United States District Court,
D. Delaware.

CORDIS CORPORATION and EXPANDABLE GRAFTS PARTNERSHIP,
Plaintiffs.
v.
ADVANCED CARDIOVASCULAR SYSTEMS, INC.; Guidant Corporation; Arterial Vascular Engineering, Inc.; Boston Scientific Corporation; and Scimed Life Systems, Inc,
Defendants.
ARTERIAL VASCULAR ENGINEERING, INC,
Plaintiff.
v.
CORDIS CORPORATION, Johnson & Johnson, and Expandable Grafts Partnership,
Defendants.

No. CIV.A. 97-550-SLR, CIV.A. 97-700-SLR

Jan. 15, 1999.

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MEMORANDUM OPINION

ROBINSON**, District J.**

I. INTRODUCTION

Pending before the court are multiple motions filed in the above-captioned cases, all relating to a series of patents involving "expandable intraluminal grafts." That which follows is the court's construction of disputed claim language. Separate opinions addressing the substantive issues of infringement and validity shall follow.

II. BACKGROUND

The patents-in-suit are U.S. Patent Nos. 4,739,762 ("the '762 patent"), FN1 5,102,417 ("the "417 patent"), and 5,195,984 ("the '984 patent"). FN2 The '762 patent is a continuation-in-part ("CIP") of U.S. Patent No. 4,733,665 ("the '665 patent") and the '417 patent is a CIP of the '762 patent. The '417 and '984 patents have substantially similar disclosures.

FN1. The '762 patent was submitted for re-examination in October 1997. The Patent and Trademark Office apparently confirmed the patentability of claims 23 and 34, and found claims 1-12, 14-22, 25-33, and 35-42, as amended, and new claims 44-59, to be patentable. (C.A. No. 97-550, D.I.323, Ex. D)

FN2. All the patents-in-suit are reproduced, *e.g.,* in C.A. No. 97-550, D.I. 323, Exs. A, B, C, and E.

The '762 patent, filed on November 3, 1986, discloses a single expandable intraluminal graft, and a method and apparatus for implanting it. As summarized in the '762 patent,

[t]he invention relates to an expandable intraluminal graft for use within a body passageway or duct and, more particularly, expandable intraluminal vascular grafts which are particularly useful for repairing blood vessels narrowed or occluded by disease; and a method and apparatus for implanting expandable intraluminal grafts.

('762 patent, col. 1, lns. 19-25) The specification of the '762 patent describes the expandable intraluminal graft as follows:

The present invention includes a thin-walled tubular member having first and second ends and a wall surface disposed between the first and second ends, the wall[']s surface having a substantially uniform thickness and a plurality of slots formed therein, the slots being disposed substantially parallel to the longitudinal axis of the tubular member; the tubular shaped member having a first diameter which permits intraluminal delivery of the thin-walled tubular member into a body passageway having a lumen; and the tubular member having a second, expanded diameter, upon the application from the interior of the tubular member of a radially, outwardly extending force, which second diameter is variable and dependent upon the amount of force applied to the tubular member, whereby the tubular shaped member may be expanded and deformed to expand the lumen of the body passageway.

* * *

The method of the present invention comprises the steps of: utilizing a thin-walled, tubular member as the prosthesis, the tubular member having a plurality of slots formed therein, the slots being disposed substantially parallel to the longitudinal axis of the tubular member ....

* * *

The expandable intraluminal vascular graft, method for implanting a prosthesis within a body passageway, and apparatus for intraluminally reinforcing a body passageway of the present invention, when compared with previously proposed prior art intraluminal grafts, methods for implanting them, and balloon dilation techniques have the advantages of: preventing recurrence of stenoses; is believed to permit implantation of grafts in critical body passageways, such as in the left main coronary artery of the heart; prevents recoil of the body passageway; prevents erosion of the body passageway by the expanded graft; and permits expansion of the graft to a variable size dependent upon conditions within the body passageway.

('762 patent, col. 3, lns. 34-51; col. 4, lns. 6-11, 62-68 and col. 5, lns. 1-7)(emphasis added).

When the '417 patent application was filed in 1988, an additional problem was addressed.

For repairing blood vessels narrowed or occluded by disease, or repairing other body passageways, the length of the body passageway which requires repair, as by the insertion of a tubular prosthetic graft, may present problems if the length of the required graft cannot negotiate the curves or bends of the body passageway through which the graft is passed by the catheter. In other words, in many instances, it is necessary to support a length of tissue within a body passageway by a graft, wherein the length of the required graft exceeds the length of a graft which can be readily delivered via a catheter to the desired location within the vascular system. Some grafts do not have the requisite ability to bend so as to negotiate the curves and bends present within the vascular system, particularly prostheses or grafts which are relatively rigid and resist bending with respect to their longitudinal axes.

('417 patent, col. 3, lns. 5-21; '984 patent, col. 2, lns. 63-68 and col. 3, lns. 1-11) Consequently, the '417 patent, although mirroring the '762 patent, added

[a] further feature ... that at least one connector member may be disposed in a non-parallel relationship with respect to the longitudinal axis of the tubular members. Another feature of the present invention is that ... at least one connector member may be disposed coplanar with each tubular member and non-parallel to the longitudinal axis of the tubular members. An additional feature of the present invention is that at least one connector member may be a thin-walled, spiral member, coplanar with adjacent tubular members.

('417 patent, col. 4, lns. 8-18)(emphasis added).

The '984 patent, filed in 1991, substituted the following feature for that recited above, that there be a

single connector member [which] may be a thin-walled, elongate bar member, coplanar with adjacent tubular members. An additional feature of the present invention is that a first connector member may be disposed between the second end of a first tubular member and the first end of a second tubular member; a

second connector member may be disposed between the second end of the second tubular member and the first end of a third tubular member; the first and second connector members being angularly offset from one another with respect to the longitudinal axis of the tubular members.

('984 patent, col. 3, ln. 68 and col. 4, lns. 1-10)(emphasis added).

The disclosure by the '417 and '984 patents of "connector members" added to the invention's advantages by

permit[ting] tissue of an elongated section of a body passageway to be supported by an elongated graft; and provid[ing] the necessary flexibility to negotiate the bends and curves in tortuous body passageways, such as the vascular system.

('984 patent, col. 4, lns. 20-25; '417 patent, col. 5, lns. 39-43)

III. STANDARD OF REVIEW

Before the court can determine whether any of the asserted claims read on the accused products, the court must construe the claims at issue. Markman v. Westview Instruments, Inc., 52 F.3d 967, 970, 976 (Fed.Cir.1995)(en banc), *aff'd,* 517 U.S. 370 (1996). The principles of claim interpretation are well established in the law. The exercise begins always with the claim language, which defines the scope of the claim. *See* York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1572 (Fed.Cir.1996). In analyzing claim language, the court must employ "normal rules of syntax," Eastman Kodak Co. v. Goodyear Tire & Rubber Co., 114 F .3d 1547, 1553 (Fed.Cir.1997), for "[a] claim must be read in accordance with the precepts of English grammar." In re Hyatt, 708 F.2d 712, 714 (Fed.Cir.1983). The court must ascribe to any technical term used in a claim "the meaning that it would be given by persons experienced in the field of the invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning." Hoechst Celanese Corp. v. BP Chems, Ltd., 78 F.3d 1575, 1578 (Fed.Cir.1996). Absent an express intent to impart a novel meaning to a claim term, the language of the claim is given its ordinary meaning. York Prods, Inc., 99 F.3d at 1572; Bell Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed.Cir.1995).

In order to give context to the claim language, the court must review as well the specification.

The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication .... As we have repeatedly stated, "[c]laims must be read in view of the specification, of which they are a part." ... The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Thus, the specification is always relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996) (citations omitted). Nonetheless, the claimed invention may not be limited to preferred embodiments or specific examples described in the specification. Texas Instruments, Inc. v. United States Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed.Cir.1986).

The last source of intrinsic evidence relevant to claim interpretation is the prosecution history of the patent, if it has been made part of the record.

This history contains the complete record of all the proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims. As such, the record before the Patent and Trademark Office is often of critical significance in determining the meaning of the claims.

... The claims, specification, and file history ... constitute the public record of the patentee's claim, a record on which the public is entitled to rely. In other words, competitors are entitled to review the public record, apply the established rules of claim construction, ascertain the scope of the patentee's claimed invention and, thus, design around the claimed invention.

Vitronics Corp., 90 F.3d at 1582-83.

In order to further the "fair notice function of the requirement that the patentee distinctly claim the subject matter disclosed in the patent from which he can exclude others temporarily," Athletic Alternatives, Inc. v. Prince Mfg., Inc., 73 F.3d 1573, 1581 (Fed.Cir.1996), extrinsic evidence of claim interpretation, such as expert testimony, is not encouraged by the Federal Circuit. *See, e.g.,* Vitronics Corp., 90 F.3d at 1583. The court recognizes, however, that expert testimony may be relevant and helpful to an understanding of the claim language as used by one of ordinary skill in the art.

IV. ANALYSIS

As a result of the shared history of the patents-in-suit, the language used in the multiple claims asserted is substantially similar and, the court believes, should be construed consistently. As exemplary claims for purposes of claim construction, independent claims 17 and 25 of the '417 patent include most of the disputed claim language. Claim 17, a method claim, reads as follows:

A method for expanding the lumen of a body passageway comprising the steps of:

connecting a plurality of intraluminal grafts by at least one flexible connector member disposed between adjacent grafts;

inserting the plurality of connected intraluminal grafts, disposed upon a catheter, into the body passageway until the grafts are disposed adjacent a desired location within the body passageway; and

expanding a portion of the catheter to provide controllable expansion of the intraluminal grafts radially, outwardly into contact with the body passageway, by deforming a portion of the intraluminal grafts with a force in excess of the elastic limit of the portion of the intraluminal grafts, until the lumen of the body passageway at the desired location in the body passageway has been expanded, whereby the intraluminal grafts prevent the body passageway from collapsing and decreasing the size of the expanded lumen, and the intraluminal [g]rafts remain in the passageway.

('417 patent, col. 14, lns. 39-59) Claim 25 reads:

An expandable intraluminal vascular graft, comprising:

a plurality of thin-walled tubular members, each having first and second ends and a wall surface disposed

between the first and second ends, the wall surface having a substantially uniform thickness and a plurality of slots formed therein, the slots being disposed substantially parallel to the longitudinal axis of each tubular member;

at least one connector member being disposed between adjacent tubular members to flexibly connect adjacent tubular members;

each tubular member having a first diameter which permits intraluminal delivery of the tubular members into a body passageway having a lumen; and

the tubular members having a second, expanded and deformed diameter, upon the application from the interior of the tubular members of a radially, outwardly extending force, which second diameter is variable and dependent upon the amount of force applied to the tubular members, whereby the tubular members may be expanded and deformed to expand the lumen of the body passageway.

('417 patent, col. 15, lns. 19-40) FN3

FN3. Claim 29 is substantially identical to claim 25 except that it describes "[a]n expandable prosthesis for a body passageway ...." ('417 patent, col. 15, lns. 53-68 and col. 16, lns. 1-6) (emphasis added). The word "prosthesis," defined as "an artificial device to replace a missing part of the body," *Webster's Third New International Dictionary* 1822 (1993) (" *Webster's* "), is used in the patents-in-suit interchangeably with the word "graft," although the patents distinguish "grafts" as being used to expand "partially occluded segments of a blood vessel, or body passageway," while "prostheses" are used to expand "many other types of body passageways." ('417 patent, col. 6, lns. 22-33)

Independent claims 1 and 4 of the '984 patent track the language of claim 25 of the '417 patent except for the following limitation:

[O]nly one connector member being disposed between adjacent tubular members to flexibly connect adjacent tubular members, the connector member being disposed in a substantially parallel relationship with respect to the longitudinal axis of the tubular members and coplanar with each tubular member....

('984 patent, claim 1 at col. 11, lns. 53-59; *see also* claim 4 at col. 12, lns. 32-38)

Claim 17-'417 patent

The first element in claim 17 that requires interpretation FN4 is the phrase "connecting a plurality of intraluminal grafts." To "connect" means "to join, fasten, or link together usu[ally] by means of something intervening ...." *Webster's* at 480. A "plurality" refers to the state of being "plural," which relates to or consists of or contains more than one. *Id*. at 1745. "Intraluminal" means being within the lumen, or the cavity or passageway of a tubular organ such as a blood vessel. *Id*. at 1185, 1345. A "graft" is a structure that is "implant[ed] ... surgically ... to compensate for a defect" in a body organ or tissue. *Webster's II New College Dictionary* 483 (1995). FN5 Therefore, an "intraluminal graft" is a structure designed for use within a body passageway to compensate for a defect in said passageway. ('417 patent, col. 1, lns. 28-35; col. 6, lns. 23-54; col. 9, lns. 6-13) The court continues to hold that each such "graft" must be functional; *i.e.,* once it has "expanded and deformed," it must be capable of "serv[ing] to prevent a body passageway from

collapsing ...." ('417 patent, col. 8, lns. 60-63)

FN4. The court preliminarily construed disputed claim language for purposes of resolving motions for injunctive relief. To some extent, therefore, the following analysis may be repetitive of the court's July 17, 1998 memorandum opinion. (D.I.284)

FN5. The court has relied more substantially in this opinion on *Webster's Third New International Dictionary* for definitions simply because it is the version purchased for and easily available to the court.

The next element in dispute in claim 17 is the phrase "by at least one flexible connector member disposed between adjacent grafts ." A "member" is defined as a constituent part of a whole, a component serving to form, compose or make up a unit or whole. *Webster's* at 1408, 486. A "connector member," therefore, is a discrete structure FN6 disposed or particularly arranged between adjacent grafts in order to join them together. "Flexible" means capable of being flexed, turned, bowed, or twisted without breaking. *Id*. at 869. The word "flexible" clearly modifies the phrase "connector member." Although it is a purpose of the invention to describe an intraluminal graft "able to flexibly bend, or articulate, with respect to the longitudinal axis of [the] graft" ('417 patent, col. 12, lns. 44-45), there is no requirement in the claim language that each individual graft be flexible, only that the connector member be flexible. This interpretation is consistent with the disputed language of claim 25, which more specifically requires that the connector member be particularly arranged "to flexibly connect" adjacent structures; again, it is the connector member and not the adjacent structures which must provide flexibility.

FN6. Connecting "by means of something intervening ...." *Webster's* at 480 (emphasis added).

Claim 25-'417 patent

Claim 25 is a product claim that specifically describes an "expandable intraluminal vascular graft" as comprising at least two "thin-walled tubular members," each tubular member having two ends and a "wall surface" disposed between the two ends. The "wall surface" of each tubular member is further described as having a "substantially uniform thickness" and "a plurality of slots formed therein, the slots being disposed substantially parallel to the longitudinal axis of each tubular member."

With respect to what comprises a "thin-walled tubular member," a "tubular member" is a discrete structure that has the form of a tube, that is "a hollow elongated usu[ally] cylindrical body ...." *Webster's* at 2459, 2460. An "elongated" form is "notably long in comparison to its width." *Id*. at 737. FN7 Claim 25 of the '417 patent requires that each tubular member have a wall surface with a "plurality of slots formed therein ...." The word "wall" is defined as "the external layer of structural material surrounding an object." *Id*. at 2572. The word "surface" is defined as "the exterior or outside of an object or body ...." *Id*. at 2300. A "slot" is "a long and narrow opening or groove." *Id*. at 2146; *accord* '762 patent, col. 7, lns. 17-20.FN8 To "form" is "to give a particular shape to." *Webster's* at 893. "Therein" means "in or into that thing." Id. at 2372.

FN7. Accord C.A. No. 97-550, D.I. 321, Ex. D; definition of "slot," *infra*.

FN8. "Use of the term 'slot' encompasses an opening whose length is substantially greater than its width, such as an elongated oval opening."

Cordis maintains that a "tubular member" is a "basic 'building block' of the slotted tube invention," that is, "a tubular member the length of a half-slot with alternating opened and closed slots at each end of the tubular member." (C.A. No. 97-550, D.I.327, para. 20) Cordis relies for its argument on the following language:

Accordingly, slots 82 are preferably uniformly and circumferentially spaced from adjacent slots, and slots 82 adjacent to one another along the longitudinal axis of tubular member 71 are in a staggered relationship with one another. Alternating slots disposed about the circumference of tubular member 71 at both the first and second ends 72, 73 of tubular member 71 will only have a length equal to approximately one-half of the length of a complete slot 82, such half-slot 82 being bounded by members 78, 79 at both the first and second ends 72, 73 of tubular member 71.

('762 patent, col. 7, lns. 3-13; *see also* '417 patent, col. 7, lns. 49-68 and col. 8, lns. 1-3; '984 patent, col. 6, lns. 26-36) As further explained in the specification, the use of alternating "half-slots" at either end of the tubular member permits the graft or prosthesis "to be expanded uniformly, and outwardly, in a controlled manner ...." ('417 patent, col. 7, lns. 65-67; '984 patent, col. 6, lns. 42-44)

Cordis' interpretation finds some support in the language of the specification and claim 25 of the '417 patent. Although the specification describes both "complete slot 82" and "half-slot 82," it refers to both generally as "slots." Given that the presence of "half-slots" apparently is essential to the functioning of the graft as contemplated in the patent, the failure of the claim to differentiate between complete and half-slots is a further indication that the term "slots" refers to both complete and half-slots. Therefore, the court concludes that the term "slots" referred to in claim 25 is not limited to "complete" slots.FN9

FN9. The court found nothing in the patent or the dictionary definition to limit "slots" to those which are bound on all sides, *i.e.,* "complete" slots. The court notes, however, that in Figures 1A, 1B, 7, and 10, only the "complete slots" are labeled "slots 82"; the half-slots are not similarly labeled.

This conclusion is consistent with the description given in the specification of the length of each "graft, or prosthesis, 70." The specification indicates that each "graft, or prosthesis, 70" has a length of at least "one slot 82." FN10 If each "graft, or prosthesis, 70" is comprised of at least two tubular members and each tubular member may be the length of only a "half-slot 82," one could argue that the length of such a graft is "one slot." FN11 Consistent with the court's holding that a graft or prosthesis must be functional, however, a graft or prosthesis comprised of only two "tubular members" must be capable of "retain[ing] its expanded and deformed configuration with the enlarged diameter ... and resist radial collapse." ('417 patent, col. 7, lns. 6-14; '984 patent, col. 5, lns. 51-54)

FN10. *Compare* '417 patent, col. 7, lns. 59-63 *with* col. 11, lns. 51-55.

FN11. It is always difficult for a court to differentiate between what the claim language arguably describes and the preferred embodiment actually describes in the specification. This difficulty is particularly acute in a

case such as this, where a preferred embodiment has been described in a series of patents. For instance, building on the invention of the '762 patent (*i.e.,* "utilizing a thin-walled, tubular member as the prosthesis," col. 4, lns. 7-8), the specification of the '417 patent contemplates that the graft or prosthesis disclosed "generally includes a plurality of prostheses, or grafts 70 as defined previously in connection with FIGS 1A, 1B and 2," which figures are taken from the '762 patent. ('417 patent, col. 11, lns. 48-51) In Figures 1A, 1B and 7 of the '417 and '984 patents, the graft or prosthesis "70" and tubular member "71" are identified as the same structure. Likewise, the various written descriptions given of "thin-walled tubular members" are substantially the same as those given of "prostheses." (*Compare, e.g.,* '417 patent, col. 3, lns. 57-63 *with* col. 5, lns. 4-10) The "connector members" are described as flexibly connecting both "adjacent tubular members" and "adjacent prostheses." (*Compare, e.g.,* '417 patent, col. 3, lns. 63-65; col. 4, lns. 23-25, 59-61; col. 5, lns. 10-13; col. 12, lns. 7-21, 41-51, 59-63) Given the apparent "interchangeability" of the phrases "tubular members," "grafts," and "prostheses," it is with some reluctance that the court distinguishes between these structures for purposes of claim construction.

In sum, although a "thin-walled tubular member" may be comprised of only "half slots," each tubular member must be elongated (*i.e.,* its length is greater than its width) and, in combination with only an additional tubular member, must be capable of functioning as an expandable intraluminal graft.

Also in dispute is whether the language "wall surface having a substantially uniform thickness and a plurality of slots formed therein" implicates a manufacturing requirement. Initially, the court agrees that the claim language does not specifically incorporate the manufacturing description given in the specification. ('762 patent, col. 6, lns. 41-44) The court further acknowledges the general principle that "[a] product patent gives the patentee the right to restrict the use and sale of the product regardless of how ... it was manufactured." United States v. Studiengesellschaft Kohle, 670 F.2d 1122, 1127 (D.C.Cir.1981). Because the claim language is somewhat confusing, FN12 the court finds it helpful to review the history of the language.

FN12. For instance, the claim speaks in terms of the wall's surface having "a substantially uniform thickness." It is commonly understood that surfaces do not have a "thickness"; walls have a thickness. *See* '417 patent, col. 7, lns. 19-22.

The '665 patent includes in the specification two embodiments of a graft generally described as a "wire mesh tube." Both embodiments are comprised of intersecting elongate members, the elongate members being either "small diameter stainless steel wires having a cylindrical cross-section" FN13 or "small bars" formed by etching openings in a thin-walled stainless steel tube. ('665 patent, col. 6, lns. 12-44 and col. 7, lns. 3-20) Despite the differences between the two embodiments, presumably they both fall within the scope of the following claim language:

FN13. The court notes that the intersecting elongate members of this embodiment preferably were "fixedly secured to one another" at the point of intersection by any conventional manner, "such as by welding, soldering, or gluing ...." ('665 patent, col. 6, lns. 36-52)

[A] tubular shaped member having first and second ends and a wall surface disposed between the first and second ends, the wall surface being formed by a plurality of intersecting elongate members ....

('665 patent, claim 13 at col. 10, lns. 48-54; *see also* claim 18 at col. 11, lns. 21-27; claim 23 at col. 12, lns. 6-10; claim 26 at col. 12, lns. 33-37) (emphasis added). Only the second embodiment found its way into the '762 patent, the specification describing it as such:

Preferably, tubular member 71 is initially a thin-walled stainless steel tube having a uniform wall thickness, and a plurality of slots 82 are formed in the wall surface 74 of tubular member 71.

('417 patent, col. 7, lns. 19-22)

For whatever reason, the emphasis from the '665 to the '767, '417, and '984 patents changed from describing what formed the wall surface (intersecting elongate members which implicitly form "openings," '665 patent, col. 7, lns. 15-16) to what was formed in the wall surface (a plurality of slots forming "intersecting elongate members").FN14 Nevertheless, the structure (and the method of manufacturing the structure) remained the same. Therefore, although the phrase "a plurality of slots formed therein" modifies the phrase "wall surface" (arguably implying a manufacturing limitation),FN15 the court concludes that, whether the presence of material (elongate members) or the absence of material (slots) is emphasized, the structure of the product claimed is adequately described and does not implicate a manufacturing requirement.

FN14. "Thus, the formation of slots 82 results in at least one elongate member being formed between adjacent slots 82 ...." ('417 patent, col. 7, lns. 33-35)

FN15. Cordis' argument that the phrase modifies "thin-walled tubular members" neglects the normal rules of syntax.

Claims 1 and 4-'984 patent

As a final matter, in dispute is the phrase "coplanar with each tubular member," referring to the connector member described in claims 1 and 4 of the '984 patent. "Coplanar" is defined as "lying or acting in the same plane," a "plane" being "a surface such that the straight line that joins any two of its points lies wholly in that surface." *Webster's* at 502, 1730. In describing "connector members 100," the specification of the '984 patent provides as follows:

Disposed between adjacent tubular members, 71, or adjacent grafts, or prostheses, 70, is a single connector member 100 to flexibly connect adjacent tubular members 71 or grafts, or prostheses, 70. Connector members 100 are preferably formed of the same material as grafts 70, as previously described, and connector members 100 may be formed integrally between adjacent grafts 70, or tubular members 71, as shown in FIG. 7. The cross-sectional configuration of connector members 100, along the longitudinal axis of graft, or prosthesis, 70', is the same, in that connector members 100 have the same uniform wall thickness of elongate members 75 and thus form a thin-walled, elongate bar member 101 which is coplanar with adjacent tubular members 71. Of course, it should be readily apparent to one of ordinary skill in the art, that the thickness of connector members 100 could alternatively be smaller than elongate member 75; however, it is preferable that the outer circumferential surface 102 of connector members 100 lies in the same plane formed by the wall surfaces 74 of grafts, or prostheses, 70, as seen in FIG. 7.

('984 patent, col. 10, lns. 28-48)

The court agrees with Cordis that the word "coplanar" is not a particularly helpful description of a three-

dimensional structure.FN16 The specification nevertheless describes three embodiments which presumably fall within the scope of the disputed claim language: (1) the connector member is as thick as the tubular member and so is aligned with both its inner and outer walls; (2) the connector member is thinner than the tubular member and lies within (*i.e.*, is aligned with neither) its inner and outer walls; and (3) the connector member is thinner than the tubular member and is aligned with its outer wall. The court agrees with Cordis that the word "coplanar" should be given the broader scope provided for in the specification.

FN16. Just as a two-dimensional "surface" does not have a three-dimensional "thickness."

D.Del.,1999.
Cordis Corp. v. Advanced Cardiovascular Systems, Inc.