of patent exploitation or commercial utilization of patented inventions by companies of different size. For company size we have used in these tables the net sales in 1949 by the various companies that were in our sample.

Now, the last group were companies for whom we could not find any sales data. We have inferred that these companies were the smallest companies of all.

Looking at Table F, you will see that the question we asked here was whether, at the time when our questionnaire was being answered, the assignee regarded the patent useful to it. And our definition of "useful" was either that the invention represented by the patent was in commercial use or had been, or it had been licensed, or it had some other specific usefulness to the company. We find that seventy-five per cent of the companies responding indicated the patented invention was considered useful in 1955 or 1956. But you will notice that the highest proportion of usefulness was reported by the largest and the smallest corporations.

DR. ROSSMAN: What column?

DR. SANDERS: Column 9; companies in the first quartile, which are the largest companies, eighty per cent; and companies without sales data, the smallest, seventy-nine per cent. The lowest percentage was reported by companies in the third quartile, sixty-four per cent.

In Table G we are showing for companies according to their size the proportion of patented inventions that are put to commercial use. It shows that the proportion of patented inventions put to commercial use is highest for companies with annual sales of less than $55 million and for those companies for which we have no sales data—in other words, the smallest corporations.

I excluded Table H. By the way, I wasn't thinking of the same thing that some of you might be thinking when I left out Table H. Table H happened to duplicate the same information that I give for Table G except it was information provided by inventors. The information given by Table G, was supplied by assignees and in this respect information supplied by inventors gave results the same as shown by Table G so I decided to eliminate Table H, and lessen your burden. Table I shows the replies of assignees with respect to the intensity of commercial use of those patents which have been used commercially. You see that there isn't much difference in the intensity with which the different corporations of different size say they utilized their patented inventions.

Table J shows the impact that commercial use of the sampled patented inventions had on sales. The largest corporations are the more conservative in this respect. Their sales are not materially affected by the utilization of patented inventions. On the other hand, as you go down the scale of company size, for the smaller companies the sales are much more drastically affected by the commercial exploitation of the sampled invention which appears reasonable to me.

Table K shows the replies of assignees arrayed by company size to the question of the extent that the utilization of the patented invention had reduced the production costs. In this respect, the percentage reporting no favorable effect is consistently highest for the smallest companies. This would suggest to me that these smaller companies more often are young companies which have started the production of the item under consideration since the development of the sampled patent, so that usually what happens if utilization of the patent is effective, is that it affects their sales but not reduction of production costs since in many instances there was no prior production.

Table L shows that the effect on sales is least important for the very large companies with multiple products but increases progressively with diminishing company size, while the converse is the case with patented inventions the use of which has led to reduced production costs. These findings therefore suggest that the profitability of patented inventions for large and small corporations may be via different routes. The largest companies realize profitability more often by reducing their costs of production; the smallest companies realize profitability through sales.

Finally, in Table M we have shown the overall assessment of the assignee as to whether the commercial use of the patented invention up to date had resulted in net gain, losses, or a breakeven. You will notice that the vast majority of those who gave a definitive response indicated that there was a gain. The indication is that the largest companies are more apt to show net gain and less apt to show a loss from the exploitation of patented inventions, but in all groups the gains far outdistance the losses.

There was another table which showed the actual amount of gain or loss; but because the number of patented inventions for which actual amounts were shown was small, I thought it would be discreet not to present the table. That table also showed very large gains reported by the largest companies and relatively large gains reported by the smallest companies.

PROFESSOR OPPENHEIM: Thank you, Barkev.

Now we come to a topic which all of us know is one of intense current interest, namely, government patent policies, and I am calling on our principal research member, Professor Donald Watson.

GOVERNMENT PATENT POLICIES

PROFESSOR DONALD S. WATSON: Professor Oppenheim, all that I can report on now is a proposal for a research project that I think the Foundation should undertake as soon as is possible.

We found out in our study of government patent policies that the number of patented inventions coming out of federal R & D in the postwar period has been surprisingly small.

The federal government in the postwar period has paid for about one-half of all of the research and development conducted in this country, and during the same period of time only about six per cent of all of the inventions can be connected with the federally financed half of research and development.

So, therefore, what I should like to see undertaken is a study of the causes of the small number of inventions that seem to be coming out of federally financed research and development.

PROFESSOR OPPENHEIM: Thank you.

We now come to the topic of taxation. Dr. Bangs will talk on that.

TAXATION

DR. ROBERT B. BANGS: In the work John Creed and I have been doing on tax factors in the sale and licensing of patents and related industrial property, we are currently rounding out the series of studies begun two years ago.

This past year we have collected from United States corporations that own 150 or more patents an extensive body of data covering their income-tax experience with transactions in patents and knowhow.

This information, which covers more than fifteen per cent of all American patents in force that are owned by corporations, is now being analyzed. It will be reported on in early issues of the Foundation's *Journal.*

We have found considerable uniformity among large corporations in their tax experience. Outright sales of patents are rare unless a division or branch of the business is being spun off—that is, disposed of.

Exclusive licensing arrangements entered into by corporations have qualified for capital-gains tax treatment with little difficulty. Non-exclusive licensing arrangements have frequently been employed despite their tax disadvantages for other strategic business reasons. Not all companies, even those that are well served by tax advisers, are taking full advantage of available opportunities to license know-how abroad at the reduced capital-gain rate.

A common problem faced by many corporations is inadequate depreciation of purchased patents. This arises because Internal Revenue requires amortization over the unexpired legal life of the patent, which is often longer than the economically useful life. We are doing a special report on depreciation of intangible industrial property, pointing out the techniques for acceleration of depreciation that are available.

When inventions emerge from a company's own research and development work, the bulk of the cost can be expensed. Consequently, depreciation is less of a problem since the capitalized value of the invention for tax purposes is generally low.

We are also doing a special study of valuation of patents and related property for tax purposes. Valuation problems do not arise frequently, but when they do

they may have complex tax consequences. This special study will cover valuation formulae used by the Internal Revenue Service and leading cases in which valuation has been an issue.

In our questionnaire replies from corporations we have obtained data on income from patent licensing. Therefore, we now possess a basis for comprehensive estimates of this type of income which should be better than those heretofore available.

We plan no new surveys of either corporations or individual inventors this year. Instead, we shall concentrate on presenting over the next six months the information we have already gathered. Unless changes in the tax law are made, and none concerning patents is currently in prospect, we regard our work as in its consolidation phase.

PROFESSOR OPPENHEIM: Thank you.

Now I think, without any commercial plug, that all of you have heard about drinking tea as a change of pace. In order to keep this flexible and intersperse some questions before we have more spot summaries, I'm going to suggest that perhaps now we might address questions to you, Bob, on the tax aspects.

I have one which I think indicates the empirical nature of your work.

I was wondering in your tax studies whether you have found that tax considerations are a controlling or an incidental factor in determining how inventors make use of their patents.

Do they take that into consideration in their decision-making on that?

DR. BANGS: We have found that inventors take tax considerations into account, but that seldom are they a major factor in determining what an inventor will do with a patent right.

We do find an important difference between the individual inventor and corporate owners of patents. We asked a question in one of our earlier surveys addressed to individual inventors along this line: "Are you now more willing to enter into exclusive licensing arrangements, on which you can get capital gains treatment, than you were before the law was changed in 1954?"

We found that almost all of the inventors who responded said yes, that they were now more willing to do so, so that tax considerations were very important in their behavior.

In the case of corporations we have found almost universally in our responses that corporations tell us that they do not enter into decisions about licensing or selling or disposing of patents primarily for tax considerations but they do what they think is good business practice regardless of the tax consequences.

EXECUTIVE DIRECTOR HARRIS: Mr. Moderator, may I ask a question? What are the most important tax problems of the individual inventor?

DR. BANGS: We have found them to be two. One is obtaining a deduction for research and development expenses. A corporation with a well established laboratory is able to do so but it is, frankly, a very difficult problem for an individual inventor. In order to get a deduction for research and development expenses he must show some income of a sort against which this expense is a proper offset.

Because so many individual inventors produce inventions as a result of hobby activities or spare-time activities they are unable to obtain research and development deductions.

The second problem is simply that they are unable to find the sort of arrangements for exclusive licensing of their patented inventions which will give them capital-gains treatment, or they don't know about the law and the fact that it has been changed.

We found a surprising ignorance among individual inventors with regard to obtaining capital-gains treatment from exclusive licensing arrangements, and even those who said they knew what the law was were unable to make the type of contracts which would give them the preferred tax treatment.

Those I think are the main problems we have found.

PROFESSOR OPPENHEIM: Ony other members of the panel?

MR. ROBERT C. WATSON: I'd like to ask a question of Dr. Bangs.

Dr. Bangs, in your survey of corporation tax practice concerning proceeds from patents and knowhow, are there important differences between the different industries?

Do you find conditions in different industries at variance with one another?

DR. BANGS: We have found a good deal of variation among different industries in licensing practice but relatively small differences in tax experience.

By this I mean that it may be the custom in a particular industry, such as petroleum refining for example, to enter into numerous licensing arrangements, cross-licensing and others, whereas in other industries this type of licensing is relatively uncommon.

But we have found that there was surprisingly little difference in the tax experience or in the tax problems encountered as between one industry and another.

MR. GEORGE E. FROST: Oppie, I would like to ask a question if I could.

PROFESSOR OPPENHEIM: Yes, George.

MR. FROST: As I read your reports, Dr. Bangs, I was frankly rather surprised at the small inventors, the individuals, not taking more advantage of the capital gains treatment by outright sales of their inventions. Frankly, it rather surprised me. Is there any reason for that?

DR. BANGS: Well, I think the reasons are two. First of all, many of them were—and probably in some cases still are—ignorant of the arrangements that would be most advantageous to them taxwise.

The second factor is their inability to make the sort of contracts which would give them a favorable tax situation.

MR. FROST: I see.

PROFESSOR OPPENHEIM: Any other questions?

DR. BANGS: A question that has been put to me is whether corporate size has any bearing on tax experience, particularly with regard to proceeds from patents and knowhow.

I interpret this to mean: Do we find any difference between small and large corporations in the results we have obtained from the questionnaires?

We have surveyed primarily large corporations, although since we have taken all American corporations that owned more than a certain number of patents, we got some relatively small ones as well as large ones in the sample. We have not found any particular difference by corporate size in tax experience.

The smaller corporations and the larger ones have had pretty much the same tax problems, though the larger corporations are naturally somewhat better served by tax advice and tax advisers.

PROFESSOR OPPENHEIM: Commissioner Ladd?

COMMISSIONER LADD: Dr. Bangs, on the question of why individual inventors do not use the capital-gains treatment more frequently, is it possible that this suggests something about the level of income among individual inventors?

Is it possible, for example, that it is more advantageous to them to pay marginal income tax rates on ordinary income than it is the capital-gains rate?

DR. BANGS: Well, inasmuch as capital gain is a cheaper tax route for anyone, regardless of his income, I don't think that would be the answer.

As you know, the long-term capital-gains rate is only half the ordinary income rate, and it becomes less than that when ordinary income rises above a certain size. So, regardless of the size of an individual inventor's income, he would benefit by using the capital-gains route, if he knew about it and if he could make the sort of arrangements which would give it to him.

MR. FROST: Of course, it's possible, isn't it, that the matter could be mixed? I think that might have been what Mr. Ladd had in mind. It may not be a simple question of getting so many dollars via the capital-gains route and that same number of dollars via some sort of an agreement that isn't a capital-gains agreement. So that on balancing the two I could see how an individual inventor might really end up better off.

That's just a thought. I don't know.

DR. BANGS: He always faces the question as to whether he will do better by making an outright sale or an exclusive licensing arrangement and taking the proceeds in a lump sum as opposed to taking a royalty over an extended period of years. But since you can, by an exclusive licensing arrangement, take an annual royalty based on production or use, which is just the same as any other royalty but which gives you capital-gains treatment, it would seem that this would be an advantageous arrangement for most individual inventors if they could make that sort of contract.

PROFESSOR OPPENHEIM: Do I hear any other questions on the tax area?

(No response)

If not, I'm going to call on Dr. Siegel to give us a spot summary on the small-business area.

I may say he is an alumnus of the President's Council of Economic Advisers, and you can see on the program that now he is engaged in military economics and costing at Johns Hopkins University.

Dr. Siegel.

SMALL BUSINESS

DR. IRVING H. SIEGEL: I would like to regard the change as my becoming an "intellectual" again, but many of you may not agree.

The area of primary interest to me since my affiliation with the Foundation began is the role of patents among other factors in the creation, development and operation of small industrial firms.

In recent years I have found it desirable to expand the scope of my activities to embrace the opportunities that are available to established firms, which are usually larger than the ones with which I have been primarily concerned, to diversify and grow through patent ownership and licensing as well as other means.

I have also sought to investigate more actively the available company and other literature that relate to opportunities to use patents commercially. There is an abundant literature which I feel requires a systematic analysis and interpretation.

While sitting here today, I have been impressed with seeing that I shall have to go through the reports of my colleagues once more and examine what they have had to say about small business so that I may integrate more effectively their findings with my own.

Those of you who are interested in patents and small business are probably used to seeing literature which emphasizes the utilization of patents by small companies. The findings of studies of that sort, however valid for the firms to which they refer, should not mislead us to exaggerate the role of patents in small business in general. By this I mean to say that most companies in the small-business area—and there are at least 300,000 in the manufacturing field—do not start with a technological "face." In fact, few arise around pre-established positions of technical leadership, and few of the remainder develop the technical dynamism they lacked at the start or in early life.

So when you "look at the record" of little firms in general, as we have sought to do in our study, you get a picture of the role of patents in context with the many other factors of concern to small companies. And small companies are interested indeed in many other matters, like survival and growth through access to adequate capital. You will recall also that one of the major causes of failure of small firms is found to be inadequate management. There are so many problems that small companies face that it seemed desirable to us to consider the patent among other factors.

Our procedure has been to make case studies of particular industries. The industries have been limited to those known to afford opportunities for small business. Thus, surveys made in earlier years by the Federal Reserve System and Arthur D. Little Company in the Boston area indicated some of the economic areas

of probable importance and interest. Trade literature and the *Census of Manufactures* have also provided valuable leads.

We have so far studied seven different industries—the Boston-area electronics industry, scientific and other instruments, fabricated plastic products, non-integrated aluminum processing, custom heat treating, machine tools, and the implications of new technologies in iron and steel making (e.g., direct ore reduction, oxygen conversion, and continuous casting) for small business. Two additional industries are under consideration—chemicals and containers.

Now, when we expanded our scope to include opportunities offered to established firms, one of the technical routes commending itself was that afforded by a major modern invention—the transistor. This invention, or complex of inventions, as you know, has been freely licensed by Bell Telephone Laboratories to other companies. Furthermore, the original successes spurred other inventive activity in the same and related areas.

To illustrate my third research interest at the Foundation, I refer you to an article in the Fall 1960 *Journal* on patent information in annual corporate reports.

We have made a systematic inquiry into the several crops of annual reports to see how patents are treated by companies. We are quite surprised to see that even though companies usually claim that patents are very vital to their activities, they do not take full advantage of the medium of the annual report to demonstrate that interest. The article suggests ways in which companies might demonstrate their interest in the patent system more effectively. I hope that those of you who represent companies and are interested in this endeavor will take to heart some of my published remarks, not only because you may wish to show support of the patent system but also because more published information would help the lot of the researcher like myself!

Thank you.

PROFESSOR OPPENHEIM: Thank you, Irving.

We come now to an area which happens to be one in which I have been so preoccupied that I suppose I may say that if I have been self-sacrificing about it, I have sacrificed the companionship of my wife in the process.

At any rate, antitrust is the topic.

But let me quickly say that there are so many doors and hundreds of facets in antitrust that our next member of the research staff in his spot summary I'm sure will give some delimitation to the area in which he has been studying.

ANTITRUST

MR. GEORGE E. FROST: Thanks, Oppie.

In our antitrust project I must confess I had just a little bit of personal excitement and interest that has come along in the past six months. The point, in substance, is this:

We started out some years ago in an effort to find out what these antitrust compulsory licensing decrees had really meant in terms of business, research, product development, and that type of thing. We started out with the *Besser* case

and came out with a conclusion that the effects of that decree were really quite mild and that the compulsory licensing provisions of the decree were really, if anything, a small proportion of the total picture.

The *Vehicular* case, which was the second one we studied, gave us a somewhat similar conclusion, in a different pattern, largely because the important patents had expired and for other reasons.

Again, the compulsory licensing decree provisions I don't think could be characterized as having any tremendous effect.

Finally, we went to the *Technicolor* case, and in the *Technicolor* case we rather deliberately chose an industry where we knew that research and development was a very important item.

The interesting thing that happened in that case was that the decree related primarily to a process of color motion picture production that has been used only by Technicolor, and for that reason, among others, again we had a decree in which the compulsory licensing provisions had rather limited effect.

Now my mind turns to a somewhat different subject, namely, the case of an industry where you have a great deal of emphasis on product development, a great deal of emphasis on research and development and that type of thing.

We have in the past two years now a great deal of information in connection with the pharmaceutical industry. The Senate Antitrust and Monopoly Subcommittee has given us a sheaf of books I imagine two feet thick to read on the general subject. There is also a Federal Trade Commission report.

So the question has come up, with this body of information available, do we have something where we can make maybe a backdoor approach and go backwards and take the industry here and say to ourselves: Now, is there anything we can learn from that with respect to the effect of these compulsory licensing decree provisions?

The matter needs more exploration. I can say this much though, and I think it is worth passing on in a very preliminary way: that there have been some decrees in that field, some antitrust decrees, some other business transactions, that have had a somewhat similar effect. The curious thing is—and this again I must say is rather preliminary—that things have happened in that field so rapidly that these have not had any significant effect.

In other words, in one case there is a 1945 decree that affected a considerable number of existing patents. Well, within a very few years the technology had changed so completely that the decree does not appear to have had any significant influence.

I don't conclude from that at all though that this is an area where compulsory licensing decrees, Oppie, are not important. I think quite to the contrary. And all I can say now is that this is a direction of thought, something we're thinking about, and an area where maybe by taking what we might call the backdoor approach this time we may come up with some rather interesting information.

PROFESSOR OPPENHEIM: Thank you, George.

Perhaps we might intersperse some questions here, and I have one.

In the course of the studies, as one of the consultants, if I remember correctly, you get certain by-products and other information beyond focusing upon the effect

of compulsory licensing of patents as a major factor. Have you come across any other information of a supplementary nature that perhaps you would want to talk about in any other area that impinged on what you were doing?

MR. FROST: One of the troubles with talking about compulsory licensing is that one gets into all sorts of areas. I would only say this, Oppie: that I think there are some correlations between some of the things that we have run across and some other areas, such as, for instance, we have had in connection with the matter of government contracts some discussion of compulsory licensing.

That appears to be a rather special situation, and I would only suggest—if our study is any guide at all, and I'm not entirely certain that it is—that in some of these areas we can't look for the economic effects that might seem to follow from a theoretical analysis.

I hope that answers your question. I'm afraid it's rather indefinite, and it must be.

PROFESSOR OPPENHEIM: Well, my question was pretty broadly pitched at that.

I can't forbear adding a comment by way of supplementation going beyond just compulsory licensing of existing or future patents. I'm thinking about the rather extensive use, or at least the development of a pattern in the consent decree provisions that have been negotiated and accepted by the defendants, of compulsory disclosure provisions.

I am thinking particularly of compulsory disclosure of knowhow.

This, of course, is a subject on which varying viewpoints might be expressed. I personally think that in the decrees I have examined over the years that the type of provision which I have in mind, namely, compulsory disclosure in transmission of knowhow, has implications of serious importance to the continuation of incentives to develop knowhow.

All of us here know, of course, that the requirement of a full and complete disclosure as a condition of issuance of a patent does not go so far as to require a disclosure of what we call knowhow. Of course, disclosure must be adequate to permit one skilled in the art to practice that invention on expiration of the patent.

But I am thinking about what we all know as a rough working definition of knowhow, the "how" between what is known and the disclosure in the patent application.

This to me is a rather serious question, because I have noted, for example, types of provisions where the defendants have agreed or have perhaps been asked to agree and maybe declined—but it's indicative of the thinking in the Antitrust Division—to provisions calling for plant visitations, manuals of instruction, and even insisting upon having present at the plant visited the men who have the knowhow so that they can transmit that knowhow.

This is something we are, of course, not trying to evaluate in the research on compulsory licensing of patents, but it is an adjunct to it, an additional provision which may go beyond the range of prevention and correction of the alleged antitrust violation. Consent decrees do not admit that the violation has occurred.

I would just like to suggest that some thought might be given by government as well as the private parties to the implications of what might be considered in

some quarters a rather drastic type of provision when defendants are compelled to disclose knowhow, because knowhow, as we define it, both in our domestic system and in foreign systems, is something which has high asset value and is in the area of trade secret information.

To insist upon a free disclosure of that information might have an element of punitive rather than corrective aspects.

Now, are there any other questions that might be addressed at this time on the antitrust phase so that we may wrap that one up?

Bob?

MR. ROBERT C. WATSON: May I ask one question? At one time I calculated that as a result of the RCA, IBM, and AT&T decrees 22,500 patents were dropped down the drain, so to speak, thrown open, and I'm wondering when and where an evaluation of the economic effect of that disaster will ever be made.

PROFESSOR OPPENHEIM: George?

MR. FROST: Oppie, can I go to that one?

I'm more than conscious of Bob's point, and I think that's something that we should get to.

The time now that has passed since those three decrees is enough so that I think we can talk about effects, and again I think it's something that we should go to and review.

I might say that you can't take 22,000 patents and start at the first one and go to the last one to find out what happened. It's going to take a different approach. But that's something that we certainly are very much interested in doing.

PROFESSOR OPPENHEIM: This also reminds me that when you throw into the trough, as it were, this vast number of patents there might be also some interest in inquiring into the extent to which applications for licenses were made under compulsory patent licensing provisions in consent or litigated judgments.

I know that the Senate Subcommittee on Patents, Trademarks, and Copyrights published recently a study which had some data on it.

But I wonder, for example, whether under the IBM decree involving a large number of patents covering electric tabulating equipment using punch cards, not to mention electronic data-processing systems patents, which at the time of the complaint were to a large extent future patents, it might be surprising that there have not been very many applications for licenses from IBM.

My impression—and it's just an impression and not intended to be stated factually—that perhaps IBM might have been surprised at the limited number of applications for IBM licenses, if that should be the fact.

I remember at the time of the IBM decree I thought IBM would have to set up a separate division to receive and consider applications for licensing under that decree.

I think it might be of interest to know whether anything like that has happened. As I say, my impression is that perhaps relatively few applications might have been made, despite the fact that it was thought at the time that this decree would open

the door to a great deal of competition that would be let in through that type of provision.

Is there any other antitrust question?

EXECUTIVE DIRECTOR HARRIS: May I ask George a question?

With all the publicity the recent electrical cases have been receiving, I should like to know what pertinence they may have for patent antitrust law?

MR. FROST: Well, I guess we can all agree that the unpleasantness at Philadelphia was out-and-out price fixing having nothing whatsoever, so far as most of us are aware at least, to do with patents.

In that respect, of course, the matter is quite distinct from any of the matters into which we have delved.

I would like to add, though, that there have been criminal antitrust cases involving patents—the *Carboloy* case is, I suppose, the key example—that also involved price fixing.

I would only suggest, Lou, if I might, and Oppie, maybe you have a different view on this but my own feeling would be that if the *Carboloy* case happened and went to trial tomorrow probably there would be sentences and they would not be suspended sentences.

PROFESSOR OPPENHEIM: Well, since you mention that, I had occasion recently to probe into compulsory licensing provisions in consent and litigated decrees with a view to thinking of it in terms of criminal versus civil prosecutions. I found Judge Knox in his opinion in *Carboloy* said at that time, and I still think it's true, that this was the first patent-antitrust case that he knew of in which the government had instituted a criminal prosecution.

But if you examine his opinion—and we take that of course as findings as well—you will note in that case—and I don't mean to say anything that isn't a matter of public record, of course—there were listed I think eight types of practices which today we classify as the "unreasonable per se" or illegal per se type of antitrust offenses.

So that apart from any of the patent aspects, there were practices which in and of themselves were classified as patent misuse or antitrust abuse, and would be regarded, I suppose, even by the patent bar itself as being easily categorized as the "unreasonable per se" or illegal per se violations where you go beyond the bounds of the patented invention and you get into misuse under the public policy of the patent laws or antitrust laws.

But there is another phase of this that might be of interest to you. I discovered when there were concurrent criminal and civil proceedings that the settlements that were made on the consent basis on the civil side were the predominant thing.

In other words, there were civil consent proceedings where you had that combination of criminal and civil suits.

And you know that this sometimes results from the fact that when the Department feels frustrated in being able to obtain voluntarily information that it needs in the investigatory stage, in the absence of a subpoena power, sometimes there is this pressure to resort to the grand jury.

This is again a publicly recorded statement of heads of the Antitrust Division who in candor in effect said that, "The reason we resort to the grand jury process is that we have no effective means prior to the issuance of a complaint to obtain the information unless it's voluntarily given."

As I think some of you know, there is presently pending a bill or a number of bills which would create a civil investigative demand procedure whereby the Attorney General could under the civil investigative demand obtain information prior to the issuance of a complaint.

I may say the Attorney General's National Committee to Study the Antitrust Law made a report in 1955 recommending this as a type of legislation that would help to solve this problem of going to the grand jury when in many instances the Department had nothing in mind at the time but a civil proceeding.

But the *Carboloy* case, so far as I know, George, seems to be the only patent-antitrust case which was solely criminal. And apparently, as you say, because of the complex of practices, it was a type of case where the Department under its criteria would have instituted a criminal prosecution to attack what it considered illegal per se Antitrust Violations.

DR. BANGS: Mr. Chairman, may I ask George Frost this question. Does the experience with compulsory licensing in foreign countries have any bearing on the matter of compulsory licensing by consent decree?

MR. FROST: I think that maybe we could make a very short comment on it. There are similarities and there are differences.

The antitrust consent decrees, at least in the eyes of the Department of Justice, have related to abuse situations. They have related to cases which the Department at least has insisted have been instances where they occurred out of the general run of normal patent cases.

Now, by and large, the compulsory licensing that is carried on in foreign countries turns on non-use, and to that extent, you see, it is a specialized type of situation.

Of course, there are the exceptions. One exception is the case—one common one I should say—where compulsory licenses are granted without cause in the case of, oh, foods, medicines, that type of thing.

I would only add, if I might, in that case, that when you get over into that area it is possible to make the most dramatic comparisons between what is coming out of the foreign countries in terms of new product development and what is being produced here.

I hope that answers your question.

PROFESSOR OPPENHEIM: Bob?

MR. ROBERT C. WATSON: With your permission I would add one comment there.

If my recollection serves me correctly, at the Lisbon conference all of the other nations who had representatives in attendance at the meetings of the Commission on Patents were willing to support a resolution which was somewhat like this:

"In the event that a patentee is made subject to a compulsory licensing procedure, no compulsory license shall be imposed upon him unless he is compensated."

And the United States delegation was forced to oppose that—the sole opposer as I recollect the circumstance. We stand for the proposition that you can take property without paying for it.

PROFESSOR OPPENHEIM: Thanks, Bob. I'm glad we're not going to end the conference on that note. (Laughter)

Are there any other questions in Mr. Frost's area?

Joe?

DR. ROSSMAN: May I ask a question, Professor?

You made the distinction between knowhow and patents as distinct types of property. Now, we have many precedents for compulsory licensing of patents. Would it be possible that you may have a development of compulsory licensing of knowhow aside from any conspiracy?

PROFESSOR OPPENHEIM: Well, I think, as I said, that in the consent decrees it may fairly be said that this compulsory disclosure in practical effect amounts to the same thing.

DR. ROSSMAN: Yes, but it's tied in with a patent. But where there is no patent at all, only knowhow, I mean. I make an invention but I'm not taking a patent out, and I'm going to license Party A, give an exclusive license. As a property right can the Justice Department compel a licensing of that?

PROFESSOR OPPENHEIM: Oh, there's no doubt that the theory of the consent decree and judgment enforcement section, as it's called at the Antitrust Division, would be—if it were shown of record in a litigated case or if the allegations of the complaint in the minds of the Antitrust Division supported it—that if trade-secret rights were abused or misused they would try to make it comparable to the misuse or abuse of patented rights.

However, the ones I have examined were all adjunct to patented inventions.

But I have no doubt that in the Department's mind they might have the appetite to proceed further and to bring within the clutch of these consent judgments almost any conduct. Because the basic concept is that if it's a matter of an equity decree that the court has jurisdiction to approve—although I must say most of these are pro forma approvals after the consent negotiations are worked out—any provision which is deemed to be preventive of future antitrust violations or corrective of antitrust violations found to exist, could be deemed within the reach of the antitrust decrees.

So I must say, with regret I may add, that this is something that possibly can come within the scope of a consent decree, as I have seen the provisions to date.

There is no hesitation in exacting in a consent decree, for example, a provision which requires a seller to sell, although, as we know, an individual or unilateral refusal to deal is something which the courts have firmly supported.

I have seen provisions where the defendant was required to sell over a certain number of years—in other words, could not refuse to sell—with the limitation, of course, that there must be a willingness on the part of the buyer to pay a reasonable price and meet the normal and usual terms of a deal.

So my answer would be yes. I should think that from the Department's point of view this would be included in their idea of what might be deemed relevant to correction and prevention of antitrust violations.

DR. ROSSMAN: But there is a radical distinction. When a patent issues the information becomes available in a printed form as public knowledge.

PROFESSOR OPPENHEIM: Yes.

DR. ROSSMAN: But knowhow is never published.

PROFESSOR OPPENHEIM: That's true.

DR. ROSSMAN: By being compelled to disclose it to people with whom you have no relations you are destroying a property right. In other words, you are destroying property rights guaranteed under the Constitution.

PROFESSOR OPPENHEIM: Well, I can't disagree with you, because everything you say I'm in agreement about, except that I'm expressing the belief that this is not necessarily the view of the Department of Justice Antitrust Division.

MR. FROST: Oppie, may I be heard just a second?

PROFESSOR OPPENHEIM: Yes.

MR. FROST: First, I just can't get off this matter of knowhow without mentioning the Kefauver bill that was introduced in the Senate, because there they have provisions for compulsory licensing, and they provide as a condition to the type of license that must be granted a license of all technical information.

Now, it's very indefinite, but it goes back to this same general subject here and creates the same kind of reservations that I think have been expressed.

Lastly, if I may, I think somebody ought to argue with you two fellows—and I like to argue. It seems to me that Justice's point of view is something like this:

"We have a violation of the antitrust laws. The violation has caused competition to be diminished and affected. A decree to be adequate must not only forbid the doing in the future of what has been done in the past but must, insofar as possible, restore competitive conditions."

It seems to me that, regardless of what can be said of property rights, if a court decides that the only way to restore competitive conditions is by insisting on the transfer of know-how rights, there's no alternative and it must be done.

I just wanted to say that.

PROFESSOR OPPENHEIM: May I put further comments into the record of this Conference, in order to leave this matter not so unclarified that some of us may be misunderstood even though we try not to be. I remember so well when I was co-chairman of the Attorney General's National Committee to Study the Antitrust Laws I made an impassioned plea for the Committee to oppose royalty-free compulsory licensing, and in my view it rose to the dignity of a Constitutional issue and was not a mere statutory issue.

Now, there you have a good example of the very thing you're saying, to which

I subscribe—namely, that the purpose of an equity decree in an antitrust case is not to punish, is not to confiscate, is not to forfeit, but, as you say, to prevent and correct violations by provisions which don't go as far as that. And the Supreme Court has said so in a number of cases.

Of course, a patented invention is a property right. The Code now expressly declares it to be a species of personal property. And, of course, trade secrets represent a property right, although trade secrets have also been conceptually treated as contracts, agency, and trust and confidence.

So I think it is perfectly clear that, for those who believe that knowhow as trade secrets are property rights, this would be, to me, a deprivation of a property right in the nature of a forfeiture, as against existing alternatives less harsh and yet well designed to correct antitrust violations found to exist.

But I think there is a persistence of controversy on compulsory licensing of patents. The Attorney General's Committee split on this issue. The majority view was that royalty-free compulsory licensing of patents is penal rather than remedial and therefore beyond the remedies allowable under the Sherman Act. But a substantial minority of Committee members, despite what I thought was a persuasive plea to the contrary, took the position that royalty-free compulsory licensing was within the statutory framework of provisions permitted in an antitrust equity decree and was not barred by the constitutional provision on patents.

So, you see, in this way at least, we understand that some believe that the antitrust decrees can reach to deprivation of property rights, but in their view it's simply a corrective measure.

Anything else on antitrust?

This is the one topic where I can't refrain from making my own comments, gentlemen, and there is no one here to overrule me. (Laughter)

Well, if there are no further questions on that, we'll proceed to the next topic, a very interesting one, which we have designated as "Executive Decision-Making." Professor Markham of Princeton University is the principal researcher in that area.

Can we have a spot summary, Jesse, on that?

EXECUTIVE DECISION-MAKING

PROFESSOR JESSE W. MARKHAM: Yes, Oppie.

As you may recall, I have made a report on this project for the past two annual Conferences, and so I don't think that I will bother to bore this audience with going into its methodology.

About all I can report is that we have cataloged information on roughly about thirty corporations. This information is far from being homogeneous. We have a great deal of information on a few companies. We have a very little information on a few others. On twenty-or-so-odd corporations that fall in the middle we have a modest amount of information.

What we are focusing on here, of course, is the role of the patent system as such in executive decisions; this is an extremely important topic because, after all, private entrepreneurs or executives make decisions on what amounts to seven-eighths of the total output of the American economy.

So an inquiry into the effect of the patent system on executive decisions should not only shed some light on the course and development of the American economy but should certainly highlight some of the very important features of the patent system.

This study, I might add, is not staffed by a large number of researchers. In fact, you see the total research staff standing up at the moment—(laughter)—and he has been rather busily engaged on myriad other projects from time to time, so this has proceeded rather slowly.

I'm not too disappointed with this. It is the kind of project that I believe if done thoroughly requires a good deal of thinking in between, going from one large corporation to another, with a good deal of time and thought required to reassess the situation, to examine what kind of information you really are looking for, and what would, in effect, be the indicia that would show how the patent system affects executive decisions.

I have been able to identify a wide variety of things that the patent system somehow or another impinges on in terms of how decisions are made.

It affects, for example, the number and type of scientific personnel that corporations employ.

It affects the size and composition of the legal staff, as all patent attorneys should probably know.

It greatly affects—and this is something that I don't advance as new but it is something that is interesting to me—the publication freedom that's given scientific personnel working for corporations.

It has a great deal of effect on the amount of research and development funds that are allocated. And it is for this reason that the patent system has a good deal of effect on every other financial decision that is made inside the corporation. To the extent that more is given for research and development, presumably less is allocated for certain other purposes.

It has a good deal of effect not only on the amount of research and development, but the patent system seems to affect substantially the emphasis of the research and development effort.

It has a good deal of effect on the types of markets or the product markets that firms enter.

And, as you have just heard from Dr. Siegel in his small-business presentation, it also has some effect on what firms enter these markets. That is, there are occasions where a small corporation will enter a market if it has adequate patent protection, even though if it had made the discovery it probably would not have entered unless it felt that it had its patent situation fairly well safeguarded.

Clearly, this study has to telescope itself somewhere, and try to give emphasis to something that is common to all of the corporations and companies that will be added to this group as time goes on.

I myself have more recently begun to focus on the effect of the patent system—and this is to identify some common ground among all of these companies—to try to find out the effect of the prospects of patentability on the roughly $4.5 billion—I'm using 1959 figures—that private firms allocate to research and development.

You will note that this figure is substantially less than the $12 billion listed as having been spent on research and development for the year 1959. Those of you who are acquainted with these aggregative figures know the reason for limiting it to the $4.5 billion private industry finances.

I don't believe that there is any measurable, clear connection between the patent system and the appropriations government agencies make for research and development, although I would be the first to concede there is an indirect connection between the two.

But I have yet to read a Congressional appropriations hearing in which a great deal of emphasis was given to the patentability of certain technology when they were weighing the appropriation that they were making for research for a given government agency.

This is true even for that portion of government-financed research that is, in fact, performed by private corporations.

It is true that the corporation may consider the patent system before it accepts a research contract, and we have heard a good deal about the different patent policies of various federal agencies such as the Air Force, the Armed Forces, NASA, the Atomic Energy Commission, and so forth. So this may have something to do with who takes it and why. But it doesn't, I don't believe, have a direct bearing on the initial appropriation as such.

That is, defense is a primary goal, and the patentability of the discovery has little to do with such appropriations.

These, then, are some of the results in rather broad outline, some of the things that the patent system itself apparently affects, and affects through the decision-making process of American business corporations.

As I have said, I am currently concentrating rather heavily on the relationship between the patent system, or the existence of the patent system, and that portion of the total research outlays that is accounted for by private corporations in the American economy.

PROFESSOR OPPENHEIM: Thank you, Jesse.

The principal researcher in the next area is a person who is very well known as not only a practicing lawyer but one who has had a studious interest over a long period of years in the improvement of the patent system and in constructive suggestions.

His area is noted as "Development of Procedures and Standards," and in his spot summary I am sure you will see how well suited it is to his background and experience.

Joe?

DEVELOPMENT OF PROCEDURES AND STANDARDS

DR. JOSEPH ROSSMAN: The designation "Development of Procedures and Standards," of course, is a very broad one, which actually covers a number of specific topics that I believe are of considerable interest to those concerned with the patent system.

I might say that these topics which I'm going to enumerate are the result of discussions I have had with Mr. Harris, and each time I would suggest one he said, "You're it."

Actually, I don't have a definitive report on any of these topics at present. They're all on the drawing board, as Professor Oppenheim indicated.

The first one I think is one of the most important ones, or to me at least the most interesting, and I propose to do it in the very near future. This topic relates to a study of rewards and incentives to employee inventors.

Although considerable attention has been given in the past to this subject, nevertheless, much vital data is lacking.

To what extent do large and small companies require assignment of their employees' inventions, for example, is a question I'd like to investigate.

Do such agreements tend to reduce inventive productivity?

What are the present types of incentives and rewards being offered to employee inventors? Are they effective in stimulating inventions?

Another comparison that I think would be very useful would be to see how the incentive and reward systems as they are operating in Russia and some European countries are effective in producing inventions there as compared with practices in this country.

Professor Markham referred to so many billions being appropriated by the government, say for space ships and satellites. But certainly appropriations do not produce inventions. The inventions are made by individuals, and individuals are subject to human stimuli and rewards.

I think that is also true of the employee inventors who are working for corporations.

It is a topic which I think is extremely important, which should be studied and evaluated, to see whether the procedures operating in our private economy are producing the desired results.

Is it possible that the Russians have an incentive system which gave them the jump in the space technology that we don't have? Or are there some other creative factors involved?

Another topic which would fall under the broad category would be a survey of the extent to which new ideas are being currently adopted by companies from outside individual inventors before they actually patent their invention or after they actually patent it.

Dr. Sanders previously gave you some statistics showing the rate of utilization of inventions and patents before they actually issued, and they seem to point up the fact that there is a great proportion of utilization before the patent actually issues.

Now, if that is true, where an outside individual inventor is trying to interest a company in his idea, it is very, very important that his ideas be considered and worked upon commercially at a very early stage.

In actual practice, when an inventor does try to submit an idea to a company he will most likely get a document which he is asked to sign in duplicate whereby he is just about asked to relinquish all possible property rights he may have and

submit himself to the mercy of the company. In an effort to avoid the legal liability arising from the use of confidentially submitted disclosures many companies have virtually closed their doors to new outside ideas. Many companies refuse to consider submitted ideas unless they are first patented or require the inventor to state that the submission is not being made on a confidential basis.

I don't think that is very helpful in stimulating the submission of outside ideas. This is a topic we should like to explore.

Another topic which may have considerable bearing on Patent Office procedures and examination in the Patent Office itself is the increasing complexity of patent disclosures. As you know, technology has become highly complex, and patent specifications appear to reflect this increasing complexity, especially in the chemical and the electronic fields.

It would be desirable to develop a method of measuring this growth which might give a basis for evaluating possibly the cost of preparation and prosecuting patent applications by companies as well as by individuals in these growing new technologies.

Are chemical and electrical applications more costly to prepare than mechanical cases today?

To what extent is the present type of claim system that we are following in the Patent Office and in the courts adequately reflecting the complexity of inventions?

A fourth project which we are planning to pursue in the future relates to developing standards for assessing the validity of patents under Section 103 of the Patent Act, which, as you know, sets only the sole standard of obviousness to a person skilled in the art.

Now, these judgments of obviousness are made in the Patent Office and by the courts. But there are certain critical factors behind these judgments which I think could be analyzed in some manner and so that they could be used as the yardstick for objective tests, such as, say, commercial success, the length of time the problem has existed without being solved, the amount of research involved, the investment of funds to solve a problem, and so forth. Is it possible to construct from objective data a so-called person skilled in the art in relation to the subject matter of a specific invention and to determine whether such fictitious person would or would not regard the invention as being obvious?

We hope that we might be able to analyze these problems and possibly come up with some answers.

PROFESSOR OPPENHEIM: Thank you, Joe.

May I say the studies which Mr. Rossman has mentioned as on the drawing board underscore the idea that we are not as a Foundation attempting to duplicate tasks that are more properly within the domain of the patent bar.

You will notice that in each of these studies he has indicated areas of research where the methodology of the research will have to be worked out to produce empirical findings.

I often think that with all of the great body of patent lawyers in this country, with all of their great competence and ability and skill, what a wonderful thing it would be if they could, let us say, have a moratorium on clients for just one year.

There would be a tremendous outpouring of research by patent lawyers in this area that would make the Foundation envious.

The hard fact of life is that I think we appreciate your confidence and your faith in us with a research staff that has the opportunity to perform these tasks without worrying about clients at the door, and that I think is the only real distinction.

But it's in these areas that we hope to do the analytical and empirical work which busy patent lawyers on Bar committees of sections or in the patent-law associations always like to do, want to do, but sometimes find themselves frustrated in doing by the demands of their professional activities.

Now we come to the last area—trademark effectiveness.

You may be wondering why the Patent, Trademark, and Copyright Foundation has not yet gotten to the point where it can embark in a very substantial way in the areas of trademarks and copyrights. Ladies and gentlemen, the answer is very simple. We just don't have the financial means to broaden out as rapidly as we would like.

However, we do have some on the drawing board, and we're fortunate to have Professor Mosel of the George Washington University who is in the field of psychology and who will give us a spot summary of what he has in mind in that trademark area in which we are beginning to launch our activities.

Professor Mosel.

TRADEMARK EFFECTIVENESS

PROFESSOR JAMES N. MOSEL: I can speak very succinctly to the area of trademarks. Not only is this project on the drawing board, it has not even been born yet. It's not even in embryo.

In its present form it exists mainly as a glint in the impassioned eye of Lou Harris.

In general, the intention of this project is to conduct a feasibility study to determine whether or not it is possible to measure trademark infringements in behavioral terms.

In behavioral terms trademark infringement reduces to perceptual confusion the extent to which two or perhaps more symbols, trademarks, are misidentified.

There is a rather large literature on the study of perceptual confusion; while none of it has to do with trademarks, it does serve as a guide.

From an examination of this literature it seems possible in principle, to develop a methodology in this area.

There are two broad problems which such a study would be confronted with. The first of these is a technical one, and the second one is a legal and value-judgment problem.

The technical problem is, of course, the development of a methodology for measuring the perceptual confusion of trademarks in the public's mind. There are several possible ways of going about this. The reliability of such measurements, the sampling involved, and the costs and time are all very important questions, of course.

What we would be aiming for in the technical area is the development of a standardized, syndicatable, replicatable method which any reasonably trained technician could carry out, in which case the method would do the work and it wouldn't take too much professional finesse to make it work; it would be something like the techniques we have in measuring the size of magazine audiences, which almost any reasonably competent research person can employ.

The second question, the legal or value-judgment one, is much more subtle; it is loaded with all kinds of emotional and moral issues, and probably some tremendous legal implications, too.

Once you have obtained measurements on perceptual confusion, it is necessary before these things can be used in the courts to set cutoff points or standards. That is, you have to be able to say now how much confusion is infringement.

If you think of the measurements in terms of per cent—per cent of people perhaps—then you have to ask the question: Well, how great a percentage will be taken as an index of infringement?

Infringement, apparently, is a dichotomous concept, while perceptual confusion is a continuous affair. And so it would be necessary to establish some cutoff point; this would be a very delicate but absolutely necessary step.

There is always the possibility that no cutoff point, in absolute, need be set. There is the alternative of permitting in some fashion the cutoff to be determined in each case. Since it would be sensitive to other value judgments and other aspects of any such litigation, this might be a reasonable procedure.

The project itself has a rating in the Foundation's taxonomy of projects of "B," which indicates that we'll receive some action in the immediate future, within a year or so.

The literature-search side of this is pretty well under control. I shan't go into some of the precedents that suggest that this is a feasible project. Perhaps these will come out with questioning. But I assure you that there is enough indication that such a project is feasible.

PROFESSOR OPPENHEIM: Thank you, Professor Mosel.

May I remind you that we are very anxious to have from you formulated questions, and I have a deep respect for the great potential in this audience in that direction.

So I am going to pause for a moment and Mr. Harris is going to perform the ministerial function, since his staff is all out of the room, of gathering up these questions.

I'm determined to intersperse them at this juncture so that we don't conclude the Conference, as so often may be the case, by reducing this particular phase to a minimum. I'd like to see as much time as we can possibly devote to the questions from the floor and responses from the panel members.

I may also say that in talking to our new Commissioner of Patents I found very quickly that he has a sense of perspective, and he has already expressed a sense of humility at being thrown into the maelstrom in Washington at the headquarters in the Patent Office, where it must look like a telephone switchboard with a lot of plug-ins and wondering how you can take care of all the calls coming in.

In addition to that he does have a sense of humor, because he told me as he came in and sat down that he thought the seat he was sitting on was a pretty hot seat, and I said, "I'm glad to hear you say that, Commissioner, which would indicate that you're willing to answer any questions that may addressed to you." And he said he is.

So would you please have your questions ready? At this point we will have what we might call a seventh-inning stretch. Please don't leave the room. It's hard to get you back. But if you want to get up and stretch, this is a good time to do it.

(Whereupon, a brief recess was taken.)

PROFESSOR OPPENHEIM: I have a number of questions here on the government patent-policy area.

DISCUSSION

PROFESSOR OPPENHEIM: This question is addressed to Professor Watson. In the findings and conclusions of your R & D study you gave two or three rather specific reasons why only six per cent of postwar inventions are offshoots of government-financed R & D. Does the proposed study mean that you question those conclusions, or do you merely want to document them?

PROFESSOR DONALD S. WATSON: What I would like to see is a good explanation of the reasons, the causes of the small number of inventions that seem to be coming out of the research and development financed by the federal government. I am puzzled and mystified by the small number, and I'd like to know why.

So it would be a question, then, of documenting fully the initial finding presented in that study.

PROFESSOR OPPENHEIM: Here is another one for you, Don.

Could you provide more definition to your statistic that only six per cent of the inventions since the war have resulted from government-sponsored research?

For example, are secrecy-order inventions included in this statistic?

Also, is anything known regarding the portion of the government R & D money which is really spent on prototype hardware production, etc.?

PROFESSOR DONALD S. WATSON: I believe that about one-half of all of the research and development carried on for the federal government is classified; no patented inventions come out of classified research. To double the six per cent figure would make it twelve per cent, which is still unaccountably small.

The second part of that question I am unable to answer owing simply to ignorance.

PROFESSOR OPPENHEIM: Now, I haven't anything to lose, and I'm going to take this in my own hands. I have never prosecuted any application before the Patent Office. I have lots of former students and friends who have been in and out of the Office.

Commissioner, I'm going to ask you this, and you can judge for yourself whether you want to answer it.

Could you tell us something about the attitude of the Patent Office, so far as

you've been able to formulate it in your own mind up to now, and of the Department of Commerce with respect to another controversial matter, as controversial certainly as government patent policies, namely, the Long bill?

COMMISSIONER LADD: You see, I knew that there was a blow coming but I had to wait for the tag line to see what it was going to be. (Laughter)

As far as the Long bill is concerned, the Department, of course, has been asked its opinion and, as a matter of fact, Under Secretary Gudeman has already appeared before the McClellan Committee.

Originally, the Patent Office was designated as the action office within the Department of Commerce, and we asked to be relieved of that, and we were relieved of it.

The Patent Office itself will not take a position on the Long bill, and there are two reasons for that. One is our feeling that the bill, dealing as it does with research and development contracts, has nothing to do with our mission, which is the examination and adjudication of patent applications.

However, the Department of Commerce is very much interested in the problem.

Incidentally, there is another reason, too, and that is that the Patent Office has enough fish to fry without getting into fights where it does not belong in the center.

The Department of Commerce has arranged to hold a conference the 27th and 28th—I believe those are the dates; in any event, it's in that week of this month—for which invitations to forty representatives from industry both large and small will be extended.

The purpose of this conference is for the Department of Commerce to explore whether there are any alternatives to the two positions—"let's have no change at all" and "let's have the uniform policy which is prescribed in the Long bill." It is to see whether there are any alternative policies which are acceptable to industry.

The Department of Commerce, of course, represents the point of view of business in the Administration.

It may very well be there is no alternative.

One of the alternatives which I have heard mentioned is a proposal like this: That we follow the policy of title in private industry, the license notion, let the title go to the contractor, and provide for compulsory licensing after a lead time of five or six years.

I do not mention that as any position to which the Department of Commerce is presently leaning. I simply mention that as an indication for alternatives. We hope alternatives of this kind will be proposed by industry.

PROFESSOR OPPENHEIM: Thank you, Commissioner.

This is a question addressed to Mr. Sanders on the uses and sources of patented inventions.

Have you obtained statistics showing the relation of profits to patented inventions used?

DR. SANDERS: Yes, we have. Unfortunately, that was not as complete as we would have liked. That was the Table N that I excluded from my series of tables that have been distributed. Of the companies that have returned us questionnaires,

about one-third of those that indicated the patented invention had been in use did give us net losses or net gains in dollars and cents. In one of the issues of our *Journal*[8] I have indicated that if you take these replies as representative for the patented inventions that were in current use, and thirty to thirty-one per cent of the patented inventions were in current use, it amounts to over a million dollars on the average as the net pjrofit that will be realized per patented invention put to commercial use and in current use at the time of our inquiry. I'm not prepared to say just what validity this estimate has. We have a figure, but I have not placed too much confidence in this figure for reasons that I have explained.

PROFESSOR OPPENHEIM: Here is one on the antitrust area. It isn't addressed to anyone but I notice my name on the back of it. Maybe it was intended for me. At any rate, I'll try to answer it. Licensing of knowhow is the subject matter.

Is it not true in many cases of antitrust violation that the violation itself had involved extensive exchange of knowhow and hence that the road to dissipation of the evil must necessarily involve revelation or disclosure of knowhow?

I think that's a very fair question.

In the discussion we had on that, I think that at least what I had in mind were provisions in the consent judgments where it did not appear from the allegations of the complaint that the heart of the antitrust violation involved an exchange of knowhow which either had the specific intent or the necessary effect and tendency to monopolize the knowhow among a dominant group.

Now, if that were the case, then I think in all fairness to the Antitrust Division consent judgment section that it might well insist upon some disclosure to break through this charge of the monopolization through the instrumentality of exchange of knowhow as among the defendants.

What I was thinking about, and which I think is a distinguishable situation, is a case where each of the individual defendants has knowhow, that there hasn't been this type of pattern of exchange which would foreclose any possible entry into the industry by reason of such practices.

For example, to be concrete, suppose there were a charge of price-fixing by agreement among the defendants. Now, if it doesn't appear there was an inextricable relation between that charge and the disclosure of knowhow and that there were varying degrees of knowhow among the companies which were not being exchanged among each other or to any preponderant degree, then I would classify that as a type of position that takes on a punitive rather than a corrective nature.

However, if there were refusal to deal by concerted action with any other outsider with respect to know-how which had already been monopolized within the group, then again in all fairness I would say this probably might be within the reasonable ambit of a corrective provision.

On that I do have one more antitrust question so I might as well bring it in.

Mr. Frost is asked to amplify on his comment on the contrast between the United States and foreign countries where there is compulsory licensing—for example, of drug patents.

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[8] See "The Economic Impact of Patents," *PTC J. Res. & Ed.*, vol. 2, No. 3 (September 1958), pp. 340-362.

Now, if you have an urge, as you once said, to get into that, George, here's your opportunity. When you were a student in my class, I never gave you a chance to express that urge. (Laughter)

MR. FROST: Well, maybe this is my golden opportunity.

I might as well confess I'm delighted to have it, because I sat down with a little bit of feeling that there was a little bit more to be said here.

We do have a good deal of information with respect to the source of inventions at least in the field of pharmaceuticals. There have been charges and counter-charges, but I think that there are some things that can be said with absolute certainty.

One of those things is that if you compare the performance of the United States industry with the performance of industry in other countries, you will find that the balance is very heavy in favor of United States industry.

If you take the next step and go down the line with respect to the strength of the patent systems involved, there is a definite correlation.

Now, let me be more specific and take an extreme case.

In Italy for some years, since the Mussolini days, it has not been possible to obtain patent rights, effective patent rights at least, in the field of pharmaceuticals. Now, I think it's fair to say that the performance of the Italian industry has been pretty much zero in terms of new products.

In this country we have, of course, the other extreme, a very strong and effective patent system. Here there are a great many products, product lines, where all the innovations have come from this country. The steroids and the antibiotics are two good examples.

There are other illustrations of drugs that have been developed in other countries, but, by and large, the performance has had a rather definite relationship to the nature of the patent systems.

Now, I hope I didn't speak to long on it, Oppie, but that was the sort of thing I had in mind.

PROFESSOR OPPENHEIM: No, no, and I'm going very briefly to supplement your remarks by saying that my impression is that, where there is compulsory licensing abroad like in the English and Canadian statutes for abuse of the monopoly rights of patents, it's very characteristic that in the rather limited number of cases that have been adjudicated on that question there's been a very definite extensive "rule of reason" inquiry to determine whether the patents should be subjected to the compulsory licensing.

In other words, I believe, George, you remember in the work that you did, when you were at George Washington Law School on non-use of patented inventions, that you discovered this very extensive method of inquiring into the whole complex rather than picking out one specific aspect. Is that true?

MR. FROST: Yes. I have to add just one qualification. There are special statutes in some countries with respect to foods and drugs and that type of thing.

PROFESSOR OPPENHEIM: I see.

MR. FROST: Subject to that one correction, very definitely.

PROFESSOR OPPENHEIM: Yes.

Commissioner Ladd has a question to address to Professor Watson on government patent policy.

COMMISSIONER LADD: I do it orally because I have made three stabs at writing it and all of them have been unsuccessful.

As I understand, Professor Watson, you wish to explore the reasons for the disparity in the rates at which patents emanate from government-financed research and from private research. I really have two questions.

One is: Do you have any hypotheses as to the difference in these rates?

And is there any evidence one way or the other on which you can base a hypothesis that the so-called title policy has caused companies to hold on to developments as a part of knowhow rather than disclosing and trying to claim these in patents which would go to the government?

PROFESSOR DONALD S. WATSON: The only hypothesis that has occurred to me so far is that much of the equipment produced for the government is of a highly intricate, highly sophisticated nature. Much of it may not have commercial application. Therefore, few inventions have come out of it.

I don't think that the question of title policy, or license policy, has much directly to do with this issue. According to the very rough estimates I made, there have been 9,000 patented inventions owned by the government in contrast to about 23,000 owned by industry.

PROFESSOR OPPENHEIM: There is a matter of nomenclature. Judge Rich of the Court of Customs and Patent Appeals has indoctrinated this Foundation at previous sessions with the distinction between the phrase "use of patents" as against "use of patented inventions." He insists there is no real meaning in saying "non-use of patents," that what we should talk about is "non-use of patented inventions."

So whenever you heard the word "patents" without adding "patented inventions," please understand by the judge's ruling that is included.

We have another question for Professor Sanders. This question is stated this way:

The survey indicates that the patents which were sampled were arbitrarily chosen. Were they? And if so, what percentage of the patents were not commercially utilized at all?

DR. SANDERS: Well, it is difficult at this time to give a lecture on sampling theory. They were selected according to the mathematical theory of sampling. That is, every patent issued in each of the three years sampled, 1938, 1948, and 1952, had equal probability of being represented in our sample. It is true that for any one company it may have turned out, that the patent which was in our sample was a very odd one, a unique patent. But in the aggregate it was what one would regard as a probability sample and information found to be true for these

patents would hold true (within a defined margin of sampling variability) for all other patents in the universe from which these were selected.

DIRECTOR COLCLOUGH: Then also you could answer the question as to whether they were arbitrarily chosen in the negative? They were not?

DR. SANDERS: True, they were not selected arbitrarily.

There is another element to the question. What percentage were not utilized? Well, if you subtract from the hundred per cent, which is all of the patents in our sample, those that were utilized, the remainder represents those not utilized. If we say about fifty-eight per cent of the assigned patents were utilized, then forty-two per cent were not utilized, within our definition of what we meant by use.

PROFESSOR OPPENHEIM: In the interest of allocating time, which I feel I must do now, Barkev, wouldn't it also be useful at this point to maybe add a few words on the definitional structure that you used, on what is meant by "use"?

I find that quite a few questions are asked as to what you mean by "use," which goes to the core of your survey, and it might be very helpful if you could just in a sentence or two tell us about that.

DR. SANDERS: If you look at the bottom of Table F you ill see our definition of "use," footnote 3. This definition was sent to inventors and assignees with our questionnaires, and indicated this is what we mean by "use" and "please answer it in terms of this definition." [4]

PROFESSOR OPPENHEIM: A very efficient way of answering it.

Now, Commissioner Watson, who now wants to be addressed as an alumnus Commissioner, has traveled abroad a great deal during his term of office, and this is a question, Bob, that I think you will be interested in.

Can we by regrouping the common features of the patent systems throughout the world arrive at a revised convention which would help the patent systems keep up with what is often called the explosion of knowledge?

MR. ROBERT C. WATSON: We certainly can't solve search difficulties by simply revising the convention. If technological information is exploding by reason of the proliferation of documents all of which must be considered by the examining patent offices, and I agree that this is happening, I don't see how you can handle that situation by drawing up a new convention which merely recognizes that fact. Action will be necessary.

Actually, all of the examining patent offices of the world are faced with the same problem, namely, how to accomplish the novelty search. The number of technological disclosures multiplies so rapidly that every office which attempts to make a novelty search finds that its difficulties are increasing daily.

I remember that on the occasion of each of several visits abroad at which I met the heads of other examining offices we explored possible ways and means of

[4] The definition read: "Making or selling the patented invention in the prodution of goods or services, or making financial arrangement(s) with a third party(s) for the production, use, or sale of the patented invention."

cooperating with each other, particularly with reference to the examination of identical applications which are filed in a number of countries for patents for a single invention.

For instance, if we receive in the United States Patent Office an application of a German who had already filed in Germany, would it not be feasible for us to ask the German Patent Office to communicate to us the information which it had accumulated when it conducted the novelty examination in that country?

That seemed to be one of the ways which appeared to offer some hope.

No formal agreement had been reached by the time I left the scene. And I will now refer the matter to Commissioner Ladd who has been over there since and possibly has the latest report.

PROFESSOR OPPENHEIM: Thank you, sir.

This suggests another question, and that is: Do you see any prospect in the European Common Market, the Inner Six or the Outer Seven, of the development of a system under which a patent can issue? That is, say, to be applicable to all of the Common Market countries, for example?

MR. ROBERT C. WATSON: My last information, which dates back quite a number of months, was that the most logical proposal then being given consideration contemplated the possibility of the grant of a single patent for the Common Market countries, all six of them, but that such grant was not to preclude the grant of patents for the same inventions by the individual countries comprising the Common Market, so that you might have two series of patents.

That obviously would cause complications, and I think that's just an intermediate stage in a long-term negotiation.

The experience of the four Scandinavian countries has been such as to lead me to believe that it is altogether possible that the Common Market countries will eventually get together on a form of grant which will be effective in all six. I'm sorry not to have late information.

PROFESSOR OPPENHEIM: Commissioner?

COMMISSIONER LADD: Well, there were discussions along these lines which were resumed at the Geneva meeting which took place about a month ago, and, as you know, Mr. Roeming also has attended a meeting in Europe in which the possibility of exchanging search results among examining countries on applications commonly filed in those countries is being pursued.

I don't think there is any doubt about it that some kind of assistance is going to have to be brought to the Patent Office to help us in the job of searching simply because of what has been called the "information explosion."

One of the suggestions that has been made inside the Office since I have come there is that we require the applicant to make available to the Patent Office any art which is cited by foreign examining countries against applications to which there is a counterpart here in our Patent Office.

There are problems with that, however, because many of the foreign countries are just as far behind in the examination of the applications pending before them as we are here.

But this is one proposal to get the information arising from searches in foreign countries into the cases in our own Office.

DR. ROSSMAN: Mr. Chairman, for several years I have been receiving inquiries from the Canadian Patent Office in connection with pending patent applications asking, "What has the United States Patent Office cited?" I have been tempted at times to say, "I don't see any such request based in the international convention to authorize that question." However, I have always willingly complied and said what's good for the United States should certainly be good for the Canadian Patent Office as far as patentability goes.

PROFESSOR OPPENHEIM: I know the audience is interested in hearing as much as we can from Commissioner Watson and Commissioner Ladd. Here's another one that seems to be related.

What relation is there between our patent system and the increasing likelihood that the rapidity with which the arts are beginning to advance increases the likelihood that an inventor is aware of less and less of the most pertinent prior art?

I leave that open to you, Bob, or the Commissioner.

MR. ROBERT C. WATSON: That's really a question.

I would say, however, that the patent system will save that poor inventor—that is, by reason of the classification work which is done in the Patent Office and done there only.

Now, without classification, the situation for the poor inventor who wants to keep abreast of any art would be hopeless.

We have a large group who are working to keep that man informed. Our classification staff is continuously engaged in dividing the enormous mass of patents and technological disclosures into small groups of which I believe there are nearly 60,000 now, so that if he consults the Patent Office staff, and visits our search room, he should be able to quickly ascertain the nature of recent developments in any selected art.

COMMISSIONER LADD: I would add to that only that there was a proposal—and, as I understand it, Commissioner Watson favors this, as I do—of creating search centers throughout the United States in which these classified files of ours will be duplicated.

I do think that access to this kind of classified technological data is going to become increasingly important because of this explosion of information.

In talking of making this kind of material accessible and enabling researchers throughout the country in all fields to remain current, I hasten to add that this was not my original idea. It has been around for some time.

When I first heard of it, I was somewhat disposed against it. The more I have seen of it, the more deeply I have become convinced that it's not a luxury at all. It's becoming rapidly a necessity.

PROFESSOR OPPENHEIM: I was just about to address two questions to the tax area but Dr. Bangs left the room. Now, this is not evasion. It's just temporary avoidance. And he'll return. (Laughter)

So I will ask this question of Dr. Rossman:

What is the reason for the statement you made that any independent inventor is at the mercy of the corporations when they seek to protect his rights as well as their own?

DR. ROSSMAN: I must confess I have written these letters for corporations myself as a form letter, and I have always been unhappy about it for the reason that we have a whole body of case law relating to confidential disclosures by individuals to companies.

For example, there's a suit pending against P. & G., where a woman sent a letter saying, "I have a wonderful idea. Put a little bluing in soap and you can wash and blue at the same time."

And then I think a year or so later P. & G. put out a product on the market embodying that very idea and she filed a suit for several million dollars.

Now, there are many cases of record where companies have been held liable for very substantial sums of money. Therefore, companies have asked their counsel to draft forms for submission of ideas, and if an inventor sends in an idea the company will say, in order to protect itself from possible liability in this kind of situation, that the inventor must sign a letter saying that he is not submitting the idea under any kind of confidential disclosure.

And as an attorney you simply have to recommend that such procedure be followed. But I say that we may need legislation or some revision in this approach, and so long as we have this kind of case law the individual inventor is not encouraged to submit his ideas where he feels that he's not safe in submitting the idea, unless he waits until he gets his patent, and by that time he has lost a tremendous lead time in having his invention marketed.

So I say it is a very unfortunate situation, something that we propose to study to see what the facts are, how much damage actually occurs, and what are the actual events which do occur in this type of existing situation.

PROFESSOR OPPENHEIM: Commissioner Ladd wants to supplement his comments on the question that I think we asked before.

COMMISSIONER LADD: The question was: What likelihood is there that the rapidity with which the arts are advancing increases the possibility that an inventor is aware of less and less of the most pertinent prior art?

I realized after I finished that I made a speech but I had not answered the question.

The answer is that the possibility that the most pertinent prior art is overlooked is enhanced. We find this particularly in those divisions of the Patent Office which are the most active and which are growing the most rapidly.

By the same token, those tend to become the divisions which get farther behind, and, consequently, we have applications which are being filed by inventors who are not aware of the most recent prior art which is covered by applications presently pending in the Office.

And, of course, that becomes more severe to the degree that innovation becomes more rapid.

PROFESSOR OPPENHEIM: Here's one for you, Bob Bangs.

What do you mean by an individual's inability to enter into a tax-favorable contract or arrangement?

DR. BANGS: We simply mean the inability of an inventor who owns a patent to make a contract on reasonable terms to give an exclusive license to that invention.

PROFESSOR OPPENHEIM: I think it might be interesting if we can return now to the panel for a moment and pursue any questions that may be addressed to them on the matter of government patent policies, which we all agree is one of great current interest.

Don, I'll start it off by asking you what you expect will be the ultimate value of the findings of your study.

PROFESSOR DONALD S. WATSON: Well, on the assumption that the study would turn out with good results, its value, I should think, would lie in being one of many, many criteria by which to evaluate the enormous and growing research and development programs that are going on in this country at the present time.

PROFESSOR OPPENHEIM: Are there any other questions on this area?

MR. FROST: Oppie, if I could just add to that?

PROFESSOR OPPENHEIM: Yes.

MR. FROST: I'd just like to mention that we have a report now that covers a study that has been completed, and I have the impression that it has a very considerable value in dealing with some of the statements that have been made which seem to us rather extravagant with respect to the significance of some phases of this, and I'd just like to add that, Oppie.

That report does, certainly to me at least, point a definite direction, conceding, of course, that there are additional matters that could be investigated.

PROFESSOR OPPENHEIM: With this I myself would not be in dispute.

COMMISSIONER LADD: Nor I.

PROFESSOR OPPENHEIM: Now, are there any other questions on this government patent policy area? Do I see any hands on that?

(No response)

Well, there is another one on tax here. I realized sooner or later in shuffling all these cards I'd be looked at as a magician. I just don't have it. I had it here a moment ago.

Here's one that might be interesting from the standpoint of the trademark study, Professor Mosel.

If the results from the methods of your research should develop, in what way would they be useful in litigation?

That is, this question seems to be pitched on the idea that, as we all now, whatever data would be produced would have to be leally admissible in court. It may have to be tested by the rules of exclusion and inclusion in the law of evidence.

I suppose it isn't fair to ask you to rule on those technical aspects or to talk on these technical aspects, but do you think the data that you have in mind would measure up to admissibility? Do you have any thoughts on that, Professor Mosel?

PROFESSOR MOSEL: The kind of data which would result would be comparable to data which have been admitted in past litigations.

PROFESSOR OPPENHEIM: I beg your pardon?

PROFESSOR MOSEL: The kind of data which would result would be quite comparable to data which have been admitted in other litigations in the past. The Food and Drug Administration, the Federal Trade Commission in a number of instances have carried out actions in which part of their evidence was research data on public response.

In most of the cases that I know of—I was involved with almost all of these—the research was admitted. In some cases the hearing examiner or the judge admitted it to be weighted by himself.

Of course, there are a number of other cases which I have heard of where it has not been admitted, and if anybody is interested in this question there is a book by Barksdale that came out in 1957 called *The Use of Survey Research Findings as Legal Evidence,* which summarizes as of that time most of the cases and the issues involved and provides very good background for thinking about this question.

This book was published by the Advertising Research Foundation, because they were interested in the use of marketing research methods for production of legal evidence.

So I see no inherent barrier, although undoubtedly the battle would have to be fought over each time until a sufficient number of clear precedents was set.

PROFESSOR OPPENHEIM: I'm sure, Dr. Mosel, you recall that some pioneering work was done years ago by Paynter.

PROFESSOR MOSEL: That's right.

PROFESSOR OPPENHEIM: Perhaps you have come across that.

PROFESSOR MOSEL: Yes.

PROFESSOR OPPENHEIM: And Munsterberg on psychological factors in judging infringement of trademarks and confusing similar marks.

PROFESSOR MOSEL: Paynter's work was not admitted, but he compared his results with actual litigation findings and found fifty per cent of the time the legal decision agreed with the empirical results and fifty per cent of the time it didn't. He worked on trade names rather than trademarks.

PROFESSOR OPPENHEIM: Yes.

Would you agree with the thought that I have in mind in thinking of another study by Professor Learned of the Harvard School of Graduate Business Administration when he was called into consultation and to make a survey of confusing similarity in connection with the use of the Stetson name in the Stetson

litigation, where the two names were, of course, the famous John B. Stetson and the infringer, the one alleged to be an infringer, was using Stephen L. Stetson?

I remember after going through that most interesting psychological series of tests; when it got to the court, the court said, "This is a prime example of solidified hearsay evidence." (Laughter)

I don't know what that means but it sounded awfully disturbing.

PROFESSOR MOSEL: I don't either.

PROFESSOR OPPENHEIM: Don't you think we can make progress since the courts are now accepting polls and surveys far more than they did years ago in this psychological area too?

PROFESSOR MOSEL: Well, I have one small ulcer which has developed out of being involved in such litigations—maybe two—and offhand I'd say that I think it's still a very tough battle.

But I believe that there has been a lot of progress made in that there is more frequent reference to precedents where it has been admitted. This eases the trauma a bit.

The defense counsel cannot perhaps impugn the scientific aspects of such research, but he can make it very discouraging to use it by making its introduction very traumatic. He can, for instance, demand that they will put on the witness stand all of the respondents involved in the sample, and that might be 500.

I know of one defense attorney who sat up all night in the Mayflower Hotel retabulating the questionnaires by hand. Of course, he was being paid a lot more than I was.

But this sort of thing, you see, is what you might call a psychological deterrent rather than a formal legal deterrent, and there is still a tremendous amount of this. But I think that the legal aspects of it will become eased.

PROFESSOR OPPENHEIM: Yes.

I also recall in one case, Dr. Mosel, where the court had to decide whether Oaties infringed Wheaties. Even though the court had a dim view of some of the pollsters and the surveys, it did have a psychological effect on the court actually.

I think it's much better than the rough phrase Judge Frank once suggested in a case where he was trying to decide whether the name "Seventeen" for the magazine was being infringed by the use of "Seventeen" for a teenage girdle. And he said that since he had no staff what he did was to go out and ask teenage mothers and teenagers whether they were likely to be confused.

Well, I think that whatever you folks do is going to be a lot better than what the court did in that case by its chance meeting with certain teenage mothers and teenagers.

Commissioner Ladd has something to comment on.

COMMISSIONER LADD: Professor Oppenheim, I have done a great deal of work in this field, and I do think that courts are becoming more receptive to acceptance of survey evidence based on samplings than heretofore.

I think that this is stemming from their acquiring confidence in the statistical methods underlying the selection of samples.

As a matter of fact, you undoubtedly are aware, Professor Mosel, that within the last year or year and a half the Federal Judicial Conference, in dealing with rules of evidence to be applied in the big case or the protracted case, has specifically said that sample evidence is very useful and has laid down guide lines for rules of authentication for this kind of evidence.

I think that the recommendations of this Judicial Conference, which of course do not have the force of law yet, indicate an increased receptivity to sampling evidence.

PROFESSOR OPPENHEIM: Here's a question from Assistant Commissioner Crews addressed to Dr. Sanders. You have before you the tables. He is referring to Table D.

Table D gives duration of use of inventions abandoned. Table E gives use of those still in use. Have you obtained statistics that show data for all patents used, both those abandoned and those still in use?

DR. SANDERS:[5] Well, if I may apply a little correction about D, it doesn't mean abandoned. I mean I would say no longer in use. That is, the patented invention has become obsolete. It hasn't been abandoned.

Well, as far as this is concerned, you see, these are proportionate, so you can simply weight each group by the number of patents it has and add to get an overall average. The average for the patents issued in 1938, those which have been under observation the longest, would be in excess of thirteen years. But one must not overlook that nearly ninety per cent of these inventions were still in commercial use and would continue in use many years. To ascertain the true average we have to go back periodically every five or ten years from now and see how many of these that are still in use become obsolete—and do this until all of them are obsolete.

When I guesstimated thirty or forty years, I did combine all the inventions issued in a given year allowing sufficient time for all of them to become obsolete.

If we assume the final average for the thirty-nine 1938 patents would be forty years, the overall average for all 1938 patented inventions put to commercial use would be twenty-five years. Of this total years, over half will occur after the expiration of the patent rights.

ASSISTANT COMMISSIONER MAURICE CREWS: I don't understand how you say that you can combine your two tables, because I didn't think that your two tables showed a proportionality between the cases that occurred in each category in the two tables.

DR. SANDERS: For instance, Table D shows 30 inventions for which the patent was issued in 1938 with an average duration of 5.4 years. We multiply 5.4 by 30. We add to this the product of 39 patented inventions in current use with an average duration of 19.2 years. This aggregate sum divided by 69 (30+39) gives the average number of years that 1938 patented inventions have been in actual commercial use. I have indicated this average is over 13 years.

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[5] Certain changes and additions have been made in Dr. Sanders's remarks.

The difficulty is what you do with the 19 years, because this 19 years is not the limit. This average is going to continue to increase. If we went back now, the average for these 39 patents might be 22 to 23 years, but still a substantial number of them would still be in use.

My guess of forty years is based on a mathematical theory that processes of random duration with a random beginning and ending date can usually be approximated by doubling their past duration. One can demonstrate this mathematically but this is not the place to do it.

PROFESSOR OPPENHEIM: I think it might be very appropriate before we end this conference to have a question addressed to Dr. Siegel on small business.

I think all of us sometimes get the impression that there is a great deal of misconception about sizes of business. My philosophy is that we will always need small business and big business and medium-sized business. One feeds into the other, and one feeds out of itself into the other.

And so here is a question for you, Dr. Siegel, which may not be so comprehensive, but it is one aspect that you mentioned.

In your survey of the available company materials on patents, you mentioned, of course, the corporate reports. Have you had occasion to look into materials other than corporate annual reports, and did they reveal perhaps something more about some of the smaller businesses?

DR. SIEGEL: Yes, I have been looking into additional materials. There is an abundant trade journal literature which has to be exploited, in addition to various brochures and statements of the kind usually presented at the demonstration booths of conventions and semiannually in the lobby of the Commerce Department.

Many companies have magazines that are especially revealing. For example, I have been making a little tabulation of information provided on inventors and patents in such magazines. One of the things that I found on which I will present a little article in the forthcoming issue of the *Journal* (if they wait long enough for me; it's late, and I hope they will give me a few more days), is the persistence of the individual inventor. The single inventor dominates in a new environment, which is commonly a corporate environment. Information gathered from company magazines shows that about two-thirds of the patents carry the name of only one inventor.

This is just another example of the type of information available from company data in publications other than annual reports. I could go on, but the lateness of the hour as well as other deterrents outweigh my propensity to speak.

PROFESSOR OPPENHEIM: Ladies and gentlemen, we are not on television, so don't think I'm a literalist about time, but I see it's just seventeen minutes after five, which is just two minutes beyond what would be the allocated television time, but we don't have to worry about it. But since there are other events ahead this evening, I want to say before closing this first day's conference that our greatest indebtedness goes to you.

Of course, we appreciate the contribution made today by the research staff, by the Chairman of the Advisory Council, by the two officers I introduced, and Com-

missioner Ladd. But I think all of them at this table will join me in expressing our deep appreciation to you, because you are the reason for the existence of this public conference, because it's only in that way, as I said, that we not only expose to public light our findings and our work but we depend on you, as we did today, for questions and comments to give us the assurance that we're not over-looking aspects and that we can re-examine and re-evaluate in light of your constructive proposals.

So let me express on behalf of the Foundation our grateful thanks to you for coming here today, and I know you will be with us tomorrow at the special session devoted to discussion of current issues.

As your program shows, this evening there will be a reception at 7:30 in this hotel, followed by the dinner honoring Jo. Baily Brown as this year's recipient of the Charles F. Kettering Award.

With that I hereby adjourn the meeting with renewed thanks to you.

(Applause)

Whereupon, at 5:20 P.M., the session adjourned.

SPECIAL SESSION DEVOTED TO DISCUSSION OF CURRENT ISSUES

Friday Morning Session

June 16, 1961

The fifth Annual Public Conference was reconvened at 9:35 A.M., John C. Green, Consultant to the Foundation, presiding as Moderator.

MR. GREEN: Good morning, ladies and gentlemen.

We have a very full schedule this morning, so let's get started.

As most of you know, we are here this morning to identify current issues relating to the patent system as seen by representatives of industry, universities and government.

After we have identified these issues, our responsibility is to analyze them in a scholarly, constructive fashion, and from this examination, hopefully, will come some new areas for action.

Perhaps an analogy to the examining process for a patent application might be useful. The gentlemen on the platform are the applicants for an invention—a social invention, shall we say. You are the examining force. It's your responsibility to listen to the ideas these men are going to present, to comprehend them, to study them carefully. As to those ideas which you feel are unsound or need improvement you as examiners react to the platform, give them a reaction.

From this we would hope to get some useful, constructive ideas to keep the patent system vital and alive in our changing society.

As to the mechanics of participation, as you see, we have got a heavy schedule here. We thought it might be helpful if the first three speakers would make concise, direct presentations. Then we would have a break for audience response. After that we would go to the next three speakers with a break for audience response. Then we would have a five-minute break, or whatever you want to call it, a seventh-inning stretch. Then we would go to the last three speakers representing the government group, and from this, if time permits, a general discussion for the rest of the morning.

Let me tell you of the problem of a moderator when you have nine high-powered experts such as I have here on the podium with me, each of whom has a record of accomplishment as long as your arm, and you've got less than three hours to keep this program moving.

In a sense, this problem forced me into a minor social invention which I will call the complete curriculum vitae. Incidentally, this invention is available to any and all chairmen, moderators, and masters of ceremonies without the payment of royalty. Here it is:

Each and every one of the men on this platform went to college, graduated with honors, is recipient of many degrees. Their professional life has been showered with honors and recognition by their colleagues. They are highly esteemed in the field.

In fact, if they didn't have these qualities and if they weren't nationally recog-

nized as experts, the George Washington University would not have selected them to be on this platform to lead the discussion.

But, equally important, each of these men has special experience in a facet of our economy relevant to the patent system, and it is this special experience which has in a sense molded their views and their ideas.

They're going to try to impart these ideas to you, and your task, as scholars here, under the auspices of a great university, is to receive and consider these ideas.

Our first speaker for the morning is Mr. Roberts B. Larson of the firm of Larson & Taylor and, not at all incidentally, the current President of the American Patent Law Association.

Bob is going to try and relate the patent system to that intangible but important factor—the public interest.

Thank you.

THE PATENT SYSTEM AND THE PUBLIC INTEREST

MR. LARSON: Mr. Chairman, first of all I want to categorically deny several things you said about me.

Firstly, I'm not an applicant. If I were an applicant, this would be the first time.

Secondly, I'm not an expert.

Thirdly, I'm not high-powered.

With those qualifications, I'll proceed to say a few brief things about some current phases of the patent law.

If one wishes to advance a cause, it's always a great help to be able to say that it is "in the public interest." These words "public interest" appear to have some magical significance; if it's in the public interest, ipso facto, it must be good.

Now, much has been said about the public interest as applicable to government patent policy. This Foundation in its Winter 1960 *Journal* had a chapter so entitled. The chapter pointed out that there is no one meaningful and useful concept of the public interest applicable to all policies of the federal government.

The author suggested that the total public interest could be visualized as a series of overlapping circles with each circle being a public interest for a particular field or problem or policy. The overlapping circles suggest the elements shared by the several parts of the total public interest.

Now, there are, of course, certain public interests which not only overlap but actually are in conflict with each other, and where this is the case the advantages of each must be weighed in an effort to determine what is best overall for the public good.

A public interest concept has been in the patent law field from the earliest times. It is interesting I think to note historically that the Statute of Monopolies in 1624 ties in the patent grant with a public-interest concept. You may recall that that Statute provided for fourteen-year patents on new manufactures in the realm. I'm going to quote from some of the early English language from that Statute:

> "which others at the tyme of makinge such letters patents and grants shall not use, soe as alsoe they be not contrary to the lawe or michievous to the

> State, by raisinge prices of commodities at home, for hurt of trade, or generallie inconvenient."

The public interest concept has remained an important factor in considering patents up to this present time, and its importance grows. It certainly does not diminish.

Since the patent grant, for all of its benefits in stimulating the progress of science and the useful arts, which indeed is in the public interest, is nonetheless a monopoly, it apparently has been the feeling that it must give way if it interferes with some greater public interest.

Thus, if the patented invention is not put to commercial use or is suppressed, it is suppressed, it is said to be contrary to the public interest. Likewise, the patent right must give way if it interferes with the national defense or stands in the way of measures of national health, safety or welfare, to mention but a few.

Whether the possibility of damage to the public interest is real or imaginary, it has resulted in attempts to control the alleged evils by legislation.

Where the problem was one of national defense, the answer was simple. You could not sue the government without its permission and you could not enjoin the government. But a law was passed which provided that the patentee whose invention was used could prosecute a claim for infringement against the government for reasonable compensation in the Court of Claims.

In more recent times, as you all know, in the special fields of atomic energy and space exploration, the laws have provided that the government may acquire title to the inventions with some form of an award or compensation to the inventor, and they say that in this way the public interest is protected.

In other fields in which the government is not so directly a participant, the attempts to protect the public interest have been principally directed to putting on the statute books provisions for compulsory licensing, or, to put it in another way, it has been argued that it would be in the public interest to have a compulsory license law to prevent suppression and other alleged evils.

Again, historically, it's interesting to note that when the Congress was considering our first patent law in 1790, the advisability of providing for compulsory licensing was advanced. A Senate amendment was proposed stating that the Supreme Court should be authorized to inquire about complaints that a grantee was neglecting to offer for sale a sufficient number of the inventive device or was selling "at a price beyond what may be judged an adequate compensation." On so finding the Court could require that the patentee offer the device for sale at a reasonable price, and, on failure to do so, grant to the complainant a license to do so.

Now, this amendment, of course, did not become part of the law. The House of Representatives rejected it, and then the Senate withdrew it.

I think it is significant that while numerous bills providing for compulsory licensing have since been introduced in this country, and while hundreds of witnesses have testified pro and con thereon, the Congress in its wisdom has not to this day passed a compulsory licensing provision except for that which we find in the very special field of atomic energy.

I have the personal feeling that the Congress, knowingly or not, has in some instances considered that it was even more importantly in the public interest that the incentive provided by the patent system be kept intact and certainly not diminished by nicking from the grant the exclusive rights which have made it so attractive to prospective inventors.

Of course, we all fervently hope and trust that the incentive of the patent system shall never be diminished. I think most of us realize that, in fact, it must be increased if our nation is to survive.

I have previously urged that all possible be done to remove delays, to simplify procedures, to reduce patent expenses, to take other steps adapted to make the obtaining and the maintaining of patent protection as attractive as possible.

In short, the object should be to provide as much incentive as possible. For the patent system to provide maximum incentive is of paramount public interest.

As I mentioned, there have been instances where in the name of national public interest the patent grant has been completely stripped from the inventor, witness the Atomic Energy Act or the NASA Act provision, where the title goes to the government with a possibility of a waiver of rights in some instances.

Moreover, as you all know, there is pending legislation providing basically that the title to all inventions emanating from government-financed research and development work shall belong to the government.

Now, with this background, I come now to the first suggestion that I want to make to you.

I would propose, as much as I dislike compulsory licensing as a policy, that if we have instances where the national public interest appears strong enough to warrant the government in taking title to inventions that it would be far better to provide by law that the inventor retain the title but that the public interest be protected by such safeguards as may be effected through a sensible compulsory licensing provision.

In this manner, the all-important incentive of the patent grant is maintained though in diminished force. But is not half a loaf better than none at all?

I suggest that there is merit in such a proposal. It is far better, I feel, to do this than to provide for government title even where the latter may be coupled with waiver provisions. The possibility that the inventor or the contractor may obtain a waiver clearly is no substitute for the incentive of the patent grant.

Still further, a law providing that title remain with the inventor or contractor, with the government receiving a non-exclusive royalty-free license for all government purposes, and with a provision for compulsory licensing under such conditions to protect the public interest, not only gives the government all it requires but it keeps the government out of the business of owning, administering, maintaining and protecting patent rights in this and in foreign countries.

I have yet to hear a sound argument that it is in the public interest for the government to be so engaged.

Thus, when it comes to a choice, and the choice may well be with us at this very time, I suggest that the better course to pursue, the course best calculated to preserve the patent incentive, is that which leaves title with the contractor, but with

some provision for a compulsory licensing which is designed to safeguard the public interest.

A proposal having some of these features and having the overwhelming approval of the Government Patent Policy Committee of the American Patent Law Association was recently put before a Senate committee.

May I suggest the possibility that similar proposals could be advanced as substitutes for the present Atomic Energy and NASA law provisions and in other instances where it is now provided or suggested that the government take title.

There is another matter which is not related to this which I would like to mention to you briefly. It relates to whether the inventor who is employed by a company is being provided personally with sufficient incentive by the patent system either through profit-sharing from the benefits of his patent or otherwise. This I feel is a matter of grave concern.

We talk in laudatory terms of the incentive to the inventor which the patent system is said to provide. We speak of the necessity of increasing the incentive so as to induce inventors to invent. We see what the Soviets and others are doing in this respect. And still today in this country there are many employed inventors who, aside from their regular salary, receive for each invention they make only the well-known "One Dollar" and the meaningless "other valuable considerations."

At Congressional hearings on patent bills, Senators and Representatives frequently ask of witnesses this question: "What does the inventor get? How does the patent incentive personally affect him?"

The answers given, I suggest, are for the most part unsatisfactory. They usually go to the point that the inventor's talents are rewarded by increases in salary and job opportunities. This is perhaps true in many instances. But I wonder whether the non-inventor who is a skilled scientist does not get equally as good treatment.

I wonder if such a plan provides sufficient incentive to invent.

Some companies do have profit-sharing plans for inventors, and many of them are very good, but they are far too few.

American industry I feel is being shortsighted in this respect.

The point is that it is extremely important for the incentive to be directed to the man who is to do the inventing. He primarily is the man to be reached. Invention is still an individual thing, and it always will be.

This is why the Soviets are directing so much effort toward providing incentive to the individual inventor. This is why in West Germany one of the few carryovers from the Hitler government is the legal provision that the inventor share personally in the fruits of his invention. This is why Austria and Sweden I understand, and perhaps other countries, provide that the inventor share in the profits flowing from his brainchild.

If American industry does not itself provide more real incentive for its inventors, would it not be advantageous if not downright necessary to adopt into law some plan for a real financial participation by the inventor in the profits accruing from his invention?

For is not the real essence of incentive the chance that untold profits may result—not a fixed amount, not a raise in salary, but the chance of some substantial gain?

Now, this, gentlemen, I think is an area which well deserves the attention of all those who are concerned in maintaining and improving our patent system.

Thank you.

(Applause)

MR. GREEN: As I said earlier, at the end of the first three presentations we will have a break for discussion period.

Our next speaker is an experienced and internationally famous authority in the field of trademarks, and this is an area in which the Foundation has not devoted as much attention as it might have in the past.

So I'm very pleased to introduce Mr. Beverly W. Pattishall, of the firm of Woodson, Pattishall & Garner, who will speak of the nature of the right in trademarks.

THE NATURE OF THE RIGHT IN TRADEMARKS

I understand that we approach our problems in this Conference on an empirical basis, and my subject, trademarks, has many empirical possibilities. For example, we might discuss such subjects as trademark protection and a free economy; or the recent socio-economic history of trademarks; or the needed improvement of trademark law both state and federal; or what government should do about trademarks, or perhaps what government should not do about trademarks.

Each of these and many others are good subjects. The trouble with them is that they have been talked about so much before. Instead, I have selected another subject that is rather warm to my heart. I don't believe it has been talked about very much. That is, the nature of the right in trademarks. This is not really a new subject, but the problems concerning it are growing in direct proportion to the importance of trademarks and trademark rights in our national economy.

There is a widespread misunderstanding of the nature of rights in trademarks, and that misunderstanding is the mistaken equating of trademark rights with those of patents and copyrights.

In our office, a week never passes that we are not asked to "patent" or "copyright" somebody's newly "invented' trademark. Now, I submit to you that this is not just a mistake of legal terminology by the layman. It's not like our client yesterday who kept talking to me about a "summons" when what he really was talking about was the complaint that had just been served on him. It is not a matter merely of semantics. I submit to you that it is instead a clear reflection of a basic error of conceptual substance.

The average businessman, lawyer, or even judge is misinformed on this subject. Until he is required to play a role in some trademark litigaton, his impression usually is that trademark rights are like patent and copyright rights—a government grant of a monopolistic nature—and that each of the three varies only as to subject matter or extent or duration, but that each is substantially similar one to another. The businessman is particularly fixed in this notion, and therein, I think, lies most of the source of damage and difficulty.

For instance, if his mark is federally registered he is usually quite certain that he has a form of patent on the word or device that is registered. He is of a view that any difference between his trademark registration and a patent are really just legalis-

tic and technical and of interest only to lawyers who specialize in that field. The mistaken conviction that trademark rights correspond to patent rights or copyright rights and depend upon some objective test of similarity is really the progenitor of much difficulty in this field. It dominates the conduct of at least one party in almost every trademark case we encounter. Frequently it dominates the conduct of both parties. Rarely do we encounter someone who is using a trademark, who depends upon a trademark in the operation of his business, yet who really understands the nature of his right in it. Rarely do we encounter any such person who understands that his trademark right is something entirely different from the monopolistic grants involved in patents and copyrights.

The profession is only slightly less misinformed on this subject. One cannot spend much time in the courts on trademark cases without encountering a court who starts off a trademark trial with the misunderstanding that the case you are about to try is a form of patent or copyright case. Not infrequently that misapprehension persists even up to the Court of Appeals level, and occasionally you will even find the words "patent" or "copyright" appearing in opinions which had nothing whatsoever to do with a patent or a copyright. Instead, what really was meant was a trademark or a trademark registration.

Damaging business decisions are constantly being made because of this misapprehension. I could give you many examples.

Recently in our office a client was brought in by another lawyer. The reason we were called into this situation was that there was another concern which was using the same mark on almost the same goods, and, although it looked like a very good case of infringement, the lawyer was disturbed about some of the history of his client's own activities respecting the mark involved. It seems that a few years ago his client had sold to two separate parties two subdivisions of his business involving the use of the mark. That is, he retained use of the mark on certain basic goods, but sold off to "A" the use of the mark respecting one type of related goods and to "B" respecting another type of related goods.

I wish I could tell you what the mark is and what the goods were, as it ould make the illustration more dramatic. All three types of goods were intimately related, and yet he had sold off one part of them to "A" and another to "B" and now he wanted to sue "D." You see the unfortunate problem he made for himself in the firm belief that he could treat his trademark rights as rights in gross.

Another example that we are constantly confronted with is in the area of trademark licensing. Regularly we are consulted about a proposed suit against a trademark infringer only to discover that during past years the trademark owner has licensed the use of his trademark without the slightest pretext of retaining any control over the nature and quality of the goods or services involved.

Now, just what is the scope of right in a trademark? In this country, under the common law and the statutes, it is quite uniform. It is simple. It is the scope of likelihood of confusion as to source of the goods or services involved. It is neither more, nor less. Expressed otherwise, it is the right to be free from deception as to source—the right to one's indvidual commercial identity.

It is not a proprietary right in a word or symbol. It is not a monopolistic governmental grant, limited or otherwise. Questions of invention, prior art, originality,

copying, and the like are largely irrelevant to the issue of the trademark right. In fact, I submit to you that the law of trademarks is actually less akin to the law of patents and the law of copyrights than to several other areas of the law, for instance, the law of forgery. It is *only* the right to be protected against deception as to source.

The mistaken equating of trademark rights with those of patents and copyrights, I believe, is a basic source of error also for the courts. On the one hand the courts are urged to enjoin deceptive use. On the other hand they are fearful that by their decision they will afford such an odious thing as a "patent" on a word of the language. Trademark protagonists and their counsel, ourselves, must accept, however, much of the blame for the cultivation and perpetration of this error. Consciously or unconsciously, what the average businessman wants is a broad perpetual "patent" on the word or device that is his trademark. But, contradictorily, he desires equally a broad freedom in the use of words and devices in the conduct and promotion of his business.

How did our law get this way respecting trademarks? Its evolution was the usual Anglo-American law evolution through the usual empirical, case method. We did not adopt the code countries' solution, which is more or less one of monopolistic grants, for this problem. Our courts dealt with trouble where they found it. They saw no public interest to be served in encouraging the inventing or coining of trademarks. Accordingly, no statutory monopoly was granted for such. They found these wrongs to be simply torts in the nature of deceit. They saw no other wrong or damage implicit in one's adopting a trademark similar to that of another. If there was no deception or likelihood of deception, then there was no damage or likelihood of damage and no need for relief.

Relatively recently there have been evolved some sophisticated concepts such as the "commercial magnetism" of a mark and "dilution" of the distinctive quality of a mark. These are concepts apart from the concept of deception as to source, and they are new concepts of right and damage. But these are the current frontier of development in trademark law. They are not yet the basic law.

In summary, may I respectfully submit to you that there is a need, a real need, for a correct understanding of the nature of rights in trademarks, and that a principal error respecting that understanding lies in equating trademark rights with those of patents or copyrights. The only protection for trademarks afforded by our law is against deception as to source. A correct understanding of this fact would eliminate much litigation and costly error in business decisions. A correct understanding of the nature of the right in trademarks would contribute materially to a more equitable, a more uniform and a more predictable administration of justice in this field.

Thank you very much.

(Applause)

MR. GREEN: Our next speaker is really the reason why I found it necessary to condense the report of accomplishments.

Dr. Charles Stark Draper is head of the Department of Aeronautics and Astronautics and also the head of the Instrumentation Laboratory at M.I.T., and he has a record of accomplishments that runs for at least three closely typed pages, and

this doesn't begin to mention some of his more recent contributions such as those inventions which helped in bringing Commander Shepard back to earth safely or to get our submarines under the Pole out again.

Stark is probably the outstanding example of the inventor scientist, a man who combines the unique, unorthodox, unconventional approach to the solution of problems with the trained scientist's method. He is also a very unique guy.

I wouldn't hazard a guess as to what he's going to talk about because he was just sitting here writing it as we were talking, and all I can promise you is it's going to be unconventional, it's going to be unorthodox, and it's going to be provocative.

Dr. Draper.

THE PATENT SYSTEM FROM A SCIENTIST'S POINT OF VIEW

DR. DRAPER:[6] Thank you, John.

Ladies and gentlemen, John Green has said that my background is somewhat special and that my words may touch on some controversial points. I hope that I may be able to live up to his advance notices. I do not pretend that my remarks are based on any proper study of the patent situation; rather the ideas discussed are drawn from some thirty years of personal experience with innovations and the problems associated with identifying, protecting, and developing the inventions that have appeared. My attention has been primarily directed toward the creative and developmental phases of pioneering research with less interest for the accompanying legal and promotional efforts.

This preoccupation with scientific and technical matters, instead of with the processes of deriving financial rewards directly from patent rights, depends on a scale of values developed by a particular individual who to some extent is typical of the persons engaged in research and development as employees of non-profit organizations. The real world factors and their subjective evaluations that lie behind my reactions to the patent system are the factors I will discuss. I will also venture to suggest certain modifications to the rules of the patent system that might improve its service to the public interest. I will also note basic difficulties that would surely impede the full realization of benefits from any changes in the system.

Patents and the patent system provide meaning, structure, and stability for the processes by which the frontiers of technology are pushed back into the unknown. Personally, I approve of the patent system as a powerful tool that serves the public interest by forcing the vigorous exploitation of new advances in science and engineering. The system is also generally recognized as an essential part of the technological environment in which members of our modern society must live. From my own viewpoint as an individual belonging to this society, patents are associated with situations of three types. It is my belief that many discussions dealing with patents are unsatisfactory and often troubled because two or more of these phases are confused by the people involved. To forestall this difficulty, and to clarify the thoughts behind the suggestions to be advanced, the three phases may be defined in terms of their essential features.

[6] Certain changes and additions have been made in Dr. Draper's presentation.

First: All situations involving patents start with innovation by some individual or group of individuals who deal directly with the laws of nature rather than with the laws of man. Here the spark of creativity is always involved, and persons without this spark have little hope of directly starting a chain of events in which a patent is the essential element.

Second: Once innovation has been made the second type of situation appears in which the innovator must convince the proper government organization that his contribution is an invention for which he deserves a patent. The negotiations involved require so much knowledge and skill that a lawyer must usually be called on for assistance by the innovator before his patent is issued.

Third: In the chain of events that is started by an innovation, situations of the third kind are centered about efforts to realize valuable returns from the existing patent rights. This phase of the over-all activity associated with patents usually attracts more attention and involves more people than the other two phases combined because financial benefits are universally desired, and abilities of many kinds may be used in the exploitation of patents.

Briefly, the three types of activity associated with patents are innovation, protection, and exploitation. Only the third of these activities has the possibility of directly producing returns of any considerable magnitude, and requires people who have the capabilities of the entrepreneur, the promoter, the businessman, the manager, in the sense that they can take patent rights that are potentially valuable, and generate circumstances in which benefits are realized by the people concerned. These people are not necessarily, or even very often, the innovators or the patent negotiators who started a chain of events that culminates in successful exploitation.

As a matter of fact, I know from personal experience that in some cases the fellow who made certain inventions and was trying to get some new ideas into a particular situation was deliberately locked into the outer darkness with the remark that after an inventor had been lucky enough to produce something he should be taken out in the woods, tied to a tree and starved to death. This fate would make sure that he did not interfere with progress by trying to change things for a company already taking considerable income from his ideas. After some ten years that it took me to realize the true situation, I have never felt badly about treatment of this kind. I have come to see clearly that rewards in our society go not to the people who make inventions but to the people who are able to exploit the knowledge and patent rights that have been created. If he clearly understands the rules of our society, an inventor should logically persuade himself that he has no reason for feeling badly when others who made no innovative contributions become rich while he realizes very little from his ideas. Logic in this situation is fine, but I know from personal experience that it does not completely eliminate notions of injustice in some cases. The situation itself is very plain—there is a direct and indispensible "forward" chain of events between innovation and exploitation in the sense that some new idea must be created, and then protected by patents before exploitation can be effectively started. On the other hand, if exploitation is effective and rewards of real value are achieved, there is no always-present "feedback" link to insure that the innovator will receive a substantial return for his efforts. It is actually possible

for him to be a partner in such returns but this desirable situation must stem from his abilities to exploit his innovations not automatically from the fact that he has created something new and useful. A few men have shown high competence in all three of the situations associated with patents and are recognized as outstanding individuals. Others have been great inventors but did not distinguish themselves as exploiters, while much greater numbers have achieved success as entrepreneurs dealing with inventions.

The patent system as it has evolved through the years is remarkable for its ability to accommodate the many widely different situations that appear in our modern technology, but there are surely reasons for suggesting that some modifications might increase the usefulness of the system as it serves society.

On the credit side, the patent system has provided rules that have made it possible for great men such as "Boss" Kettering of General Motors, and Doctor "Dinny" Land of the Polaroid Corporation to achieve spectacular successes in all three of the typical situations that are associated with patents. These same rules are also the framework used by research firms such as Arthur D. Little to establish a pattern under which they produce inventions for clients who have technical problems to be solved. Organizations such as RCA and the United Shoe Machinery Company with structures based primarily on patent situations have come into being and flourished in the environment based on the existing rules and laws of the patent system. Finally, whole areas involving many companies, for example, the automotive industry, have found stability and progress under the rules and laws of patents. At the same time government interests have been protected from unnecessary payments for use of results derived from research paid for by public funds.

On the side of criticism, it may be asked whether or not the patent system still provides strong incentives for individuals to innovate and allow their innovations to benefit society by providing for use by the public.

Another question concerns the balance of power over patent rights between commercial companies and government agencies charged with protecting the public interest. This question does not directly deal with incentives for indivdual inventors, but is concerned with matters of policy in the exploitation of patents for the best interests of the public. Justice is not involved here. The important matter is progress toward the best procedures for making the results of technological progress available to our people without concern for insuring special financial benefits for any individual or group of individuals.

The matter of whether or not the present patent system provides effective incentives for creative individuals to spend their time and effort in making inventions is important because if the system falls too far short with its incentives, the public may well be deprived of benefits from inventions that are never made because the proper persons are not motivated to work on new ideas.

Another question concerns the relative importance assigned to innovation in comparison with protection and exploitation. If innovation is to have special consideration because it must be the starting point in all situations involving patents, it is surely only justice for the innovator who has demonstrated the value of his contribution and received patents to receive special benefits. It may be argued that the

inventor who has made an important contribution should have this consideration even though he has shown no disposition to follow his innovative work by efforts in the field of exploitation. If it is granted that innovators should receive special treatment, and it is further recognized that there is no mechanism that infallibly provides for this action, the conclusion follows that some system of awards should be established to provide recognition and financial benefits for inventors. Provisions for awards of this kind do not exist today, and there are many problems to be resolved before any workable system could be put into effect. I will comment on these matters later in my talk after my own mental attitude toward patents and the reasons for this attitude are described.

Thirty years of work on various problems have inspired a number of innovations resulting in patents carrying my name either as inventor or co-inventor. My direct income has been substantially nothing compared to the total gross income derived from sales of devices based on the ideas covered by the patents. These devices have ranged from analyzers for aircraft engines, anti-aircraft gunsights for naval vessels, airborne gunsights for Air Force fighters, and inertial guidance systems for ships, aircraft, and missiles. All phases of the research and development projects associated with these areas of technology have been carried out in the Instrumentation Laboratory at M.I.T. I am director of this Laboratory and have been concerned with the invention, the reduction to practice and the starting into production of complete systems. The total business generated for industry amounts to several billion dollars. My personal returns have been not more than a few thousand dollars. I cheerfully accept this situation because I understand the factors involved, and some years ago deliberately traded the probability of high financial returns for the privilege of working on new problems that are always stimulating because they are associated with rapid advances of technology in ways that require pioneering applications of all available scientific and engineering knowledge. The enjoyment that I derive from working on problems such as these is surely greater than I could expect to purchase for sums considerably greater than the income I actually receive.

It seems to me that joy in living—not money—is the standard by which rewards for human activities should be judged. If this is true, one who like myself enjoys interesting work, can count himself fortunate to have employment that gives a large measure of rewards in terms of human values, and at the same time provides enough income for comfortable living. The fundamentals of life are cared for and effort spent on the exploitation of inventions would mean less time to work on interesting problems with only a gain in money available for buying enjoyment that is already provided by the work itself.

It is true that a patent granted several years after the work covered has been completed does give a satisfying published proof that a contribution was made. In this way patents serve to identify contributors in somewhat the same way as articles that may appear in a professional journal. Under the circumstances described, the patent system does not provide more than a weak incentive toward innovations. In my own case, I would say that patent-inspired motivation is very nearly zero—I choose to stay with the interests of innovation rather than to abandon these interests in favor of exploitation.

The state of mind I have described, I believe, is fairly typical of that found among scientists and engineers in laboratories operated by large organizations. As a condition of employment many of these organizations require assignment of patent rights in return for token payments with only minor or no participation by innovators in returns from their inventions. As a member of the faculty at the Massachusetts Institute of Technology, I have signed such an agreement with the reservation that I share to a small extent in royalty returns from commercial applications of devices based on patents that carry my name. Substantially all of my work has had government sponsorship with shop rights held by the sponsor, and security classification standing in the way of civilian applications. With this arrangement in effect the reasons for the lack of incentives from possible patent rights is obvious. However, it is important to remember that the interest of work itself gives such a strong motivation to solve difficult problems that the addition of special financial rewards would very often not cause any project to be pursued with greater vigor than it now receives. I know that this is true so far as I am concerned personally, and I believe it to be true for many of the devoted scientists and engineers who are my friends and acquaintances. I am equally sure that awards made for outstanding innovative contributions would pay worthwhile dividends to the public interest by attracting more able people into creative careers who would surely add to the benefits enjoyed by our citizens by increasing the number of valuable inventions.

Awards for inventors based on new patent laws that would return to the original intentions of the system by providing strong incentives to invent are surely fine ideas and properly applied could stimulate an increase of innovative contributions to the public. Similarly, refinements in the rules that prescribe the activities of organizations with control over groups of patents could lead the patent system to better service of the public interest. Both of these possible legislative changes have the problem of providing a high level of judgment for deciding among the many alternatives that must exist in making awards and clarifying complex situations among organizations. The difficulties to be expected are so great that the easy path is to leave patent legislation unchanged as it stands. As an individual who has made his peace with the present rules, I could not object to this unimaginative procedure. On the other hand, I am sure that preparation for the future requires positive action and feel that certain suggestions are in order.

First, a system of awards should be set up by law for innovators who have contributed valuable inventions.

Second, the body of existing laws should be modified to include uniform guide lines governing the manipulation of patents by industrial and government organizations.

Third, a special commission or court should be set up to hear the facts associated with requests for awards and to judge the disposition of each case.

Fourth, a special commission or court should be set up to hear the facts of cases involving the disposition of patent rights among organizations interested in such rights.

It is surely not desirable to add new groups to the already too complex organizations of government, but if new rules are to be added to the existing complicated system of law, agencies for applying the new rules in real situations must be pro-

vided for. Personally, I do not have a clear picture of all the ramifications that would be involved in changing our patent system, but I am very much interested in any suggestions that may be offered.

Thank you.

MR. GREEN: Well, the time has come for our first audience participation. Before we do, I'd like to say that it seemed to me that one of the two points that Bob Larson made was we do need more real incentive for the inventor, that we do need to work out mechanisms for better financial participation.

This is not a criticism of the patent system itself. It's the way industry employs the patent system in determining rewards to the individual.

Then Stark comes along, and he's very fatalistic about the whole thing. He says it's hopeless and there's nothing can be done about it. Most of us feel that we have got to do something about this. The other system has figured out a way to do something about it, and we can too.

Well, now, in the audience participation, if I'm correct, this is being taped, and therefore we have a hand mike. Lou, is someone going to put the hand mike in the hands of the questioner? Oh, there is the young lady.

If you will identify yourself, by raising your hand, she will carry the hand mike to you. And then please identify yourself, state your question, and, if necessary, the person you'd like to respond.

The first question, please.

General Discussion

MR. GREEN: Well, may I kick off the first question?

Bob Larson talked about this question of government contract policy. He said that while there were instances where the public interest is strong it would still be desirable to let the inventor retain the title but that compulsory licensing provisions might be instituted to safeguard the public interest adequately.

Now, if this statement stood alone, you'd have a wide disparity in application between the Defense Department, the National Institutes of Health, NASA, AEC, and others, and what I am curious about is what are the standards, what are the criteria for determining those instances in which the public interest is strong enough for such action.

Bob, could you enlighten me on this?

MR. LARSON: That is a difficult question to answer, John.

I think from a practical standpoint you judge what's happening down on the Hill. How much strength is there to certain proposals for the government taking title in a given instance?

We have on the Hill now the Long bill which Senator Long has introduced providing for government title under research and development contracts, and I think that you merely have to judge as well as you can how much strength a measure like that is gaining on the Hill to see whether there really is a definite public interest for that type of thing.

Where it appears that it might pass, then I say that you have that public interest and you'd better see what you can do to countermand it with the type of thing I was mentioning.

MR. GREEN: Yes, sir?

MR. MELVIN JENNEY:[7] I happen to be associated with the M.I.T. program of patents and inventions. As long as Dr. Draper has mentioned my name, I would like to put a footnote on his remarks.

The M.I.T. program is perhaps unique in that we do have what we call a patent section, but it is not primarily concerned with the filing of patent applications on behalf of M.I.T. Out of some $80 million a year poured into government research at M.I.T., only a very few patent applications result, for the reason that most of the work is at least assumed to have nothing but military value.

We may be wrong in our judgment, in that some of these things may have a by-product of commercial value later. But the present judgment is that most of it does not offer a commercial by-product that makes it worthwhile to do much by way of patenting.

MR. GREEN: Thank you, Mr. Jenney. Next question, please.

MR. FROST: Could I ask one?

MR. GREEN: Yes, George.

MR. FROST: I was very interested in Bev Pattishall's remarks about the odious monopolies and such, and I wonder if Bev would elaborate just a little bit on a couple of questions.

No. 1, do trademarks increase prices? And if they do increase prices, aren't they odious monopolies? I only ask that for purposes of discussion.

MR. PATTISHALL: I think that's rather loaded, Mr. Frost.

MR. FROST: Intentionally so.

MR. PATTISHALL: Do trademarks increase prices? Well, I'm called to mind of a couple of very well known trademarks, Wrigley's for chewing gum for one, a very widely accepted trademark. I don't believe the price has gone up over the years anywhere near comparable to the loss of purchasing power of the dollar.

I think the price is still about the same due to the widespread distribution which trademarks have certainly facilitated.

Another product in the same category is Coca-Cola.

Now, what was the other loaded question you gave me, George?

MR. FROST: Well, I take it your answer is that trademarks do not increase prices. And if that is true, we don't get to the second question.

MR. PATTISHALL: Good. (Laughter)

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[7] Melvin R. Jenney, patent attorney, Boston.

MR. FROST: Let me dwell on it to this extent, Bev. You have given us two examples. Would you say that all trademarks do not increase prices?

MR. PATTISHALL: I don't know that we could generalize to that extent. Perhaps that would be true over the long pull.

Are you referring perhaps to Senator Kefauver's bill on pharmaceutical products?

MR. FROST: That is one charge that has been made.

MR. PATTISHALL: I think we have to go at this on an empirical basis again—that it's just a matter of exerience. My observations from experience are that trademarks do not increase prices. In fact, the reverse applies. And without trademarks, certainly, it's a cliche, a truism, that we cannot have a free competitive economy. And without trademarks we probably cannot have a national market economy.

There are many learned papers that have been written to support the proposition that a national market economy, a free competitive economy, results in less cost for items to the consumer. And I guess that there are also a few papers that have been written and highly documented, one by Professor Brown of Yale, exactly to the opposite effect.

Isn't that right, Dr. Oppenheim?

PROFESSOR OPPENHEIM: That's right, because I had an occasion to review them.

MR. PATTISHALL: I recall you did.

MR. GREEN: Dr. Oppenheim concurs in the observation just made by Mr. Pattishall.

I thought we had a potential research project for the Foundation here, but possibly the work has been done.

Dr. Oppenheim has a question.

PROFESSOR OPPENHEIM: As an officer of the Foundation I want to make certain the guests get their questions off their chests, but may I ask Beverly this:

I heartily concur in his conception that the heart of trademark protection centers around the prevention of likelihood of deception. But you also mentioned, Beverly, that there are some signs that the courts are also supporting the idea of protecting the commercial magnetism and preventing dilution of the mark.

Now, my question is this: Taking a concrete illustration, Judge Hand once said that he wasn't concerned about the fact that if "Caress" were used as a mark for a lipstick that someone else would be using it for a steam shovel. I was just wondering if the judicial process allowed the use of "Caress" on a wide variety of products, wouldn't it result in the public's not knowing where the much desired "Caress" was coming from? (Laughter)

MR. PATTISHALL: I think you may have answered the question. Commercial magnetism and the dilution thing I guess are the new frontier in trademark law. It conceptually is quite different, basically different, from the deception as to source right. I think that it becomes a question of fact as to whether "Caress" on steam

shovels or bulldozers is going to dilute the distinctiveness or that it is going to damage the commercial magnetism.

But if you go on and expand it from steam shovels on through a great variety of goods, perhaps it does. Probably it does.

I'm reminded of the trademark "Cadillac," and I'm sure you are familiar with the widespread use of "Cadillac" as a trademark for other products because of the connotation of quality. It's so widespread that one would think that it would have diminished that connotation of quality, and yet it still seems to connote quality respecting automobiles.

Just what the answers are going to prove to be to these new-frontier theories of dilution and damage to commercial magnetism I'm sure only experience will tell. And I'm equally sure I don't have enough experience.

MR. GREEN: We have time for one more question at this time.

MR. HORACE COOKE:[8] I'd like to add one comment to this controversy between George Frost and Beverly Pattishall on the question of trademarks versus price. I will include my present competitors here, Shell and Esso, along with me.

If you go into a gasoline station and you buy gasoline with "Esso" or "Shell" or, say, "Gulf" or some other known trademark, you undoubtedly are going to pay more for that gasoline than if you go to what is called an unbranded station where the operator of that station goes out and in some way or other manages to get together something that looks like gasoline and sells it as such.

Now, my question is really are we talking about just the price per gallon, or is it the real price of what you are getting? If you go and buy the unbranded product, you have very little guarantee that that has any particular octane value, that it will help your engine or do very much else except just perhaps run it, and you may in the long run be paying a very much higher price than you are when you have the mark of integrity of a good firm and its trademark which stands for that.

So I think in discussing the question of whether trademarks raise prices we ought to think of real prices—that is to say, price measured in terms of value.

MR. PATTISHALL: Good point.

MR. GREEN: Well, it's time to move on to phase two of our morning.

Probably many of you know that a few years ago a group of astute businessmen and leaders in the New England area decided that they needed positive efforts to keep that economy booming and thriving up there, and so they got together and set up a venture capital organization called "American Research and Development Corporation."

This organization is extremely well managed. *Fortune* Magazine I believe a few years ago called it the "prudent gamble." It has been successful in areas of advanced technology, transforming these into successful commercial devices and equipment.

We are fortunate to have Mr. William H. Congleton, the Vice-President of

[8] Horace Cooke, Gulf Oil Corp., Pittsburgh.

American Research and Development, who will speak on the impact of technology on venture capital.

IMPACT OF TECHNOLOGY ON VENTURE CAPITAL

MR. CONGLETON: Thank you, Mr. Green.

Ladies and gentlemen: During its 200-year history, many elements have contributed toward America's extraordinary economic growth and prosperity. Such diverse factors as an abundance of natural resources, a reasonably expanding literate population, and a sound and stable political and economic environment long have been recognized as key factors behind the successful development of our present-day industrial society. During recent decades, however, the ever increasing discoveries and achievements of science have made it evident that today technology is an additional major driving force helping to promote our continued economic progress.

Recognition of this fact by investors and financiers can be demonstrated by comparing the apparent values of a technologically mature organization such as the New York Central Railroad, which was established over a century ago by two of the nation's most influential old-time capitalists, John Jacob Astor and Cornelius Vanderbilt, with a scientifically dynamic firm such as High Voltage Engineering Corporation, which was organized only fifteen years ago by a small group of college professors. High Voltage Engineering, relatively unknown to the general public, had a book net worth in December, 1960, of $6,400,000, but its equity is currently valued at approximately $80,000,000 by public investors. In contrast, the New York Central Railroad, for generations a typical "blue chip" investment in American industry, had a net worth in December, 1960, of $1,250,000,000, or about 200 times that of High Voltage Enginering, but its present public market value is only $120,000,000, or about one and a half times that of High Voltage. This contrast dramatically illustrates the effect which the postwar blossoming of applied science and technology has had—and will continue to have—on the investment community.

Because of this evolutionary reorientation of economic values, the enterpreneur possessing creative, constructive technological competence and knowhow occupies an increasingly significant position in our present-day industrial society. Much of today's pioneering with new products and new processes is being done by young companies which only yesterday, it seems, were struggling for existence on the frontiers of applied science—companies such as Ionics, Inc., in saline water demineralization; Itek Corporation, in information storage and retrieval; Dunn Engineering Corporation, in inertial guidance checkout systems; and Digital Equipment Corporation, in digital computation devices, to mention but a few. None of these firms—nor hundreds of others like them—existed when World War II ended, and much of the advanced technology upon which they are based was unknown then. Yet today each is a thriving operation, selling millions of dollars of product each year, providing jobs for hundreds or thousands of workers, and earning attractive profits for their founders and financial sponsors.

Anticipating the dynamic impact which advancing technology would have on our economy and foreseeing the opportunities which this development would create for

competent entrepreneurs in the field of small business, America's first publicly financed professional venture capital investment firm was organized in Boston in 1946. It was—and is—the primary objective of this organization, and others which subsequently followed, to provide creative capital and specialized management assistance to meritorious technological growth enterprises during their frequently difficult formative years. Later, when soundly established and matured through experience and successful performance, these firms then become attractive investment opportunities for that large body of public investors who are unable or unwilling to accept the risks inherent in unproven business situations.

Fulfillment of this objective sometimes involves the organization of a new company built around a competent inventor to commercialize a novel product, process or idea. Frequently it involves assisting a small established organization to push ahead with a promising program in a more aggressive manner or to modify its program in some way to be more successful. Occasionally it involves assisting a distressed company to re-establish itself in some new line of activity where its resources and experience can be more profitably utilized.

Whatever method might be used to achieve its objective, the venture capital investment company typically provides not only long-term investment capital but also equally important business and financial counsel. More often than not, it supplements its invested funds with assistance in technical marketing, financial planning, and basic corporate administrative procedures in order to minimize its risk and maximize its reward from participation in a speculative undertaking.

However, as the record shows, most, if not all, professional venture capital investment companies which are helping inventors and technologists to build sound small businesses have prospered reasonably well. As a result, a large number of new investment organizations, both publicly and privately financed, have sprung up around the country in recent years, and several of the major national investment banking firms have broadened their activities to include the financing of soundly conceived but fiscally unproven technological enterprises. In addition, in 1958, the federal government, acting through the Small Business Administration, further stimulated the financial environment for small business by authorizing the establishment of privately financed small business investment companies and by granting them access to federal funds on a long-term loan basis. Consequently, several hundred million dollars of capital have been invested professionally in small growth companies throughout the country in recent years, and substantial additional funds are available to continue this activity into the future.

This awakening by the financial community to investment opportunities in the field of small business has been helpful and rewarding to all concerned and has further strengthened and diversified our national economy. However, in recent months, there have been disturbing signs that perhaps all is not so well as it might be. The performance of a few successful young companies which have earned extraordinary profits for their founders and early financial sponsors has attracted widespread public investor attention, with the result that there has been a rush by technologists and investors alike to attempt to emulate these achievements by undertaking comparable endeavors. This type of speculative activity can be desirable and

constructive if the projects are well conceived, if the personnel responsible for directing these ventures possess the necessary competence and integrity, and if the investors fully realize the magnitude of their risk and can afford the loss should misfortune plague the undertaking. Unfortunately, however, in the judgment of many experienced observers, this is not always the situation today. Too many new business with a "me-too" philosophy regarding new technological developments are being organized by mediocre promoters. Too many uninformed investors are indiscriminately pouring their capital into newborn scientific companies in the naive belief that any organization engaged in electronics or nucleonics or any other space-age activity is certain to earn big rewards for its financial supporters. Obviously, such is not the case.

Caution has been urged by several distinguished spokesmen for the investment community, but there is little evidence that their warnings have yet been seriously heeded—even by certain less responsible elements of the financial world itself. As a result, the possibility of an abnormally high rate of disappointments and failures in science-oriented young companies accompanied by the disillusionment of a large number of inexperienced public investors appears much greater today than at any time in the recent past—and this possibility greatly concerns many of us in the investment business.

The professional venture capital investor cannot fulfill his responsibilities by adopting the "get-rich-quick-by-capital-gains" attitude which permeates portions of the financial marketplace today. Rather, he must direct his resources and energies toward the creation and development of new business opportunities where advanced technology, competent management and customer requirements—coupled with hard work, patience and a little good luck—can effectively complement each other to fill a vital need or to provide an important service. When challenges of this type are met by satisfactory performance, abundant financial reward usually follows for those who contributed toward the undertaking. Unless this philosophy is patiently pursued, intelligent speculation becomes irresponsible chance-taking—and a rapid deterioration of the highly beneficial business climate which now exists for the technological entrepreneur and for the responsible venture capital investor inevitably will occur.

Now, briefly, how does the venture capital investor typically consider patents when evaluating an investment opportunity in a young technological enterprise?

From a business viewpoint, it has been my observation that patents frequently play an important defensive role but seldom a decisive offensive role during the formative years of a new technological undertaking. It is always helpful, of course, if well executed, fundamental patents are available to nurture to growth of a new enterprise operating in a competitive environment. However, probably of greater importance to the venture's ultimate success is the ability and dedication of its technological and management staff, the efficiency of its production facilities, the skill of its marketing organization, and the adequacy and stability of its financial resources. Of course, as certain companies become more soundly established and more formalized in their research and development practices and procedures, patents acquire greater significance and often develop into major assets of the

corporation. For most companies just starting out, however, patents seldom are a critical consideration from the viewpoint of the business and financial risks involved —unless, of course, the new enterprise is infringing on the lawful patent rights of another.

More important in most situations is the quality of the key creative people, their professional competence, their willingness to exercise extraordinary effort, their determination to succeed, and their integrity. Whenever a soundly conceived, well organized plan for commercializing a significant technological invention in a new small-business enterprise is presented by individuals with these characteristics, adequate capital and helpful background business assistance usually are readily available today from a variety of reputable professional venture capital organizations.

Thank you.

(Applause)

MR. GREEN: Whenever you meet with a group of research administrators here or any place in the world and you talk about outstanding research organizations, and then when you specifically talk about outstanding tax-paying research organizations, the name of Arthur D. Little, Inc., comes up immediately.

This is one of the fine groups ornamenting the New England area, and the man at its helm for many years, as Chairman of the Board, is Earl Stevenson.

Earl is also a member of the Advisory Council here of the Foundation.

He's going to give a little historical perspective to this question of the role of patents in industrial progress.

Mr. Stevenson.

THE ROLE OF PATENTS IN INDUSTRIAL PROGRESS

MR. STEVENSON: John, after your very kind invitation, I really hesitate, but feel I should correct an omission in your generalized introduction. You failed to note that you were observing the Washingtonian protocol that there are four of us here from Boston and that we occupy the center of the platform. (Laughter)

MR. GREEN: We're getting used to that in Washington. (Laughter)

MR. STEVENSON: We always feel quite at home in these circumstances.

As John has indicated, I thought I would talk this morning a bit in the historical perspective, and our organization can lay some valid claim to being the pioneering industrial research organization in the United States, as we were organized in 1886.

My association with the company has been for over forty years—since 1920. This was a critical year because it was right after the war, and, you might say, this is the date from which industrial research as it has come into being can date its birth.

But it has only been since 1945—since the war—that we have seen this great development of the industrial research laboratories in the United States.

During this period, to give you a few basic numbers, there has been an increase of over 600 per cent in the outlay spent on research, including government. In 1960 this was $12.4 billion. With the present research and deveolpment outlay this is 2.5 per cent of America's national output (GNP).

The National Industrial Conference Board predicts that in 1970 this will increase to four per cent of the national output, or to at least $27.5 billion.

In 1920 we reckoned the national expenditure, although no valid figures are available, in terms of millions, and not too many of those.

Well, now, these rather overwhelming statistical projections that we see today are somewhat pertinent to my remarks, but I would also like to point out, as bearing on your basic interest—the relation of patents to industrial research—that a very large increment of this money was spent in the military effort, and that our 1960 expenditure within the civilian economy has been more of the order of $5 billion. We can expect that by 1970 the percentage spent in the public domain will be larger than at present.

Now, when we start to project the pattern of industrial research from past experience, it seems very reasonable as we have been riding a fairly consistent curve. And there is also a very good correlation between these figures and the trend in growth and employment of scientists and engineers in industry. A December release of the National Science Foundation, for example, notes of seven per cent increase between January 1959 and January 1960 in the number of scientists and engineers employed in industry.

But the question that I would like to pose today is: Are we to assume that the present pattern will persist for the '60's? Here I would like to examine the question from several different angles.

Certainly the pattern has changed greatly in the forty years that I have been associated with industrial research. These changes are reflected in part by both the physical and the corporate environment in which the research and development laboratories of our major industrial enterprises now function. Research has become not only big business but a very integral part of big business. This evolutionary process must go forward if predicted growths in our economy are to be achieved.

It would have been inconceivable twenty years ago that our major industrial research organizations could grow to their present size. If anybody had said in 1920 that our company would be of its present size, it would have been pure fantasy as far as I was concerned. The opportunities and administrative techniques that we had then and those which we have now would appear wholly inadequate to support the growth that we project. Today the projected growth for the next ten years again appears to me fantastic.

This is my first reservation. Have we a pattern in which we can continue to grow if we maintain merely a projection of the past?

My second reservation concerns the continuing growth and the demands of our military economy. I will not spend a great deal of time on this, but I would note that the money spent in the military economy is very positively feeding back into our civilian economy. Very positively. But is this to go forward at its present pace? We have here the dichotomy of the aspiration for growth in this area with our national aspiration for arms reduction. These two goals are not mutually supporting.

So we will pass then to my third reservation. This is really too complex for little more than mentioning but it may be, of all, the most real. It is hard for me even to

identify it as to its nature. Because here we are involved with the issue of national goals and a changing scale of values as these affect the expenditures of the consumer's dollars.

Research in industry is a competitive device. Progress now largely identified with technological advance may become associated with different values if the consumer spends fewer dollars on things that technology produces. In what direction will the role of industrial research be adjusted?

These developments may not affect the position of the patent situation and the importance of patents in our system, in our government, in our economy, as there is no correlation between R & D dollars—even when we limit these dollars to those spent in the civilian economy—no correlation between this effort as measured by dollars and the number of patents issued. According to my records there were 51,000 patents issued in 1930, when our expenditures on research were something less than $200 million, and there were 47,000 in 1960, when our expenditures in this area were over $5 billion.

I will have more to say about this later.

Now I want to come to what is the basic responsibility of industrial research so that we may appraise it from that angle. I would say that it is to meet or create a market for products or services.

Stated another way, the responsibility is to feed the technologies of a company from the roots. Oftentimes this demands an understanding, and increasingly so, of some basic law of nature and how it operates. This is a greater emphasis upon science, and inventions are seldom involved in undertakings to derive new knowledge, to develop understandings.

On this point, I am reminded as a chemical engineer of a very complex system of "boiling soap." It came down as an art. It took twenty years of research to determine the physical intricacies of that process. It is a colloidal system of the greatest complexity. We now understand that soap-boiling process. But in the first place no inventions were involved in arriving at that understanding, because with this growth of knowledge we merely had explanations. We could proceed more intelligently.

I think the great lesson of the last two decades is that major technological advances are impossible without a deeper understanding of nature. Here I always go back in thought to a very good friend of mine whom I greatly admired and enjoyed in his older years, one of the Stanley brothers, the inventor of the steam-driven automobile. It is simply inconceivable to think of the Stanleys, who never went beyond the eighth grade, trying to perfect a gas turbine.

They also made a great contribution to photography. They developed the first dry plate. They would have been utterly unable even to understand or approach the problem of technicolor, of color photography.

So industry is today trying to exploit nature in ways that are more and more subtle. In this new scheme of things—the shift from the inventive approach to basic understanding through scientific research—what is the role of patents and how can the patent system continue to prosper and contribute to technological growth? I would like to note here that in many industrial laboratories today, and

I would almost say the majority of them, there is a growing interest in the question of innovation; how innovations are brought about; and to try to spot the people who can do it, and to develop techniques for doing it. This interest takes many forms. Generally these talents are associated with the entrepreneuring spirit. You can't be an inventor, I believe, without having the entrepreneuring sense of the utility, the usefulness of the thing you are developing.

With these comments, may I now return to the basic responsibilities of industrial research. I have stated that these were to evolve new things and new ways. When we audit the R & D appropriations of today, we must remember that in the last fifteen years an industrial research laboratory has become much more comprehensive in its undertakings. It has become an operating division of a company. It is, for example, called upon to supply many services to management. Within the audit that is made of money spent in R & D today, will be included that spent, for example, on operations research.

Inventions are not expected from such a research activity. While they are working in areas in which inventions are improbable, they are using the research technique—the scientific approach to the solution of problems.

So I simply want to say in conclusion that I believe that the patent system, the continuing provision of incentives, the necessity for having people of these talents identified with our R & D laboratories in responsible and creative positions, are still vital; that if we are to go forward, we cannot depend wholly on the basic scientific, or highly organized impersonalized approach to the solution of problems. That is the group approach, the team approach. The individual inventor must still be a factor. Even in the team approach, wherever a critical invention is made there is generally one key person. Today you will find in many of the more progressive research organizations that our patent system still provides motivations; that the issue of a patent measures a research accomplishment.

Thank you.

(Applause)

MR. GREEN: I think you will now recognize that the speakers here are trying to relate the patent system to the real world in which we live, not seeing it as somethink off isolated by itself but as a part of our continual industrial process and the research that makes it move.

Mr. Congleton spoke earlier on the many new industries that are springing up based on research, and Dr. Stevenson has just mentioned how research is interlocked into big business. We now have an example of one of these new and perhaps fledgling organizations which has come into being in the Cambridge area, and this is going to be discussed by Mr. Joseph M. Dunn, who is the President of Dunn Engineering Corporation.

He will tell you of the problems of a small research organization and also of the emphasis on the development of new products.

Mr. Dunn.

THE PROBLEMS OF A SMALL RESEARCH ORGANIZATION

MR. DUNN: Ladies and gentlemen, the growth of our country and the economic system which we have been privileged to enjoy is dependent upon the preservation and expansion of free competition. The rate of economic growth is related directly to competition. Research and development are major determinants of the growth of economic activity in an industrial society.

The rate of the increase of technical innovations and the free flow of scientific information directly affect our prosperity.

To preserve free competitive enterprise the government must take steps to remove several obstacles standing in the way of the progress of many small companies.

Small business is a distinct and vital part of the economy. I do not believe that anyone can rightly say that small business is asking for preferential treatment. It is merely asking for equal opportunity, the removal of obstacles to its progress.

To President Kennedy I would say that small business, particularly through the smaller business associations throughout the country, is truly asking, not what can the nation do for small business, but what can small business do for the nation.

Within the scope of today's subject and the time allowed, the position of small business, which I represent, can best be presented by considering three major problems:

One, the dissemination of technical information.

Two, the distribution of R & D funds spent by the government.

Three, the corporate income-tax structure.

First, on the dissemination of technical information, one of the major problems that confronts small business is the nature of the government's position in connection with technical information it receives from its contractors and, through its contractors, from their suppliers and vendors. There is no uniform practice governing this problem. Policies concerning proprietary information vary from one govenment agency to another.

Small companies under subcontract to a prime contractor or on direct procurement with the government have often been required to submit either to the prime contractor or to the government proprietary data which they have developed with their own resources.

Moreover, many prime contractors have followed the practice of demanding all proprietary data from all subcontractors with whom they deal.

Prime contractors have been accused of requiring data from their vendors where there was no need for it.

It is clearly evident that information gathered under government-financed research and development contracts should be delivered to the government with unlimited rights to its use, and it should be freely available to other companies doing work for the government.

The government should be in a position of being able to acquire data at a reasonable price, and industry should furnish proprietary information to the government at a reasonable price. Likewise this information should be available to other companies doing work concerned with the best interest of the country.

The obstacle to the free flow of information created by the necessity to duplicate the work of other scientists must be eliminated.

Unfortunately, however, the present patent system does not adequately protect the owners of proprietary data and does not insure that a small company or an inventor will be reasonably compensated for his work. The cost of implementing patents is often excessive and prohibitive, and most small companies and inventors do not have the knowledge to prepare their patents properly.

Perhaps the problem could be solved by the creation of industrial boards composed of small and medium-sized business, large companies, and advisers of the government that would act in a quasi-judicial capacity and as a referee.

These boards should be concerned primarily with restrictive practices and determining of fair value for proprietary data.

Now let's consider the inequities in the distribution of government research and development funds.

The costs of R & D programs are beyond the means of many small companies, and most of them are handicapped in obtaining the benefits of research and development programs conducted at the expense of the government. This means for one thing that the government must furnish more facilities for small business and devise an accelerated program for the depreciation of capital equipment.

It means also that some way must be found to stem the tide of government R & D money away from small business.

I have some charts which show a very startling picture in this regard. These are not exact but they present an approximately correct picture for the year 1960.

Last year agencies of the federal government spent about $5 billion on research and development programs. Twenty per cent of this $5 billion, or $1 billion, went to just two companies.

Now, another twenty per cent went to just three more companies.

A total of $2 billion in research and development funds went to five companies.

Another twenty per cent went to just five additional companies.

A total of $3 billion of the $5 billion went to ten companies.

Another twenty per cent went to just ten additional contractors.

Thus eighty per cent of the total, or $4 billion, went to just twenty contractors, companies and institutions.

Nineteen per cent more went to another 480 companies.

Now, and only now, do we get to the part played by small business. One per cent—actually 1.3 per cent—in 1960 went to small business.

The worst thing about this is that it is decreasing every year. In 1959 it was over two per cent.

Such a trend means a serious narrowing of the base of advanced research and development and new product introductions with possibly disastrous effects on our economy, and I think something must be done to change the trend.

The third problem, I will mention only briefly: the inequities in the corporate income tax structure.

It would be foolhardy for me to advocate a fully graduated corporate income tax, and I am not doing that. But I do feel that the present step from thirty per

cent to fifty-two per cent is too large and occurring as it does at a $25,000 profit level it's taken at too low a level of corporate income.

Small companies with earnings between $25,000 and $500,000 are at a very critical stage in their development and would receive a tremendous boost in their ability to advance their ideas to the successful marketable product stage if even one additional step in the tax structure were added, say a tax of forty per cent instead of fifty-two per cent on income between $25,000 and $500,000.

Now, let me reiterate the three problem areas that I have discussed:

One, the dissemination of technical information.

Two, the distribution of government R & D funds.

Three, the corporate income-tax structure.

Ladies and gentlemen, we were invited to express our positions, and I trust it was with the purpose of initiating remedial measures. Act or help us out on these three problems in the direction that I have suggested, and through this action permit small business to assume its rightful place in the preservation and expansion of free competition.

(Applause)

MR. GREEN: Very effective.

We are running a little late. It might be wise if we could hold questions at this time to about a five-minute period. Then we will have our five-minute break, and then we will come back again.

The first question, please.

General Discussion

MR. GEORGE HASTINGS:[9] This is addressed to the last speaker. It would be helpful if you told us first your definition of a small company, and, second, whether in referring to that one per cent you are excluding subcontracts.

MR. DUNN: On your first question I am using the definition that the Small Business Administration uses—roughly 500 employees for a manufacturing organization. It varies, but this is roughly what I am talking about. In other words, possibly about $5 million a year sales.

On the second question, the amounts going to small business or any businesses or contractors on subcontract were not included in the one per cent. These are funds directly from the government.

But it doesn't look too much better if you consider that. There are regulations which say how much R & D money going to a prime contractor receiving over such and such an amount should be subcontracted, but not all prime contractors are adhering to this.

MR. GREEN: I might ask this:

Colonel Westerman, I know that the armed services are quite concerned about the problem which Mr. Dunn has raised on this proprietary information. Would

[9] George S. Hastings, Vice-President, American Machine & Foundry Co., New York.

you be prepared to make some comment on what you are trying to do to safeguard proprietary information?

COLONEL WESTERMAN: [10] I think it would be more appropriate for Mr. Johnson to make that comment since he is from the Department of Defense. I am just from the Army.

MR. GREEN: All right. Perhaps we can save this. Would you have time to do that?

MR. R. TENNEY JOHNSON: Yes.

MR. GREEN: Any questions?

MR. JOHN A. JOHNSON (NASA): Is it permissible for one of us to ask a question?

MR. GREEN: Surely. Yes indeed.

MR. JOHN A. JOHNSON: I would like to address this to the last speaker. It seems to me that one of the most powerful drives in the Congress today for the government's acquisition of title to patented inventions comes from those who at least purport to speak for the small-business community. Relying on the distribution of research and development funds coming from the government via prime contracts that Mr. Dunn mentioned, these particular spokesmen say that leaving title to patented inventions with a contractor necessarily works to the detriment of small business.

I think this is a very powerful argument that is being put forth, and a very persuasive one on the Hill, and I would just like to know what the small-business community itself thinks of the merit of this argument.

MR. DUNN: Well, I understand that a small business, whether it's a prime contractor with the government or a subcontractor, can in working with the Department of Defense retain title to patents arising out of work it does, but not so for NASA or AEC.

I think it is more important to consider the indirect results of doing research and development.

The figure given yesterday of six per cent of all patents coming out of the sixty per cent of R & D financed by the government seems to be a little misleading, because a lot of technical progress and patented items come out of the experience accumulated by the technical people working in industry, and it's very difficult to say how much results from the accumulation of experience working on research and development contracts.

I think that still the important thing is the distribution of this large chunk of research and development money whether patents come out of it directly or not.

I'm not sure that I answered your question.

[10] Lieut.-Col. George F. Westerman, Chief of the Patents Division, Office of the Judge Advocate General, Department of the Army.

MR. GREEN: May I pin down that question a little bit? If the Defense policy were changed to take title in the government, would it make any difference to you or not?

MR. DUNN: I think it would, and I'd hate very much to see that.

MR. GREEN: Well, I think it is time—

MR. STEVENSON: Could I correct the record on one thing, John?

MR. GREEN: Yes.

MR. STEVENSON: This may be pertinent I think.

You made the statement, Mr. Dunn, that the subcontractor gets patent rights. As a practical matter, a great deal of our work at Little's is subcontracting from major concerns, and we usually give up the patent rights. In other words, we may agree to assign all of our inventions to the prime contractor. Now, this is a very practical procedure, because if two companies were, with separate assignment obligations, working together on a common invention, confusion could result.

I'm asking you if in subcontracting you are keeping patent rights?

MR. DUNN: It depends on the type of contract; that's true.

MR. STEVENSON: Yes.

MR. DUNN: And it depends on the end in mind in the contract. We have had subcontracts with a prime contractor to the Department of Defense where we have been able to initiate patent applications and retain the patent rights on something that was developed under a subcontract.

MR. GREEN: Well, there are going to be a number of questions for the next three speakers, and time is running. So can we break for five minutes? And would you please try to get back here in five minutes?

Whereupon, a short recess was taken.

MR. GREEN: Are you ready to begin again?

Before we go to the next speaker, there was a question left unclarified there, and I think it would be useful if we have one more question from the floor to take care of it.

MR. MAYERS:[10] I asked for an opportunity to comment because of a possible ambiguity which I think arose from the remarks of Mr. Stevenson deriving from his particular background on the issue of the relationship between contractors and subcontractors with respect to the retention of patent rights.

I am Harry Mayers, General Electric Company, and I am, of course, most familiar with the patterns of that company. I am aware that patterns differ among the large companies as to their interest in the inventions which may be made by their subcontractors. However, there was recently made by the Department of Defense at the request of Senator Long a survey of a number of large corporations as to

[10] Harry Mayers, general patent counsel, General Electric Co.

their policy in dealing with subcontractors in the matter of inventions. Approximately fourteen replies were received to the inquiry made by the Department of Defense, some of which were published in the report of the hearings of the Long Committee and some of which were not. An examination of those replies shows that in the predominant case the large industries represented, viewing themselves as prime contractors and speaking first with reference to government-procured business, indicated that their policies were to avoid requiring patent rights from subcontractors.

A distinction which many of those contractors made—and it would be one which would apply in our case—is one which directs itself only to companies in the situation of Arthur D. Little and similar concerns which are not themselves engaged in direct manufacturing enterprise. As to such companies it is a common pattern for the prime-contractor company to ask for patent rights and for them to be given by the subcontractor, because that is the normal practice of the subcontractor in the Arthur D. Little type of situation.

As to the other kind of subcontractor, the manufacturing subcontractor, the normal pattern is as indicated by the survey of which I have spoken and is quite different.

MR. GREEN: That is a useful clarification, and we will preserve it in the record.

Now we are moving both to the government representatives and from the Harvard atmosphere to Washington, and yet really it's only a phasing-out operation I see, because our next speaker, Mr. R. Tenney Johnson, is a graduate of the Harvard Law School.

Mr. Johnson is responsible for advising on the legal aspects of the Department of Defense policies in the broad fields of research and development and has been intimately concerned with the evolution of DOD policy.

He is going to speak on the recent clarification of ASPR regulations and what you might term the changes or modifications of current DOD policy.

Mr. Johnson.

ARMED SERVICES PROCUREMENT REGULATIONS

MR. R. TENNY JOHNSON: Mr. Moderator, Ladies and Gentlemen of the Conference: I am privileged and honored to join with this distinguished group to discuss a very significant current issue.

What is the best public policy to govern patent rights in inventions made by contractors in performing research and development for the government?

Although your Moderator has given me a rather free rein in speaking about this issue—and of course I am speaking this morning purely for myself—I believe that it would be most useful to you for me to discuss the recent amendments in the Armed Services Procurement Regulation relating to the procurement patent policy of the Department of Defense.

As the general controversy on government patent policies has once again come to the fore, the Department of Defense has been rethinking its long-standing policy, which as everyone knows has been generally to acquire only a license to its con-

tractor's invention and leave the title and commercial rights with the contractor. Although the Department concluded its re-examination of policy before the study of this Foundation was available, I think it is fair to say that the results of that valuable and illuminating study have strengthened our confidence in the Department's policy.

The starting point of the Department's re-examination of policy was the work of the House Committee on Science and Astronautics, which I shall refer to under the name of the Chairman of the Subcommittee on Inventions, the former Representative Erwin Mitchell of Georgia. After an exhaustive study of the patent policy question the Mitchell Committee recommended that the statutory patent policy of the National Aeronautics and Space Administration (NASA) shift its emphasis on the government's rights from title to license and that more explicit congressional guidance be given the Administrator as to when the government should acquire or retain rights greater than a royalty-free license. To this end, the Mitchell Committee drew up a proposed statement of "Congressional Intent," which listed factors to be considered by NASA when deciding whether to require a title or license in a particular contract. Four factors favored government acquisition of title. Four factors favored government acquisition of license. The Mitchell Committee aproach is one of the most significant of many recent proposals on federal procurement patent policies, because it was approved last session by a sizable majority in the House of Representatives.

Last summer a special committee within the Department of Defense studied the Mitchell Committee's proposed statement of Congressional Intent, which was developed for NASA, trying to determine whether the Department of Defense should adopt the recommendations administratively. Based on the work of this Committee and subsequent discussions with the Armed Services Procurement Regulation Committee, a revision to the ASPR section on patent policy, paragraph 9-107, was prepared and approved and is now in effect. The revision begins by stating officially that, "the Department recognizes that the American patent system was established as an incentive to invention, disclosure, and commercial exploitation of new ideas. In order to take advantage of the incentives implicit in the patent system and to secure American industry's unreserved participation in military research and development, while acquiring the rights necessary for the government freely to carry out its programs, the Department of Defense *generally* obtains on behalf of the government a comprehensive license of free use, but does not require that full title to the new inventions be assigned to the government."

This new language represents so far as I know the first explicit statement in the ASPR of the general rationale underlying the Department of Defense's license policy. Rather significantly I think, the Department ties its policy within the general framework of the laws which the Congress has enacted to encourage invention, and at the same time emphasizes that incentive is the mainspring of the policy. The Department does *not* say that a title policy would cost more or would prevent the government from placing contracts. Nor does it base its license policy on the belief that private ownership of patents is the fastest and best means of getting new ideas into the commercial market for the benefit of the public. These may be valid argu-

ments, but they are really for industry to make and not the Department of Defense. Rather, the Department's new regulation seems to be saying that the patent system is "there," it was established by higher authority (the Congress and the Constitution) for good and sufficient reason, and its present outlines and underlying principles are things to be lived with until and unless they are changed. Taking title across the board results under present governmental policies in a removal of the patent incentive feature from the invention. The Department, with its very broad program reaching into so many segments of American industry, does not challenge the underlying assumptions of the patent system, as an administrative policy of insisting on title in all cases would do.

The Department's new regulation also underscores the desire, in the interest of national defense, to draw on the skills of all American industry at all contract levels, and not on the relatively few firms which by choice or otherwise must take the Department's business on any basis. This is an implied acknowledgement that requiring title for the government persuades many firms not to make proposals on government research projects. Frequently these are the very firms with the most knowledge and best ideas in the field of research. The mere number of those clamoring for research dollars is not in itself significant. What is important is whether the most qualified, large or small, are coming forward without reservation to devote their best efforts to the military research, which may or may not have a commercial payoff or even a follow-on production contract.

Finally, the new regulation points out that in the usual case a license of free use is sufficient to protect the government's interest in an invention produced under a military research and development contract. The Department's research program is not aimed at bringing products to the commercial market. Some other agencies do this, and for them a requirement of title makes sense, for they are purposely trying to create a new commercial thing for a particular industry. The Department of Defense wants new ideas for military purposes without regard to any possible commercial application, which may in fact be non-existent, and it wants simply to be able to use the new inventions and authorize others to use them for the Department without payment of royalties. For this purpose, a license is equally effective as a title.

The new regulation goes on to state the following, which I quote: "While it is the general policy not to acquire more than the comprehensive license described above, the Department of Defense recognizes that there may be some situations in which it will be desirable in the public interest to obtain full title to the inventions made under the contracts. In a new technological field, for example, where there is no significant non-governmental experience to build upon, the inventions which may be made under the contract would be likely to dominate the field or be of critical significance in it, it may be desirable for the Government to hold title to such inventions. Again, where the services of the contractor are largely those of co-ordinating and directing the work of others, the government may wish to acquire title to prevent the possibility or appearance of private advantage as to the ideas of others. Likewise, the government may obtain title in recognition of the overriding public interest in inventions in fields directly relating to the health or safety of the public, if their availability for public use will not depend on patent incentives."

Under the new regulation the contracting officer will consider whether research which is proposed falls within these or similar conditions, and if in his opinion it does, he will forward the matter to the military department involved for a decision on whether the government should require title.

This change has the effect of putting some real teeth into the Department's assertion to the Congress that it has the flexibility to contract for title whenever it feels the occasion warrants. It also reflects in large measure the influence of the Mitchell Committee's recommendations. The instances in which the government is to consider taking title are somewhat more sharply defined versions of the Mitchell Committee's considerations favoring government acquisition of title, with one exception. This was the Mitchell Committee's view that government acquisition of title was indicated where the government had provided virtually all of the funds required for the operations and activities of the contractor in the field of technology involved. The Department of Defense committee felt that this would be a difficult thing to measure, and moreover felt that the mere fact of government financial support was not in itself related to any explicit governmental purpose in acquiring title. If government financial support is accepted as the criterion for taking title rather than an express governmental purpose, then it is really hard to distinguish when the government should acquire a license or a title in any research and development contract. I may add that government financial support and even the fee paid on a research contract is not intended to, and cannot, compensate for the potential value of a patent right. An invention does not spring from money alone. In a recent book on scientific research in Great Britain appears the following sentence: "The reservation of all rights to the sponsoring body is generally resented, since any research project is essentially an exercise of the free intelligence in which the contribution of the research worker should rank at least equally with the contribution of finance." [11]

You will note that the Department has expressed its guidance to contracting officers in terms of specific purposes for which the government wishes to acquire title to inventions. I personally believe this approach, based on a clear understanding of the purpose to be served by government acquisition of title, is preferable, especially on an administrative basis, to an "either-or, all-or-nothing" policy or to a policy of "balancing the equities," as though the equities of the contractor and the public interest were somehow contradictory factors.

It must be recognized that government agencies do have different purposes and programs for which diverse approaches for the patent question are appropriate. Some agencies, like Agriculture, Health, Education and Welfare, or Interior, are in research to develop products for eventual commercial sale and utilization by industry. Others are tapping the existing knowledge and ability of industry and inventors for purposes unique to the government, such as national defense and space exploration. It would be better, I submit, to shape government patent policies to these purposes, provided they be clearly defined and understood, rather than to

[11] *The Relations Between Scientific Research in the Universities and Industrial Research*, ed. Coslett 69 (1955). Although this sentence appears in a context applicable to the relations of universities and industrial research organizations, the principle involved would seem to carry over to other contexts as well.

more abstract considerations of what is best for the patent system in general, or how the equities of the parties in contributing ideas on the one hand and money on the other are measured.

(Applause)

MR. GREEN: That's the best and clearest exposition of the problem I have ever heard.

Our next speaker, who is completely out of the Harvard milieu, is Mr. Neil Naiden, General Counsel of the Atomic Energy Commission. And while the Commission has very special problems and therefore very special policies, it doesn't prohibit Mr. Naiden from speculating on the role of the inventor in dealing with his government, the role of the inventor in society and some other pertinent observations.

So we are now going to listen to Mr. Neil Naiden.

THE ROLE OF THE INVENTOR IN DEALING WITH GOVERNMENT

MR. NAIDEN: Thank you, John.

There are certain ceremonials that I want to engage in before I begin. One is to announce that my colleague, Commissioner Watson, is now the Chairman of the Patent Compensation Board in the Atomic Energy Commission. I don't know that he'd care to associate himself with what I am about to say, but we are very fortunate and very happy to have him come on board with us.

I think the letter went out either yesterday or will go out today, Commissioner Watson, and we are most pleased to see you.

The second thing I have is a Band-Aid which I want to present to Mr. Johnson. However much he may rationalize his change, he going to need this when he takes title to patents. (Laughter)

You see, we pass them out regularly in the Commission to cover our scars. (Laughter)

Government ownership of patents being a rather controversial subject, those of us in the Commission who believe that the government should ordinarily own patents which derive from government-financed research always appear before an audience of this kind with considerable trepidation. It's very difficult to escape whole.

I might say that I am cutting out some of this so that my colleague, Mr. Johnson, who is the last speaker, will not find you writhing in your seats completely.

My colleague at the Commission, Roland Anderson, tells me that in recent years there have been a number of bills introduced in the Congress which modify the procedures to bring about the early issuance of patents, some others to make patent applications as good as issued patents, and so on. I note that these seldom concern the inventor.

We are told from time to time in the Commission that our patent policies are ill-advised, or worse, and lawyers speak to us in patent lingo about background and foreground, infield and outfield, and under the tutoring of Mr. Anderson I have somehow come to find out what these things are.

In the midst of this plentiful supply of bills and torrents of talk, I never hear

anything about the inventor. I have only seen two in three and a half years. One is Dr. Robert Wilson, who holds ninety patents and who is on the Commission. The other one is Dr. Glenn Seaborg, who is the Chairman of our Commission.

It seems rather strange to me that this should be so, but I have seen lots of lawyers, but never any inventors.

Article I, Section 8 of the Constitution, which as you all know far better than I authorizes the government to promote the progress of the sciences and the useful arts by securing for limited times to authors and inventors a monopoly, I think establishes a very high standard particularly for the lawmakers.

"Promoting science" is an arguable kind of thing. People can have all sorts of opinions about it. But this is what they're supposed to do.

And they're also supposed to give inventors a limited monopoly.

One of these benefits is for the public, and one of these benefits is for the inventor. Nobody else is really in the equation—at least from where I sit.

Of course, the scientist, the inventor, in order to receive this protection or monopoly, has to disclose. He can't keep it a secret; if he does, nobody gets the benefit of it and he doesn't get the benefit of the system. I'll come back to that in a minute. It's prefatory.

I want to go back for a moment to 1836 and talk about the examination system, which I am sure you are all familiar with, which was established to determine whether there is anything patentable in a new idea.

The system has worked pretty well and perhaps extremely well, if the time consumed between the application and the issuance of a patent is a criterion. It well until our society became an industrial society, which some would say was 1880 and some would say later.

Perhaps Commissioner Watson and the rest of you would all be much better authorities on this than I.

But, anyway, it's pretty complex now.

The complex character of the industrial scene and the length of time it takes to get a patent as of 12:15 on June 16th are facts of which we can take judicial and I think considerable notice—something between three and four years.

I think, in any event, we must concede that most inventors now have to spend a great deal of time trying to get a patent. And once the inventor gets the patent, one wonders whether or not we have done him any favor. He probably has to hire a lawyer in order to get one, and then he faces the double-barreled problem of protecting and profiting from his invention.

He faces the possibility of attack from several directions. I have been through a little of this when I was in private life.

The inventor's attacks begin to multiply almost by an order of magnitude the minute he gets the patent. There are those who would tie him up in litigation. There are those who take his invention, use it and don't care about the consequences, and there are those who set great numbers of people busy inventing around the idea.

The inventor, to protect himself in this welter of legal technicalities and the gangs of lawyers that seem to lurk everywhere, has to somehow come to sell the product of his genius to a corporation.

Some years ago while I was associated with a small company in New York, I saw the preoccupation of management with the patent clause in the employment contracts and I was astonished. It was almost more than with the patent itself.

It turns out that the practice of my client is the usual one. Even the employment contracts of my own agency contain the same kinds of provisions regarding patents which are commonly found in commercial employment contracts, so I can claim no virtue, at least in this regard, that anyone else couldn't as well claim.

It seems to me that the fact of the matter is that the inventor sells his future inventions before he knows their value. This I'm sure you all know, and I don't intend to surprise or inform you by this but merely to convince you that at least someone who sits on the government side of the table is concerned about it.

Perhaps that isn't important. The inventors don't seem to mind this as much as I do. So perhaps the point isn't really genuine. They go on selling their future inventions quite casually. They hire out at so much per week or per month and don't mind at all.

Because of the speed with which advances and changes are made, it may be that the real value and utility of an invention occurs during the first three or four years after it is made. This is while the patent application is under prosecution. By the time the patent issues, at least in the atomic energy business, very often the inventors may have moved on to the next technical phase and the patent is almost an honorarium.

This isn't always true, but it is in some cases.

There is a subsidiary point in the case, and this is one of the questions I'd like to ask this morning. That is, the seventeen-year period may be, in this day and age of organized bedlam, a little too long. And I advance this with considerable trepidation because one doesn't tamper with proven processes of this kind except reluctantly and always with great care.

I perhaps wouldn't have had the effrontery to make the suggestion this morning except I found it in one of Dr. Wilson's speeches. I discovered that he is a Perkin Medal winner, and he has considerable standing in these groups, and he thought it might be worth thinking over.

The reason I ask the question is it may be in the public interest to shorten the time, particularly if the technology is really moving at the rate that it seems to be.

And now if I have not yet enchanted you with these revolutionary suggestions, let me revert briefly to the Soviet system or at least what the system is said to be.

One of the troubles in discussing the Soviets in any respect or regard is that one never knows whether he's accurate. We have no good way of sifting out the self-serving declaration from the fact.

It is probably wise to assume that you never really know how things are in that country. So I offer these next few remarks with the obvious qualification that I may not really know what I'm talking about, but at least I know what I have been told about the system, and it may be accurate, in Russia.

The individual inventor in Russia is said to get help from the government without cost in perfecting his application. The invention is then submitted to the government in Moscow where the application must be granted or denied within six months.

They can't keep it indefinitely. I understand it takes nine or ten. I don't know. Again I'm repeating what someone else has told me.

If the patent is granted, some reward or other kind of recognition is then made or given directly by the state to the inventor.

Then—and I think this is the most interesting thing of all—the government sends technical men around the country to make sure that the patent is used, that it's applied in all the different kinds of technology in which it might be useful. And again I don't know whether that works either, but it's an interesting idea.

We don't do it in the Commission, and we own some patents, as you all know. I think it's 2,500, if I recall the figures accurately.

Anyway, the public seems to benefit directly and immediately under their system, and I say "seems to" advisedly. And the inventor is directly recognized. And these are the two things which the Constitution of the United States seems to me to be worried about.

I don't mean by this to advocate the Soviet system. Let nobody be so naive as to think that I do. But I don't think it hurts to look over the back fence.

Several caveats come quickly to mind. Their society is not as complex as our industrially. Heaven only knows what will happen to their supposedly neat and tidy system when they get thousands of patent applications. What happens to the disgruntled inventor who says, "I don't like what you give me; I want more; my invention is better than Joe's; you bureaucrats up there is Moscow don't know anything about these things should be valued; I want a three-bedroom apartment instead of a two-bedroom"?

Fourthly, I wonder if the system emphasizes the state too much, the public benefit too much.

Another thing that bothers me is if you ever tried something like that in this country I don't quite know how the government could find this genius who could figure out what to give people for an invention. Bureaucrats like me are rather bad at deciding things like this. I doubt if the Soviets are any better.

But, anyway, I bring up the system to point out that the man on the other side of the fence has got quite a different operation, and he seems to be making some technical progress.

In our own AEC system—I really shouldn't call it that because it's part of the United States and we really haven't seceded—(laughter)—the public has, we think, benefited somewhat similarly in those cases in which we have taken title to patents deriving from our fully reimbursed research or operating contracts.

We do not benefit the inventor directly; I recognize that. He does get the security of the corporate life, regular paychecks, advancement, honorariums, recognition. But he doesn't benefit directly from us, and I don't know that this might not be looked at with a critical eye by the Foundation to see whether or not this is a good idea; whether we ought not to change things.

You may reply in anguish to all this that the Soviet system is a socialist system or something even worse and that the Russians can't be compared to us in technological advance, industrial achievement, in liberty, in defense.

Let me only say we are in a contest that is prolonged, intense and consuming. We

should at least recognize that the Russians have made some startling scientific advances. They may have stolen the bomb but they didn't steal Yuri Gagarin. They invented the coach that carried him. They built the rocket which pushed him up in the sky.

I don't know whether this has much to do with how we treat individual inventors. Perhaps it's all very far afield. But I toss it out to you for whatever it's worth because there will be more of this kind of thing as time goes on.

Something far less dramatic—and, as far as this group is concerned, less traumatic—may be more useful to consider. The Germans I am told have recently adopted a law which debars the inventor from assigning the full right, title and interest to his patent. He has to retain some percentage in the royalties.

I don't know whether this is a good idea. It has attracted attention. I think it is done in some other countries.

Perhaps there are better answers.

I would like to make one other comment which isn't really related to patents directly.

In the AEC an important thing that has come up in recent years for discussion has been the technical data clause in our contracts, which requires generally the contractor to disclose to us the knowhow that he builds up in learning how to manufacture something. The patents—and I think this has been said before—have become less important. The technical data clause has become very important because knowhow in the manufacture of a fuel element is far more important than the patents.

I think we will hear more of this in the upcoming days than we have of our patent policy, although the burden has now shifted to my colleagues somewhat since they have crawled rather reluctantly in through the backflap of the tent and made finally a concession. I don't think they'd put it that way.

But I'd like to say in closing that anything the office of the General Counsel of the Atomic Energy Commission can do to help with inquiries into these questions we'd be most happy to do. We'd be most happy to help in any way we could.

Thank you very much.

(Applause)

MR. GREEN: During the break I was asked by a representative of a very fine research-minded company why all this concern about the inventor? And it is true that this morning you have heard a patent attorney who begins to worry because the inventor isn't treated very well, and also a general lawyer is worried about it. And yet an inventor himself is reasonably content to work in this operation.

But I think the philosophic problem that is being raised here is: How long will the inventor be content with a marginal return? How long will he be satisfied to sit by and see others make millions out of his brainchild? And is there a possibility that something can be done to make the reward more commensurate with the achievement?

Well, with that little observation, let me pass to our last speaker, John A. Johnson.

John was on the program last year. He is now one year more seasoned—or one year more bludgeoned—as the case might be.

I have tried to get out of him exactly what his theme will be this morning; he was somewhat reluctant, but I gather he is going to cover the management of government patents in a government agency and some views on misconceptions concerning NASA patent policy and anything else that might occur to him.

John.

MANAGEMENT OF GOVERNMENT PATENTS

MR. JOHN A. JOHNSON: Thank you, John.

Ladies and gentlemen, I was somewhat reluctant to capsulize my remarks for our chairman because, according to my watch, my time and yours ran out two minutes ago, and I think that—

MR. GREEN: Let's say we'll run over as long as you're interested.

MR. JOHN A. JOHNSON: Yes, I think there is no question about that; we have run over. (Laughter)

But I shall try to be as brief as possible.

I do want to commend those who have arranged this program on their astuteness and their sensitivity to the present Washington climate in arranging this seating, as one of our previous speakers mentioned. I had always been aware that the home of the bean and the cod was also the fountainhead of enterprise in this country, but I hadn't realized it had quite such an exclusive monopoly on it as I have this morning. (Laughter)

However, it has all been very interesting and worthwhile and stimulating, and so much good has been said that I don't think I have very much really to add to it.

By the way, as one more prefatory remark, I don't know whether this was planned this way or not, but that little Band-Aid that Mr. Naiden handed to Mr. Tenney Johnson said on it "Johnson & Johnson." (Laughter)

There are several things I do want to say, though, that I think are at least relevant to my position.

First of all, I would like to take this opportunity to clear up, I hope, in the minds of some of you some current and frequently repeated misconceptions concerning the act under which NASA operates.

This whole field of government patent policy lends itself to more doctrinaire overgeneralization than almost any other area of policy and law that I can think of, on both sides of the question. I say "both sides." There are really more than two sides, but it tends to divide that way, it seems to me, in any public discussion.

This morning, and in almost every other gathering that I attend, NASA has rather categorically been lumped with those agencies that routinely take title, take all the property rights to contractors' inventions.

Well, if anyone would simply look at the NASA Act, in the first place, and, more importantly, look at NASA's regulations and the practices of the last two and a half years, I think they would see what a misleading generalization this is.

As an example, just last night I was reading an article which has many good things in it and with which I generally agree in a magazine devoted to the interests of government contractors, and there was this sentence:

"The defense industry is content with this reasonably equitable arrangement"—referring to defense patent policy—"whereas the same industry in 1958 suddenly found itself confronted with Section 305 of the National Aeronautics and Space Act which certain zealous politicians hastily enacted without hearings or adequate consideration."

Prudently, I hope, I will not comment on that sentence.

The next one reads this way:

"In essence the Space Act provides that the contractor and his subcontractors will deed titles to the government of all patentable inventions discovered in connection with the performance of NASA contracts."

That isn't what the law says. The law reads this way: That whenever the Administrator of NASA determines that inventions made in the performance of work under a NASA contract are made under certain specified conditions that are set forth in subsection 305(a), such inventions shall be, and I'll quote from the law, "the exclusive property of the United States, and if such invention is patentable, a patent therefor shall be issued to the United States upon application made by the Administrator, unless"—and this is the all-important clause—"unless the Administrator waives all or any part of the rights of the United States to such invention in conformity with the provisions of subsection (f) of this section."

Now, subsection (f) provides that the Administrator, under such regulations as he shall prescribe, and I'll quote again, "may waive all or any part of the rights of the United States under this section with respect to any invention or class of inventions made or which may be made by any person or class of persons in the performance of any work required by any contract of the Administration if the Administrator determines that the interests of the United States will be served thereby."

It's the broadest kind of statutory discretion.

In the exercise of that discretion, NASA has issued regulations and carried out policies and procedures that have been very liberal toward the contractor so far as the retention of title to inventions is concerned.

I'm going to simply rest with that rather general statement, because I don't have time here to go into the details of our waiver procedures.

I wish that those who are critical of this law and are concerned with this question would not simply rest with the kind of categorical assertions that I have quoted from this article, but would look at the way this law is being administered. And I wish that our critics would point to a single invention to date, which had any substantial promise of commercial utility and to which the contractor was interested in retaining title, where NASA took that title for the government. I would just like to have one such case pointed out.

I think that if they can't point out that case, it's incumbent upon our critics to at least modify their statements a bit.

But this sort of thing comes out over and over again in articles and public

statements and testimony before the Congressional committees and all the rest, and it is simply a false overgeneralization.

I admit that our policies and practices are not the same as the Department of Defense's from the contractor's point of view, and I wish personally it were possible to make them a little more like the Department of Defense's. By that, I mean the Department of Defense is able to give the contractor the assurance in the contract itself that title will remain with the contractor. We cannot do that, at least under ordinary circumstances. We have an administrative procedure set up in Section 305 under which these are to be determined on a case-by-case basis. But the result in the great majority of cases, the overwhelming majority of cases, is going to be the same.

For instance, two waiver criteria we have—I won't read them all—will, I think, demonstrate the kind of policies that we have been following for the past couple of years.

The regulation says that a prima facie case for the granting of waiver will have been established when various criteria are met, and two of them read this way:

"Where it appears that the invention has only incidental utility in the conduct of activities with which NASA is particularly concerned and has substantial promise of commercial utility, or where the invention is directed specifically to a line of business of the contractor with respect to which the contractor's previous expenditure of funds in the field of technology to which the invention pertains has been large in comparison to the amount of funds for research or development work in the same field of technology expended under the NASA contract in which the invention was conceived or first actually reduced to practice."

You see that the comparison is with a particular contract, not with the total expenditure of government funds.

Now, those two criteria alone cover a great deal of ground and open the door very wide for the retention of contractors' rights to inventions.

Well, so much for the general question of misconceptions concerning the NASA Act and our policies.

There are a couple of things, I think, that are worth mentioning where we have blazed a trail a bit.

We feel that the government does have a legitimate interest, in the case of all inventions that have come out of research and development work primarily financed with government funds, in seeing to it that such inventions are given a practical application and that their benefits are actually made available to the public. We don't think that any contractor should complain about regulations or procedures designed to effect that end. And, as a matter of fact, they have not complained about it.

So, consequently, in recognition of this continuing interest by the government in contractors' inventions that have come out of our research and development program, we have provided that when we do waive the government's rights to inventions—and this has become the rule rather than the exception—the title left in the contractor will be voidable if a certain condition occurs. If at the end of a specified period of time, which we have said is eight years following the grant of the waiver

or five years following the issuance of the patent, whichever is the shorter period, the contractor is unable to demonstrate that it has given practical application to the invention so as to make its benefits accessible to the public or has been willing to license the invention at a reasonable royalty rate, then the property rights in the invention will revert to the government, and we can then manage that property, we hope, in the public interest.

I think, in substance, this is not very different from the kind of proposal that Mr. Larson mentioned earlier in connection with a bill which has been submitted to one of the Congressional committees on behalf of the Committee of the American Patent Law Association. It doesn't utilize the concept of compulsory licensing; but whether that is the route, or whether the reacquisition of title by the government which then can license the invention to others is the route, the practical result is much the same.

We have not had opposition from industry or the patent bar on this approach to the problem. It is one which has commended itself, I think, to the more moderate elements of our Legislative Branch and is largely embodied in a bill, H. R. 6532, which I recommend for your careful consideration.

Now we get to the question of the management and utilization of government-owned patent property. I'm going to be very brief on this. Whether we like it or not, under the present laws and policies of the federal government the various agencies are acquiring a lot of patent property. Part of this comes out of the contractors' activity and a great deal comes out of the inventive activity of the government's own employees.

We have heard a lot said about the evils of the government's acquiring title because the government makes no use of this property and therefore the only effect of acquisition of title is to make the patent system inoperative in the particular field of inventive activity. I think that is a perfectly proper and just criticism of the present practice. But it seems to me incumbent upon the government to find some way of utilizing this patent property so as to bring the benefits of the patent system home to the public.

Not only does the patent perform the function of stimulating inventive activity, but, as we all know, it provides, through the exclusivity it gives to the patent owner or licensee, protection for the investment of risk capital required to develop and market a new invention.

Obviously, the first of these factors does not operate when the government acquires title. But it seems to me that we ought to be ingenious enough to find some way so that the second of these factors can still be given some effect.

I think it is quite clear that this will not be the case unless the government resorts, under certain conditions, to some measure of exclusive licensing.

I would not recommend that any agency such as ours embark lightly upon such a program, but I think that after non-exclusive licenses are outstanding for a certain defined period of years—(we're presently granting all of our contractors a non-exclusive license in the rare case where we retain title to the invention)—and if it appears that as a result of the non-exclusive licensing, the benefits of the invention are not being made available to the public, I think we can only conclude that it may

be the lack of exclusivity, the lack of the protection of the patent system, which makes it unattractive for any entrepreneur to risk capital and effort in developing the invention.

Under those conditions, I think we might well consider the value of exclusive licensing.

This is something, it seems to me, in which the government ought to receive the advice and help of a group such as this.

Finally, I think we ought to re-examine what the function of the patent really is today under our present system of industrial organization in such sectors of the economy as the defense and space fields. Is it really true that the patent system, in these large industrial areas particularly, does act as an incentive to the inventor? Would it really be true that the level of inventive activity or the quality of it would decline if we didn't have a patent system at all?

Or is the main function of the patent system in those sectors of the economy one of providing protection to the entrepreneur and assistance in facilitating the practical development of the invention so as to bring its benefits home to the public?

(Applause)

MR. GREEN: As Mr. Johnson and the clock have pointed out, we are fifteen minutes overtime now, and yet you have demonstrated your interest by staying, so let's have some questions, and as they begin to taper off we will bring the Conference to a conclusion.

May I have a question?

General Discussion

MR. GREEN: I have been supplied a question from the floor for Mr. Johnson.

We know that NASA has not been satisfied with the current patent statute in the past, but I understand that there is no present intenion to modify this. Is this a correct assumption?

MR. JOHN A. JOHNSON: Well, I have to give you a little history on that.

As you know, last year NASA did submit a request, as part of its omnibus legislative proposal to the Congress, to amend Section 305 of the Space Act along the lines of the National Science Foundation Act. This would give the agency broad discretion in the contracting process itself to include contract provisions that would be designed to protect both the equities of the contractor and the public interest. I believe those are the statutory terms in the National Science Foundation Act.

Extensive hearings were held on this proposal. It was somewhat modified, but in a way that was perfectly acceptable to NASA, last year by the House Committee on Science and Astronautics. It was reported out favorably by that committee, and finally, after a very vigorous floor debate, passed the House.

Now, in passing the House it was part of the total omnibus legislative proposal of the Space Agency. It did not get a hearing in the Senate, and, as the result, our whole legislative program died at the end of the last session.

There is a simple question of prudence involved here. When you are an executive agency of the government, you have to get a lot of things done. Our legislative

program contains many items other than patents. Some of these we feel we need very urgently.

I have been testifying before both Senate and House committees several times during the past couple of weeks on our need for authority to indemnify contractors against unusually hazardous risks. This is an area in which we have no legislative authority at all, and we feel we need it.

We decided this year that, given the great agitation of this subject that has taken place in the Congress during the past two years, the multitude of hearings that have been scheduled on the subject, and the great variety of bills that have been introduced, it was simply not expedient for NASA to make another proposal this year concerning an amendment of Section 305 and to tie the rest of our legislative program in with an item that was as questionable and as controversial as that.

So it has been omitted from our legislative program.

However, there is a subcommittee of the House Committee on Science and Astronautics that is continuing to take testimony on this subject. I have personally testified during the past two weeks that I am still of the same opinion I was last year.

MR. GREEN: Thank you.

Any other questions from the floor?

I have one question addressed by note.

What can you tell us about current efforts to develop an Administration patent policy bill?

I think I can answer that as well as anyone here, because the Under Secretary of Commerce appeared before Senator McClellan and said that the Department of Commerce would like to meet with industry to see if there was a middle ground, some relationship which would preserve private incentives and adequately safeguard the public interest.

Senator McClellan enthusiastically adopted this idea and told the Secretary and the Under Secretary to get going. On the 27th of this month there will be a meeting held in Washington. The invitations went out yesterday. There will be a small group of outstanding leaders who will be invited to come to meet with the Secretary and to see if something can be worked out.

We will work collaboratively with the Defense Department in this area since it is of primary interest to them. Of course, we don't know whether anything will result from it. Maybe it will not. But if we could get some constructive ideas that the Administration might support, we will advance them to the Congress with all speed.

Any other questions?

(No response)

Then I guess we are approaching the end of the Conference, and I will turn the podium over to Admiral Colclough.

DIRECTOR COLCLOUGH: Bear with me for just a moment while I express several appreciations on behalf of the University and the Foundation's staff.

One, of course, is to John Green for his excellent moderating, as he has done in the past.

We express our appreciation very sincerely to the members of this distinguished panel. I have heard many comments of appreciation during the coffee break on the part of the audience that it is one of the finest we have had in the history of the Annual Public Conferences.

And now I express our deep appreciation to all who are here and have been here, not only for being here, but for their participation, because, as you will remember, at the opening of the Conference I said these Annual Public Conferences are not held or planned for our benefit, but rather for yours.

Actually what happens is that we benefit greatly because we have been whispering to each other throughout this Conference about new ideas concerning projects we might study that would be of assistance to the patent profession and to our economy and to our country.

Lastly, I merely say that, if you find the work of the Foundation, including this Annual Public Conference, important and valuable—and when I say "important and valuable" I mean in the public interest, using that term in its very broadest sense; sometimes we talk about the public interest and the private interest and the terms get a little bit hazy; but I mean the public interest which the public has in our industrial economy—we will deeply appreciate your spreading the word, for our future depends in a very great measure upon the support we receive, not only financial, but intellectual and moral.

With that, the fifth Annual Public Conference of the Patent, Trademark, and Copyright Foundation stands adjourned.

(Applause)

Whereupon, at 12:55 P.M., the fifth Annual Public Conference was adjourned.

Tables on the Commercial Use of Patents Discussed by Barkev S. Sanders

TABLE A

Estimated proportion of patented inventions put to commercial use according to the time when such use first began, based on the replies of assignees of the sampled patents issued in 1938, 1948 and 1952 combined.

PRELIMINARY

Time of First Commercial Use	No.	Per Cent
Before Filing Patent Application	96	39
After Patent Application Was Filed but Before Issue of Patent	120	48
After Patent Was Issued	32	13
Total	248	100

TABLE B

Distribution of commercially used assigned patented inventions, the use of which began after the filing of application in relation to the year in which the application was filed as reported by assignees.

PRELIMINARY

Year in which use began in relation to the year in which application was filed	Number of patented inventions put to use	Percentage of patented inventions put to use	Comparative rate of use per year, with 100 for 0 year
(1)	(2)	(3)	(4)
0 Year of Application	50	33.6	100.0
1 Year after Application	48	32.2	47.9
2 Years after Application	20	13.4	19.9
3 Years " "	14	9.4	14.0
4 Years " "	4	2.7	4.0
5 Years " "	3	2.0	3.0
6 Years " "	4	2.7	4.0
7 Years " "	3	2.0	3.0
8 Years " "	0	0.0	0.0
9 Years " "	1	0.7	1.0
10 Years " "	0	0.0	0.0
11 Years " "	1	0.7	1.0
12 Years " "	0	0.0	0.0
13 Years " "	0	0.0	0.0
14 Years " "	0	0.0	0.0
15 Years " "	1	0.7	1.0
Total	149	100.0	—

TABLE C

Distribution of commercially used assigned patented inventions, the use of which began after issue of patent in relation to the year of issue.

PRELIMINARY

Year in which the use began in relation to the year patent was issued	Number of patented inventions put to use [1]	Percentage of patented inventions put to use	Comparative rate of use per year, with 100 for 0 year
(1)	(2)	(3)	(4)
0 Year of Issue	18	56.3	100.0
1 Year after Issue	3	9.4	8.3
2 Years after Issue	3	9.4	8.3
3 Years " "	1	3.1	2.8
4 Years " "	1	3.1	2.8
5 Years " "	1	3.1	2.8
6 Years " "	2	6.3	5.6
7 Years " "	1	3.1	2.8
8 Years " "	0	0.0	0.0
9 Years " "	1	3.1	2.8
10 Years " "	1	3.1	2.8
Total	32	100.0	—

[1] Three patented inventions are added as the estimated number of patented inventions issued in 1948 and 1952 that were not in commercial use when the questionnaires were being answered, but were estimated would come into use before 1962.

TABLE D

Statistics on length of commercial use of assigned sampled patents no longer in use at the time when the questionnaires were being answered, by year of issue.

PRELIMINARY

Year of Issue	Duration in Months				Number	Mean Duration in Years
	Median	Mean	Standard Deviation	Range		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All 3 Years Combined	43.5	54.0	47.3	1–204	77	4.5
1938	61.0	64.5	53.3	1–204	30	5.4
1948	45.0	50.5	36.2	1–126	20	4.2
1952	39.0	36.3	22.6	1– 70	27	3.0

TABLE E

Statistics on the length of commercial use of assigned patents that were reported in current use at the time the questionnaires were answered, by year of issue.

PRELIMINARY

Year of Issue	Duration in Months				Number	Mean Duration in Years
	Median	Mean	Standard Deviation	Range		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
All 3 Years Combined	125.0	139.0	65.38	2–333	152	11.6
1938	230.2	230.9	30.54	135–333	39	19.2
1948	138.5	136.5	31.84	39–189	38	11.4
1952	89.0	93.1	33.06	2–189	75	7.8

Mean estimated duration when all of these patents are no longer in commercial use would be between 30 to 40 years—about twice the period of time for which there is patent protection.

TABLE F

Percentage of patents considered useful at the time the questionnaires were being completed as reported by assignees grouped by net sales including companies without sales data.[1]

PRELIMINARY

Company Size on the Basis of Net Sales [2]	Used or about to be Used [3]		Not Used but Licensed		Deemed Useful for other reasons		All Useful Patents		All Patents with Completed Questionnaires	
	No.	%	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
First Quartile	55	51.4	25	23.4	6	5.6	86	80.4	107	100.0
Second Quartile	63	52.5	12	10.0	15	12.5	90	75.0	120	100.0
Third Quartile	51	43.6	10	8.6	14	12.0	75	64.1	117	100.0
Fourth Quartile	71	61.7	8	7.0	8	7.0	87	75.6	115	100.0
All Companies with Sales Reported	240	52.3	55	12.0	43	9.4	338	73.6	459	100.0
Companies without Sales Data	98	74.8	0	0.0	6	4.6	104	79.4	131	100.0
Total	338	57.3	55	9.3	49	8.3	442	74.9	590	100.0

[1] 1949 Sales Data.

[2] First Quartile: Net Sales $1,160 million or more.
Second Quartile: Net Sales $225 to $1,160 million.
Third Quartile: Net Sales $55 to $225 million.
Fourth Quartile: Net Sales $1.1 to $55 million.
We assume companies without sales data represent companies by and large with net sales of $1,000,000 or less.

[3] Making or selling the patented invention or using the patented invention in the production of goods or services, or making financial arrangement(s) with a third party(s) for the production, use, or sale of the patented invention.

TABLE G

Number and percentage distribution of assigned patents by utilization status as reported by assignees for companies grouped according to their net sales.[1]

PRELIMINARY

Company Size on the Basis of Net Sales	In Current Use		Past Use		Past or Current Use		Future Use		Never Used or Unknown [2]		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
First Quartile	25	23.4	22	20.5	47	43.9	8	7.5	52	48.6	107	100.0
Second Quartile	28	23.3	18	15.0	46	38.3	17	14.2	57	47.5	120	100.0
Third Quartile	25	21.4	19	16.2	44	37.6	7	6.0	66	56.4	117	100.0
Fourth Quartile	39	33.9	28	24.3	67	58.3	4	3.5	44	38.3	115	100.0
All Companies with Sales Reported	117	25.4	87	19.0	204	44.4	36	7.8	219	47.7	459	100.0
Companies without Sales Data	63	48.1	26	19.8	89	67.9	9	6.9	33	25.2	131	100.0
Total	180	30.5	113	19.2	293	49.7	45	7.6	252	42.7	590	100.0

[1] 1949 Sales Data.
[2] Includes two patents with utilization status unknown.

TABLE H

Number and percentage distribution of assigned patents by utilization status as reported by inventors for companies grouped according to their net sales.[1]

PRELIMINARY

Company Size on the Basis of Net Sales	In Current Use		Past Use		Past or Current Use		Unknown [2]		Never Used		Total [3]	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
First Quartile	27	31.0	17	19.5	44	50.6	21	24.1	22	25.3	87	100
Second Quartile	29	35.4	11	13.4	40	48.8	17	20.7	25	30.5	82	100
Third Quartile	35	28.2	30	24.2	65	52.4	31	25.0	28	22.6	124	100
Fourth Quartile	52	40.6	18	14.1	70	54.7	27	21.1	31	24.2	128	100
All Companies with Sales Reported	143	34.0	76	18.1	219	52.0	96	22.8	106	25.2	421	100
Companies without Sales Data	80	49.7	37	23.0	117	72.7	23	14.3	21	13.0	161	100
Total	223	38.3	113	19.4	336	57.7	119	20.4	127	21.8	589	100

[1] Sales Data for 1949.
[2] Includes 10 patented inventions reported would be used in the future.
[3] Based on patents for which one or more inventor questionnaires were returned. Since sometimes the replies of two or more inventors of the sampled patent did not agree regarding its utilization status, where more than one questionnaire was available, one of these was picked at random for this tabulation.

TABLE I

Number and percentage distribution of assigned patented inventions used commercially according to the intensity of such use, based on assignee replies for companies grouped according to their net sales.[1]

PRELIMINARY

Company Size on the Basis of Net Sales	Extensively [2]		Moderately [2]		Limited Extent [2]		Not Answered		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
First Quartile	19	40.4	10	21.3	17	36.2	1	2.1	47	100.0
Second Quartile	15	32.6	16	34.8	13	28.3	2	4.3	46	100.0
Third Quartile	17	39.5	12	27.9	12	27.9	2	4.7	43	100.0
Fourth Quartile	26	38.8	15	22.4	21	31.3	5	7.5	67	100.0
All Companies with Sales Reported	77	37.9	53	26.1	63	31.0	10	4.9	203	100.0
Companies without Sales Data	34	38.2	26	29.2	26	29.2	3	3.8	89	100.0
Total	111	38.0	79	27.0	89	30.5	13	4.5	292	100.0

[1] Sales Data for 1949.
[2] The intensity of use was checked by assignee on the basis of his judgment as to which term more appropriately described the extent of use of the sampled patent.

TABLE J

Number and percentage distribution of assigned patented inventions used commercially according to the effect such use had on company sales [1] for companies grouped by their net sales [2] based on assignee replies.

PRELIMINARY

Company Size on the Basis of Net Sales	Increased Sales										Un-answered or Unknown		Total	
	Markedly		Moderately		Slightly		Others		Not at All					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
First Quartile	2	4.3	6	12.8	6	12.8	11	23.4	11	23.4	13	27.7	47	100
Second Quartile	4	8.7	10	21.7	11	23.9	10	21.7	10	21.7	8	17.4	46	100
Third Quartile	6	13.9	7	16.3	12	27.9	10	23.3	10	23.3	5	11.6	43	100
Fourth Quartile	10	14.9	17	25.4	16	23.9	16	23.9	16	23.9	5	7.5	67	100
All Companies with Sales Reported	22	10.8	40	19.7	45	22.2	47	23.1	47	23.1	31	15.3	203	100
Companies without Sales Data	12	13.5	23	25.8	24	27.0	17	19.1	17	19.1	7	7.9	89	100
Total	34	11.6	63	21.6	69	23.6	64	21.9	64	21.9	38	13.0	292	100

[1] Based on replies to question 18 in the assignee questionnaire.
[2] Sales Data for 1949.

TABLE K

Number and percentage distribution of assigned patented inventions used commercially according to whether such use reduced production costs [1] for companies grouped by size on the basis of their net sales,[2] based on assignee replies.

PRELIMINARY

Company Size on the Basis of Net Sales	Reduced Production Costs: Markedly No.	%	Moderately No.	%	Slightly No.	%	Others No.	%	Not at All No.	%	Unknown or Unanswered No.	%	Total No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
First Quartile	5	10.6	10	21.3	7	14.9	6	12.8	9	19.1	10	21.3	47	100
Second Quartile	5	10.9	9	19.6	9	19.6	3	6.5	12	26.1	8	17.4	46	100
Third Quartile	7	16.3	6	13.9	7	16.3	2	4.6	14	32.6	7	16.3	43	100
Fourth Quartile	2	3.0	7	10.4	7	10.4	12	17.9	30	44.8	9	13.4	67	100
All Companies with Sales Reported	19	9.4	32	15.8	30	14.8	23	11.3	65	32.0	34	16.7	203	100
Companies without Sales Data	5	5.6	10	11.2	7	7.9	10	11.2	51	57.3	6	6.7	89	100
Total	24	8.2	42	14.4	37	12.7	33	11.3	116	39.7	40	13.7	292	100

[1] Based on replies to question 19 in the assignee questionnaire.
[2] Sales Data for 1949.

TABLE L

Number and percentage distribution of assigned patented inventions used commercially according to the impact such use had on sales,[1] and, or reducing production cots,[2] or some other objective measure [3] related to company size based on net sales—economic impact as reported by assignees.

PRELIMINARY

Company Size on the Basis of Net Sales [4]	Affirmative Effect: Sales No.	%	Sales and Production Costs No.	%	Sales, Production Costs, and/or Others No.	%	No Affirmative Effect No.	%	Unknown or Unanswered No.	%	Total No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
First Quartile	14	29.8	28	59.6	34	72.3	2	4.3	11	23.4	47	100
Second Quartile	25	54.3	37	80.4	41	89.1	1	2.2	4	8.7	46	100
Third Quartile	24	55.8	31	72.1	39	90.7	0	0.0	4	9.3	43	100
Fourth Quartile	43	64.2	48	71.6	54	80.6	8	11.9	5	7.5	67	100
All Companies with Sales Reported	106	52.2	144	70.9	168	82.8	11	5.4	24	11.8	203	100
Companies without Sales Data	59	66.3	66	74.2	78	87.6	3	3.4	8	9.0	89	100
Total	165	56.5	210	71.9	246	84.2	14	4.8	32	11.0	292	100

[1] Effect on sale based on replies to question 18 in the assignee questionnaire; 'Yes' includes all affirmative replies whether markedly, moderately or slightly.
[2] Effect on reducing production costs based on replies to question 19 in the assignee questionnaire; 'Yes' includes all affirmative replies whether markedly, moderately or slightly.
[3] Others, based on replies to question 20 in the assignee questionnaire.
[4] Sales Data for 1949.

TABLE M

Number and percentage distribution of assigned patented inventions used commercially according to whether such use resulted in net monetary loss or gain[1] at the time the questionnaire was being answered related to company size on the basis of net volume of sales[2] based on assignee replies.

PRELIMINARY

Company Size on the Basis of Net Sales	Gain		Loss		Other		Unknown or Unanswered		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
First Quartile	14	29.8	1	2.1	3	6.4	29	61.7	47	100.0
Second Quartile	14	30.4	2	4.3	6	13.0	24	52.2	46	100.0
Third Quartile	8	18.6	2	4.7	2	4.7	31	72.1	43	100.0
Fourth Quartile	17	25.4	5	7.5	8	11.9	37	55.2	67	100.0
All Companies with Sales Reported	53	26.1	10	4.9	19	9.4	117	57.6	203	100.0
Companies without Sales Data	21	23.6	7	7.9	16	18.0	45	50.6	89	100.0
Total	74	25.3	17	5.8	35	12.0	162	55.5	292	100.0

[1] Each assignee was requested to report for the sampled patent the net loss or gain up to the time of the response. Many said they did not have such information, or it was not possible to obtain such information; others reported specific amounts of gains or losses as may be seen in Table N.
[2] Sales Data for 1949.

TABLE N

Net loses and gains, reported by assignees, resulting from each patented invention used in the past and those in current use by size of company on the basis of net sales.[1]

PRELIMINARY

Company Size on the Basis of Net Sales	Inventions in Current Use				Inventions in Past Use				All Used Inventions			
	Gain		Loss		Gain		Loss		Gain		Loss	
	Dollars	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars	No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
First Quartile	2,017,000	9	5,300	1	20,000	5	——	—	1,303,800	14	5,300	1
Second Quartile	163,800	8	140,000	1	173,100	6	12,000	1	167,800	14	76,000	2
Third Quartile	1,578,300	5	——	—	40,333	3	31,000	2	1,001,500	8	31,000	2
Fourth Quartile	152,000	13	4,000	1	23,800	4	9,100	4	121,800	17	8,100	5
All Companies with Sales Reported	838,000	35	49,800	3	79,700	18	15,800	7	579,000	53	26,000	10
Companies without Sales Data	120,200	20	139,200	3	5,000	1	10,500	4	114,700	21	65,600	7
Total	577,000	55	94,500	6	71,600	19	13,900	11	447,220	74	42,100	17

[1] Sales Data for 1949.

June 21, 1961

John A. Johnson, Esquire, General Counsel,
National Aeronautics and Space Administration,
Washington, D. C.

DEAR MR. JOHNSON:

I heard your very interesting address at the meeting of the George Washington University Patent Foundation and I think I was one of the hearers to whom this was particularly addressed. I rather had the opinion that your policy was very restrictive and followed along the path laid out by the AEC. Of course, I knew of the waiver provisions, but it had been my impression that they were not used to any great extent. I am sorry I didn't have a chance to discuss this with you, but I think it would be very important if we could get some actual figures on the number of inventions that you had, the number of applications filed, patents issued and the like, and also the number of waivers that you have given. I don't do this as a suggestion merely to give you an onerous job, but I think it might be very convincing and might correct a very unfavorable impression which seems to be widely held.

I would be very happy to have these figures myself, and I would suggest that it would be desirable to add them to your discussion as the paper is printed in the Conference Number of the Foundation's *Journal*.

With best wishes, I am,

Yours very truly,

P. L. YOUNG

July 10, 1961

Mr. L. James Harris
The Patent, Trademark, and
Copyright Foundation of
The George Washington University
Washington 6, D. C.

DEAR MR. HARRIS:

As a result of my remarks at the meeting of the Foundation, I received a letter from Mr. Young, Patents Counsel for Esso Research and Engineering Company, a copy of which is enclosed.

I am also enclosing a copy of my reply to Mr. Young in case you wish to use the data it contains to supplement my remarks.

Sincerely yours,

JOHN A. JOHNSON
General Counsel

July 7, 1961

Mr. P. L. Young
Patents Counsel
Esso Research and
Engineering Company
P.O. Box 243
Elizabeth, New Jersey

DEAR MR. YOUNG:

Thank you for your very thoughtful letter suggesting that it would be useful for NASA to publish the actual figures on our contractors' inventions.

As of June 26, 1961, NASA had received 123 disclosures of inventions from its contractors. Sixty-seven of these were from commercial type contractors and fifty-six from the noncommercial type, the majority of the latter (51) having been received from the Jet Propulsion Laboratory, a government-owned facility operated under contract with NASA by the California Institute of Technology. Twenty-eight petitions for waiver have been recevied, of which ten have been granted and one has been withdrawn by the contractor. The Inventions and Contributions Board has recommended that waiver be denied in two instances, but the action in these cases has not yet been finalized. The remaining fifteen petitions for waiver have been filed during the last two or three months and have not yet proceeded to the point of a recommendation by the Inventions and Contributions Board.

We have filed many more applications on inventions made by our own employees than upon inventions made by NASA's contractors. Contractors' inventions have not, as a general rule, survived the evaluation process. Thirty-one of the disclosures submitted have been inactivated because of a lack of interest or because a search of the prior art indicated that they were probably unpatentable. We have only filed five applications covering contractors' inventions, and these are all on inventions for which the contractor did not request waiver. By contrast, we have filed patent applications covering 104 NASA employees' inventions, and eleven patents have been issued to NASA up to the present time on such inventions. No patents have yet been issued to NASA on contractors' inventions.

I shall follow up your suggestion to add these statistics to my discussion as it is printed in the Foundation's *Journal.* Again, thank you for your interest.

Sincerely yours,

JOHN A. JOHNSON
General Counsel