United States Court of Appeals for the Federal Circuit

BARD PERIPHERAL VASCULAR, INC.
AND DAVID GOLDFARB, M.D.,
Plaintiffs/Counterclaim

Defendants-Appellees,

AND

C.R. BARD, INC.,
Counterclaim Defendant-Appellee,

v.

W.L. GORE & ASSOCIATES, INC.,
Defendant/Counterclaimant-Appellant.

2010-1510

Appeal from the United States District Court for the District of Arizona in case no. 03-CV-0597, Judge Mary H. Murguia.

Decided: February 10, 2012

STEVEN C. CHERNY, Kirkland & Ellis, LLP, of New York, New York, argued for the plaintiffs/counterclaim defendants-appellees and counterclaim defendant-appellee. With him on the brief were JOHN C. O'QUINN, NATHAN S. MAMMEN and WILLIAM H. BURGESS, of Wash-

ington, DC. Of counsel on the brief were GREGORY G. GARRE and MAXIMILIAN A. GRANT, Latham & Watkins LLP, of Washington, DC; ANDREW M. FEDERHAR, Fennemore Craig P.C., of Phoenix, of Arizona; and JOHN L. STRAND, Wolf, Greenfield & Sacks, P.C., of Boston, Massachusetts. Of counsel was AMANDA HOLLIS, Kirkland & Ellis LLP, of Chicago, Illinois.

RICHARD G. TARANTO, Farr & Taranto, of Washington, DC, argued for the defendant/counterclaimant-appellant. Of counsel on the brief were DAVID H. PFEFFER, HARRY C. MARCUS, JAMES W. GOULD, STEVEN M. PURDY and JOSEPH A. FARCO., Locke, Lord, Bissell & Liddell, LLP, of New York, New York; MATTHEW K. BLACKBURN, of San Francisco, California; and WILLIAM J. MALEDON, Osborn Maledon, P.A., of Phoenix, Arizona; JOHN S. CAMPBELL, W.L. Gore & Associates, Inc., of Newark, Delaware.

Before NEWMAN, GAJARSA,* and LINN, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* GAJARSA.

Dissenting opinion filed by *Circuit Judge* NEWMAN.

GAJARSA, *Circuit Judge*.

This has been a long and arduous journey for the parties in this litigation, but this should be the final curtain of the saga, which commenced in 1974 with the filing of the patent application that eventually matured as U.S. Patent No. 6,436,135 ("'135 patent"). In this patent infringement action, W.L. Gore & Associates, Inc. ("Gore") appeals the United States District Court for the District of Arizona's judgment, after a jury verdict, that (1) found

---

* Circuit Judge Gajarsa assumed senior status on July 31, 2011.

the '135 patent willfully infringed and not invalid for improper inventorship, anticipation, obviousness, or lack of written description, and (2) awarded enhanced damages, attorneys' fees and costs, and an ongoing royalty in favor of Bard Peripheral Vascular, Inc. and David Goldfarb (collectively, "Bard"). *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*Final Judgment*"), No. 03-CV-0597 (D. Ariz. Aug. 24, 2010), ECF No. 1047. Because we find that there is substantial evidence to support the jury's verdict of no improper inventorship, anticipation, obviousness, or lack of written description and of willful infringement, and the district court did not abuse its discretion in awarding enhanced damages, attorneys' fees and costs, and an ongoing royalty, we affirm the judgment.[1]

BACKGROUND

A.

The technology in this case involves prosthetic vascular grafts that are fabricated from highly-expanded polytetrafluoroethylene ("ePTFE"). '135 patent col.1 ll.3–5. The grafts are used to bypass or replace blood vessels to assure adequate and balanced blood flow to particular parts of the body. *Id.* col.1 ll.6–7.

> In the early 1970s, when the invention was made, ePTFE was produced as tubes that had a struc-

[1] The majority affirms on the record presented after two previous appeals to this court and facts as found by the United States Patent and Trademark Office and a jury. Contrary to the dissent, we are not free to ignore the long history of this case and these prior determinations. We cannot revisit the facts anew, nor meander through the record and select facts like our favorite jelly beans, nor characterize the facts as the Bard would in a Shakespearean tragedy.

> ture consisting of solid nodes of PTFE connected by thin PTFE fibrils. The distance between the nodes is referred to as the fibril length [or the internodal distance]. This distance is important to the suitability of the ePTFE material for use as a vascular graft.

Cooper v. Goldfarb ("*Cooper II*"), 240 F.3d 1378, 1381 (Fed. Cir. 2001); *see also Cooper v. Goldfarb* ("*Cooper I*"), 154 F.3d 1321, 1324 (Fed. Cir. 1998). Gore sells ePTFE under the brand name "Gore-Tex." *Cooper I*, 154 F.3d at 1324.

The '135 patent, entitled "Prosthetic Vascular Graft," was filed on October 24, 1974 and issued nearly twenty-eight years later on August 20, 2002. '135 patent at [54], [22], [45]. The '135 patent discloses a graft "formed from a small bore tube of polytetrafluoroethylene which has been heated, expanded and sintered so as to have a microscopic superstructure of uniformly distributed nodes interconnected by fibrils . . . ." *Id.* col.3 ll.41–44. A major objective of the claimed invention is providing "a homogeneously porous vascular prosthesis" with "small nodes interconnected by extremely fine fibrils to form an open superstructure which will allow uniform, controlled transmural cellular ingrowth and thereby assure the establishment and maintenance of a thin, viable neointima as well as firm structural integration of the graft into the body." *Id.* col.3 ll.27–34.

Bard asserts that Gore infringes claims 20 to 27 of the '135 patent, of which independent claim 20 is representative:

> 20. An artificial vascular prosthesis comprising expanded, porous, polytetrafluorocthylene [sic] having a microstructure consisting of nodes interconnected by fibrils which permits *tissue in-*

> *growth*, wherein an average *distance between nodes* is not less than about 6 microns and is small enough to prevent transrmural [sic] blood flow.

Id. col.12 ll.1–6 (emphases added). Claims 21 to 24, which depend from claim 20, claim an upper limit on the average distance between the nodes from about 80 to about 200 microns. *Id.* col.12 ll.7–18. Independent claims 25 to 27 claim that the average distance between the nodes is about 6 to about 80 microns. Claims 25 and 26 also specify "a wall thickness greater than about 0.2 millimeters and less than about 0.8 millimeters." *Id.* col.12 ll.21–22, 28–29. Claim 26 further adds the limitation of "an average density in the range of between about 0.2 and 0.5 grams per millimeter." *Id.* col.12 ll.30–31.

The prior art at issue in this appeal includes two articles, one by Dr. Jay Volder and one by Dr. Hiroshi Matsumoto. *See* Jay G. R. Volder et al., *A-V Shunts Created in New Ways*, Transactions, American Society for Artificial Internal Organs, vol. XIX, Apr. 8–9, 1973, at 38–42 ("Volder"); H. Matsumoto et al., *A New Vascular Prosthesis for a Small Caliber Artery*, Surgery, vol. 74, no. 4, Oct. 1973, at 519–23 ("Matsumoto"). Both publications were considered by the examiner at the United States Patent and Trademark Office ("PTO") during the prosecution of the '135 patent and are listed on the first page of the patent-in-suit. '135 patent at [56].

The factual history of this case has been discussed in a previous decision of this court:

> [Peter] Cooper was the Plant Manager of [Gore's] Flagstaff, Arizona facility, and primarily was involved in making ePTFE tubes. Cooper provided the tubes to various researchers, who evaluated their suitability for vascular grafts. During the

> course of his work, Cooper discovered that material from ePTFE tubes with fibril lengths . . . [of about 5 to 100 microns] was suitable for use in vascular grafts.
>
> . . .
>
> During the same period, Goldfarb was Director of Research and Clinical Staff Surgeon at the Arizona Heart Institute [("AHI")], and was conducting research on artificial vascular grafts. Between February and April of 1973, Cooper sent Goldfarb a number of ePTFE tubes to use in his research. Although Cooper intended that Goldfarb use the tubes for vascular grafts, Cooper did not have any right of control over Goldfarb's research, and Goldfarb was not required to use the tubes supplied by Cooper or to perform his experiments in any particular way.
>
> Goldfarb conducted a series of experiments involving 21 grafts made from the tubes Cooper provided. On June 13, 1973, the graft labeled "2-73 RF," which came from Lot 459-04133-9 provided by Cooper, was determined to be a successful implant in a dog.

Cooper II, 240 F.3d at 1381.

B.

The '135 patent was previously the subject of an interference proceeding between Cooper and Goldfarb at the Board of Patent Appeals and Interferences ("Board"), Interference No. 101,100 ("Interference"). On April 2, 1974, Cooper filed Patent Application No. 05/457,711 claiming the use of ePTFE as a vascular graft. *Cooper I*, 154 F.3d at 1325. On October 24, 1974, Goldfarb filed Patent Application No. 05/517,415 also claiming the use of

ePTFE as a vascular graft. *Id.* at 1326. On September 19, 1983, the PTO declared an interference between the two patent applications with Cooper as the senior party and Goldfarb as the junior party. *Id.* The only count, which is "the Board's description of the interfering subject matter that sets the scope of admissible proofs on priority," 37 C.F.R. § 41.201, from the Interference relevant to this case states:

> An artificial vascular prosthesis comprising expanded, porous, polytetraflouroethylene [sic] having a microstructure consisting of nodes interconnected by fibrils which permits tissue ingrowth, wherein said fibrils are above about 5 microns up to 100 microns in length.

Cooper I, 154 F.3d at 1326. The Board awarded priority of invention to Goldfarb because Goldfarb established that he had reduced the invention to practice before Cooper. *Id.* at 1326–27.

This court affirmed "the Board's determination that Goldfarb had conceived the invention and reduced it to practice by July of 1973." *Id.* at 1331. This court also, however, determined that the Board erred "by failing to consider whether Goldfarb's efforts inure to the benefit of Cooper," and remanded the case for the Board to consider that issue. *Id.* at 1333.

On appeal for the second time, this court explained that Cooper conceived the invention, but only after sending to Goldfarb the tubes which Goldfarb used to conceive the invention and reduce it to practice. *Cooper II*, 240 F.3d at 1381. Cooper could not have known that the tubes sent to Goldfarb met the claim limitations when he sent them. *Id.* Additionally, Cooper neither communicated his finding to Goldfarb before Goldfarb made the invention nor did he exercise diligence in an attempt to

reduce the invention to practice. *Id.* at 1381–83. Therefore, this court found that "Cooper has not established that he contemporaneously appreciated that the material tested by Goldfarb met the fibril length limitation of the interference count, and has not established that Goldfarb's knowledge of the material's fibril lengths inured to his benefit." *Id.* at 1381–82. Accordingly, this court affirmed the Board's decision that "the relationship between Cooper and Goldfarb was such that Goldfarb's work did not inure to Cooper's benefit" and priority of invention was awarded to Goldfarb. *Id.* at 1380.

C.

On March 28, 2003, Bard filed suit against Gore for infringement of the '135 patent. After a seventeen-day trial, on December 11, 2007, a jury found the '135 patent valid and willfully infringed by Gore. *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*Verdict Form*"), No. 03-CV-0597 (D. Ariz. Dec. 11, 2007), ECF No. 771. More specifically, the jury found that the '135 patent was not invalid for improper inventorship, anticipation, obviousness, or lack of written description. *Id.* at 16–19. The jury awarded Bard lost profits in the amount of $102,081,578.82 and reasonable royalties in the amount of $83,508,292.20, and set a reasonable royalty rate of 10%. *Id.* at 22–23.

In what it deemed "the most complicated case th[e district] court has presided over," *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*License*"), No. 03-CV-0597, slip op. at 1 (D. Ariz. July 21, 2010), ECF No. 1057, the court denied Gore's motions for judgment as a matter of law on inventorship, anticipation, obviousness, written description, and willfulness. *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*Post-Trial I*"), 586 F. Supp. 2d 1083, 1099 (D. Ariz. 2008); *Bard Periph-*

eral Vascular, Inc. v. W.L. Gore & Assocs., Inc. ("*Obviousness I*"), No. 03-CV-0597, 2008 WL 2954187, at *6 (D. Ariz. July 29, 2008). The court also denied Gore's renewed motions for judgment as a matter of law on those issues. *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*Post-Trial II*"), No. 03-CV-0597, 2009 WL 886514, at *12–13 (D. Ariz. Mar. 31, 2009); *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*Obviousness II*"), No. 03-CV-0597, 2009 WL 886515, at *7 (D. Ariz. Mar. 31, 2009).

The district court awarded Bard enhanced damages by a factor of two, doubling Bard's award from the $185,589,871.02 jury verdict amount to $371,179,742.04. *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*Damages*"), No. 03-CV-0597, slip op. at 20, 23 (D. Ariz. Mar. 31, 2009), ECF No. 951. The court also awarded Bard its attorneys' fees and non-taxable costs in the amount of $19 million. *Id.* at 23. Additionally, the court denied Bard's motion for a permanent injunction, but granted Bard's alternative motion for the imposition of an ongoing royalty. *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.* ("*Injunction*"), No. 03-CV-0597, 2009 WL 920300, at *4–10 (D. Ariz. Mar. 31, 2009). The court awarded Bard an ongoing royalty with a range of royalty rates from 12.5% to 20% for Gore's various types of infringing grafts.[2] *License*, slip op. at 15–16.

---

[2] As in *Paice LLC v. Toyota Motor Corp.*,

> We use the term ongoing royalty to distinguish this equitable remedy from a compulsory license. The term "compulsory license" implies that anyone who meets certain criteria has congressional authority to use that which is licensed. By contrast, the ongoing-royalty order at issue here is limited to one particular . . . de-

The district court entered an amended final judgment on August 24, 2010, and Gore timely appealed on August 25, 2010.

The district court had jurisdiction under 28 U.S.C. § 1338(a), and we have appellate jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review denial of post-trial motions for judgment as a matter of law under the applicable regional circuit law, the Ninth Circuit in this case. *See Revolution Eyewear, Inc. v. Aspex Eyewear, Inc.*, 563 F.3d 1358, 1370 (Fed. Cir. 2009). The Ninth Circuit reviews a district court's denial of motions for judgment as a matter of law *de novo*. *Janes v. Wal-Mart Stores Inc.*, 279 F.3d 883, 886 (9th Cir. 2002). A "jury's verdict must be upheld if it is supported by substantial evidence, . . . even if it is also possible to draw a contrary conclusion." *Pavao v. Pagay*, 307 F.3d 915, 918 (9th Cir. 2002). Substantial evidence is "relevant evidence as reasonable minds might accept as adequate to support a conclusion." *Three Boys Music Corp. v. Bolton*, 212 F.3d 477, 482 (9th Cir. 2000) (citation omitted). The Ninth Circuit "disregard[s] all evidence favorable to the moving party that the jury is not required to believe, and may not substitute its view of the evidence for that of the jury." *Johnson v. Paradise Valley Unified Sch. Dist.*, 251 F.3d 1222, 1227 (9th Cir. 2001) (internal quotation marks and citations omitted). The court will not "weigh the

---

> fendant[]; there is no implied authority in the court's order for any other [graft] manufacturer to follow in [Gore]'s footsteps and use the patented invention with the court's imprimatur.

504 F.3d 1293, 1314 n.13 (Fed. Cir. 2007) (citation omitted).

evidence or assess the credibility of witnesses in determining whether substantial evidence exists." *Landes Constr. Co. v. Royal Bank of Can.*, 833 F.2d 1365, 1371 (9th Cir. 1987) (citations omitted).

We review a district court's "award of enhanced damages and attorney fees under an abuse of discretion standard." *ACCO Brands, Inc. v. ABA Locks Mfrs. Co.*, 501 F.3d 1307, 1312 (Fed. Cir. 2007) (citation omitted). We also review an award of a royalty-bearing license and refusal to issue a permanent injunction for abuse of discretion. *On Demand Mach. Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331, 1337 (Fed. Cir. 2006). A district court abuses its discretion when "its decision is based on clearly erroneous findings of fact, is based on erroneous interpretations of the law, or is clearly unreasonable, arbitrary or fanciful." *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1460 (Fed. Cir. 1998) (en banc) (citation omitted).

Gore contends that the jury's verdict on the inventorship, anticipation, obviousness, written description, and willful infringement issues was not supported by substantial evidence and the district court abused its discretion regarding the issues of enhanced damages, attorneys' fees and costs, and ongoing royalties. For the following reasons, we disagree.

A.

Inventorship is "a question of law that we review *de novo*, based on underlying facts which we review for clear error." *Univ. of Pittsburgh of the Commonwealth Sys. of Higher Educ. v. Hedrick*, 573 F.3d 1290, 1297 (Fed. Cir. 2009). When this court reviews the denial of post-verdict motions for judgment as a matter of law on "mixed question[s] of law and fact given to a jury . . . , we must sustain the jury's conclusion unless the jury was not presented with substantial evidence to support any set of

implicit findings sufficient under the law to arrive at its conclusion." *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1362 (Fed. Cir. 2004) (citation omitted) (calling substantial evidence that which "a reasonable mind might accept as adequate to support a conclusion").

Section 116 of Title 35 of the United States Code states that "[w]hen an invention is made by two or more persons jointly, they shall apply for patent jointly." "The inventors as named in an issued patent are presumed to be correct. Thus, a party alleging non joinder must meet the heavy burden of proving its case by clear and convincing evidence." *Natron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352, 1356 (Fed. Cir. 2009) (citations omitted). A person is "a joint inventor only if he contributes to the conception of the claimed invention." *Eli Lilly*, 376 F.3d at 1359 (citations omitted). Conception "requires that the inventor appreciate that which he has invented." *Invitrogen Corp. v. Clontech Labs.*, 429 F.3d 1052, 1063 (Fed. Cir. 2005). Joint inventorship, therefore, arises only "when collaboration or concerted effort occurs—that is, when the inventors have some open line of communication during or in temporal proximity to their inventive efforts." *Eli Lilly*, 376 F.3d at 1359. Additionally, a joint inventor must

> (1) contribute in some significant manner to the conception or reduction to practice of the invention, (2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts and/or the current state of the art.

Pannu v. Iolab Corp., 155 F.3d 1344, 1351 (Fed. Cir. 1998). Therefore, in order to prevail at trial, Gore had to

prove by clear and convincing evidence that Cooper contributed to Dr. Goldfarb's conception of the internodal distances in a significant way.

The jury found that the '135 patent was not invalid for improper inventorship by finding that Cooper and Goldfarb were not joint inventors of the claimed invention.[3] *Verdict Form*, at 18. The district court determined that "Gore failed to present sufficient evidence to show that a reasonable jury could not have found the patent valid notwithstanding Gore's claims of improper inventorship" and denied Gore's motion for judgment as a matter of law on the issue. *Post-Trial I*, 586 F. Supp. 2d at 1094. On appeal, Gore argues that Cooper's contributions to the conception of the invention were significant and make him a joint inventor. We hold that Bard presented substantial evidence for the jury to find that Goldfarb and Cooper were not joint inventors because Cooper did not communicate to Goldfarb that the internodal distance was the key to creating successful grafts, and, therefore, the jury could have reasonably concluded that Cooper's collaboration with Goldfarb did not contribute to the conception of the invention in a significant manner.

In an appeal from the Interference, this court determined that

> [the evidence] do[es] not indicate that Cooper expected that the ePTFE material that was to be tested by Goldfarb had the fibril lengths required by the interference count, or that Cooper submitted the material to Goldfarb for a determination of

---

[3] The jury also found that Dr. Volder, who was not a party to this litigation and the author of a prior art article, was not the sole inventor and that Dr. Volder and Goldfarb were not joint inventors. *Verdict Form*, at 18. Gore did not appeal this finding.

> its fibril lengths. As noted in *Cooper I*, . . . Cooper was focusing on the porosity of the material at that time, not its fibril length. *Cooper I*, 154 F.3d at 1324. Indeed, Cooper admits that, even after he conceived the importance of fibril length, he did not convey that information to Goldfarb. He also admits that he did not ask Goldfarb to *use grafts* with fibril lengths required by the interference count, or to determine the fibril lengths of successful grafts. While Cooper was not required to communicate his conception to Goldfarb, *Cooper I*, 154 F.3d at 1332, his failure to convey any information or requests regarding fibril length prevents Goldfarb's determination of the fibril lengths of the material from inuring to his benefit.
>
> . . .
>
> [N]o evidence of record indicates that Cooper knew the fibril lengths of the material tested by Goldfarb at the relevant time, i.e., prior to Goldfarb's reduction to practice in 1973.

Cooper II, 240 F.3d at 1385. This lack of communication and utter lack of understanding of what would make a successful graft is substantial evidence in support of the jury's verdict implicitly finding that Cooper's contribution was insignificant.

Although Gore argues that Cooper "conveyed [the internodal distance] physically by making and sending the invention embodiment to Goldfarb," it admits that "Cooper did not verbally convey the internodal distance." Appellant's Br. 46. Additionally, Goldfarb testified at trial that the various tubes Gore sent to him looked the same to the naked eye, but each tube was different, and

that each individual tube's microstructure varied along the length of the tube. J.A. 9370–72, 76. Goldfarb personally selected the most promising sections for implantation. [Id]. Goldfarb also testified that after an initial set of implantations, he gave a Gore employee specifications of what might make a more successful graft, including specific internodal distances. J.A. 9398–99. Therefore, the jury could have reasonably determined that "physically conveying" the undifferentiated tubes to Goldfarb was an insignificant contribution to the conception of the importance of internodal distance when weighed against Goldfarb's personal selections and directions.

As further evidence of the insignificance of Cooper's contribution, Cooper previously testified in the Interference that he did not provide Goldfarb information about the GORE-TEX structure "in any great detail" when they met. J.A. 23112. He also testified that he later resorted to taking Goldfarb's slides to learn what variables in the grafts were important in producing good results. J.A. 36993–94. Also in the Interference, former Gore employee Richard Mendenhall testified that "there was no discussion of substance" at a meeting with Cooper and Goldfarb, and that it was Goldfarb who explained to Cooper "the characteristics that were ideal for the synthetic artery," not the other way around. J.A. 22648, 22642. Finally, in the present case, Goldfarb testified that, with the exception of a statistician's suggestion to randomize the placement of certain grafts, no one from Gore gave him any instruction regarding how to set up his experiments, including what types of grafts to use, what characteristics to look for, and what range of variables would produce a successful graft. J.A. 31638–40. Notably, Gore employee Dan Detton's previous deposition testimony was read into the record stating that Cooper never made grafts, never extruded tubing that was used to make grafts, and did not

contribute to the design of the structure that Goldfarb made. When asked if Cooper contributed to the design of the structure made by Goldfarb, Detton said "you could generally count on whatever he said as being probably 180 degrees from what was correct."[4]

In addition to evidence of Cooper's failure to communicate the internodal distance to Goldfarb, or make any contribution to the conception of internodal distance, Bard also presented evidence of Goldfarb's control over his experiments. A Gore "Trip Report" stated that "Dr. Goldfarb is starting an evaluation of synthetic materials suitable for a bypass graft and is willing to include GORE-TEX in *his* study." J.A. 39694 (emphasis added).[5] A February 14, 1973 letter from Cooper to Goldfarb explained that enclosed were "a variety of sizes of GORE-TEX tubes for *your* animal artery prosthetic experiments." J.A. 41235 (emphasis added). Also, Goldfarb testified that Cooper "had very little contact with [him],"

---

[4] The dissent complains that Detton recanted some other earlier testimony during trial, Dissent at 11–13, but the jury was not required to believe his changed testimony. It could and did believe his original testimony. And "[i]n reviewing a jury verdict, the court must draw all reasonable inferences in favor of the verdict, without making credibility determinations and without reweighing the evidence." *Johns Hopkins Univ. v. Datascope Corp.*, 543 F.3d 1342, 1350 (Fed. Cir. 2008) (Newman, J., dissenting) (citing *Reeves v. Sanderson Plumbing Prods., Inc.*, 503 U.S. 133, 150 (2000)) ("When reviewing a jury verdict, it is impermissible for the appellate court to substitute its own findings based on the evidence that was before the jury . . . ." (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986))); *see also Johnson*, 251 F.3d at 1227.

[5] This statement is directly contrary to the dissent's characterization of Goldfarb as nothing more than a scientist acting at Gore's direction.

and that it was Mendenhall who first contacted him regarding the use of ePTFE in medicine. J.A. 9409, 31564. Finally, Cooper himself wrote letters to another doctor stating that "[a]ny success at this point in time is the direct result of the AHI [i.e., Goldfarb's,] efforts," and that the "AHI has, in a well-organized, productive fashion, described, with a fair degree of accuracy, the specific structure necessary for a viable vascular graft."[6] J.A. 29587, 35493.

Thus, although Gore attempts to recast its argument from inurement in the Interference to joint inventorship in the present case, Gore's argument remains unchanged and there is still no evidence that Cooper either recognized or appreciated the critical nature of the internodal distance and communicated that key requirement to Goldfarb before Goldfarb reduced the invention to practice. Accordingly, substantial evidence supports the jury's finding that the '135 patent is not invalid for improper inventorship, and the district court did not err in denying Gore's motion for judgment as a matter of law on the issue.

It is apparent that the dissent reaches its opposite conclusion by ignoring the applicable standard of review and giving insufficient weight to the jury's verdict. By citing only to the limited facts that support Gore's case and relying on a mistaken understanding of the invention at issue, the dissent fails to "disregard all evidence favorable to the moving party that the jury is not required to believe" and intentionally, but impermissibly, "substitute[s] its view of the evidence for that of the jury."

---

[6] We note that despite this substantial evidence, the dissent insists that Goldfarb "did not invent the effective graft materials." Dissent at 16.

Johnson, 251 F.3d at 1227 (internal citations and quotation marks omitted).

As to the facts, the dissent states that Cooper conceived the invention and Gore "disclosed [it] to Goldfarb", Dissent at 17 & 19, while Goldfarb did little more than "test" the material at Cooper's direction. Dissent at 1–2. It states that "Gore possessed" the invention before Goldfarb, Dissent at 14, and credits Gore's argument that Cooper "was at least a joint inventor." Dissent at 17. The dissent concludes that the "verdict is against the weight of the evidence." Dissent at 20. Ignoring the problem inherent in the dissent's misstatement of the applicable standard of review, we note that this court has previously concluded that Goldfarb independently conceived and reduced the invention to practice. *Cooper I*, 154 F.3d at 1330–31. Cooper conceived of the invention only after sending the tubes to Goldfarb and never communicated that conception to Goldfarb. *Cooper II*, 240 F.3d at 1385.

Moreover, as to the invention, the dissent states that Goldfarb could not be the sole inventor because Gore "possessed" the invention before Goldfarb, and Cooper suggested ePTFE as a vascular graft to Goldfarb. Dissent at 14–15. (citing to *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985) (finding "substantial evidence on which a reasonable jury could have found that the inventors were correctly named" despite conflicting trial testimony)).[7] However,

[7] Notably, the dissent cites to *Shatterproof* for the proposition that one "may use the services, ideas, and aid of others in the process of perfecting his invention without losing his right to a patent," but simultaneously ignores *Shatterproof*'s recognition—on the same page—that "to the extent that conflicting viewpoints were presented [at trial], this was within the province of the jury." 758 F.2d at 624 (Newman, J.).

this court has explained previously that "a person will not be a co-inventor if he or she does no more than explain to the real inventors concepts that are well known and the current state of the art." *Fina Oil & Chem. Co. v Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (internal citations omitted). "[T]o be a joint inventor, an individual must make a contribution to the conception of the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention." *Id.* In this case, Gore did know about ePTFE before Goldfarb, but the potential use of ePTFE as a vascular graft was not a new concept and any suggestion by Cooper to use the material was insignificant.

Rather than the idea of using ePTFE as a graft, the claimed invention in this case is a vascular prosthesis made from ePTFE having a very specific range of distances between nodes, which are connected by fibrils. *See, e.g.*, '135 patent col.12 ll.1–6; *Cooper II*, 240 F.3d at 1381. Before Goldfarb made his invention, other doctors had tried to use ePTFE as a small bore vascular graft, but none understood why apparently identical grafts would often perform differently when implanted. [J.A. 35044, 41829, 46193, 49746]. Goldfarb was the first person to discover that a specific internodal distance was the determining factor in graft success and reduce that knowledge to practice. *Cooper II*, 240 F.3d at 1380.

The dissent points to letters detailing the results of the experiments by Drs. Sharp and Kelly, Dissent at 5–7, which show some patent ePTFE grafts, as support for the conclusion that Goldfarb could not be the sole inventor.[8] However, this court previously considered those letters

[8] The dissent also cites to an article by Volder. Dissent at 5. This reference is dealt with in subsection C of the Discussion.

and found that they have no effect on Goldfarb's inventorship. As to the Sharp experiment, this court previously concluded that the grafts successfully used by Sharp were not shown to have the same fibril lengths as those in Goldfarb's invention. *Cooper I*, 154 F.3d at 1328–29. As to Kelly's experiment, the dissent neglects to mention that although the grafts used fell within the claim limitations of Goldfarb's invention, Cooper considered Kelly's results to be a failure.[9] *Id.* at 1325, 1328.

Cooper never shared whatever knowledge he had about internodal distances with Goldfarb. Instead, Cooper's contribution to Goldfarb's invention can be summarized as handing Goldfarb an undifferentiated selection of ePTFE tubes, some of which turned out to be suitable for use as a graft. Because Cooper did little more than share with Goldfarb what was already well known, the jury had substantial evidence to find that Cooper's contribution was not significant enough to make him a joint inventor and we must defer to that finding.[10] *See, e.g.*, *Hess v. Advanced Cardiovascular Sys.*, 106 F.3d 976, 981 (Fed. Cir. 1997) (stating that "doing nothing more than explain-

---

[9] In regard to Cooper's notes on Kelly's results, this court previously found that, "[t]he next page of Cooper's laboratory notebook is dated May 2, 1973. It refers to Dr. Kelly's experiments and samples submitted by Dr. Kelly. The page bears the following notation: 'Both [samples] from Dr. Glenn Kelly U of Colorado. Femoral Vein in Dogs—Both Failed.' The page was signed by Cooper on May 2 . . . ." *Cooper I*, 154 F.3d at 1325.

[10] We note that the dissent also complains that counsel for Bard repeatedly mentioned during trial that Goldfarb came up with invention. We decline to address this argument because neither the dissent nor Gore's brief provide a legal reason why those statements constitute error. Additionally, it should be noted that counsel for Gore also repeatedly mentioned that Cooper was the one who first conceived of the invention.

ing to the inventors what the then state of the art was and supplying a product to them for use in their invention" does not automatically make one a joint inventor).

B.

Anticipation is "a question of fact that we review for substantial evidence when tried to a jury." *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 974 (Fed. Cir. 2010) (citation omitted). The jury found that claims 20 to 27 of the '135 patent were not invalid for anticipation by Matsumoto. *Verdict Form*, at 16. The district court determined that "the evidence establishes that the 1973 Matsumoto article was not enabling, as neither Gore nor any of the other doctors with whom Gore was working, could determine the structure disclosed in the Matsumoto article or replicate Matsumoto's results." *Post-Trial I*, 586 F. Supp. 2d at 1092. The court cited the trial testimony of Gore's own fact witness, Dan Detton, who "stated that 'you couldn't figure anything' from the Matsumoto article 'because the article itself did not define anything.'" *Id.* (internal citation omitted). Thus, the court found that Gore "failed to establish that a reasonable jury would not have a legally sufficient evidentiary basis to find for [Bard]" and denied Gore's motion for judgment as a matter of law on anticipation. *Id.*

In Matsumoto, "vascular grafts of expanded polytetrafluoroethylene . . . 3 mm. in internal diameter and 3 to 5 cm. in length, were inserted between the dissected femoral arteries in dogs" and the "patency rates of the grafts of expanded polytetrafluoroethylene [wa]s 100 percent from 4.5 to 11 months following operation." Matsumoto at 519. Further, Matsumoto also made "microscopic findings [that] showed a well-formed fibroplasia in the porous layer and a thin, well-attached neointima on the inner surface of expanded polytetrafluoroethylene." *Id.*

A "single prior art reference must expressly or inherently disclose each claim limitation to anticipate a claim. Additionally, the reference must enable one of ordinary skill in the art to make the invention without undue experimentation." *Orion*, 605 F.3d at 975 (internal quotation marks and citations omitted). Further, anticipation must be proved by clear and convincing evidence. *Id.* Bard presented substantial evidence to support the jury's verdict of no anticipation by Matsumoto.

Regarding whether Matsumoto is enabled, Dr. James Anderson, Bard's technical expert, testified that Matsumoto did "not [provide] enough information," including the "characteristics of the graft material," for a doctor to recreate a working vascular graft. J.A. 12063–64. This testimony was in addition to that of Detton, who stated that Matsumoto "wouldn't have been enough for me to even do much with." J.A. 10960.

Bard also presented evidence that others were unable to replicate Matsumoto's work. Mendenhall testified that the reaction to Matsumoto was that it was "[k]ind of a fluke, really" and that "[n]obody was very able to reproduce that." J.A. 49746. A Gore document titled "Flagstaff Visit: 22:10:73, Dan Detton" also stated that Matsumoto "claims 100% success on femoral arteries in dogs: but we do not know what tubes we[re] used. So we start again." J.A. 102576–77. In addition to this evidence from Gore's own employees, other experts in the field also failed to reproduce grafts like Matsumoto's. On December 7, 1973, Dr. Glenn Kelly wrote to Matsumoto and stated that using "presumably identical material," he was unable to create grafts that remained unobstructed and did not know how to resolve the "apparent conflict in our results." J.A. 35044. Additionally, on February 14, 1975, Dr. Ben Eiseman wrote Dr. Kensuke Esato in Japan and stated that while Matsumoto "detailed continued patency of

vessels of 4–5 mm diameter over prolonged periods," "neither [h]e nor others in the U.S. [we]re having such good luck." J.A. 41829. Finally, Dr. Charles Campbell declared that "[e]fforts in this country to duplicate the results of Matsumoto have met with failure." J.A. 46193. Thus, Bard presented substantial evidence for the jury to find that Matsumoto does not enable a person of ordinary skill in the art to make the invention without undue experimentation and cannot be used as anticipatory prior art.

Even if Matsumoto were a proper prior art reference, there is substantial evidence that Matsumoto does not anticipate the claimed invention. The asserted claims require specific "average distance[s] between nodes." '135 patent, col.12 ll.4–5, 24, 33, 38. Dr. Jock Wheeler, Gore's own technical expert, testified that Matsumoto, however, did not refer to internodal distance, which was "really not mentioned in th[e] article." J.A. 12064. Although he also stated that the internodal distance could be "readily calculated from figure 4" of Matsumoto, J.A. 11247, Goldfarb testified that "there was a fair amount of inconsistency . . . along each graft" so the portion of the graft surface depicted in figure 4 was not representative of the entire graft. J.A. 9371.

In the Interference, Cooper himself argued that "[o]ne is left to speculate as to whether this small portion of the Matsumoto graft is representative of the fibril length throughout the entire graft." J.A. 41926. Further, this court noted that Harold Green, "the individual responsible for manufacturing expanded PTFE tubing for Gore in 1972–73," testified that there was "difficulty controlling the uniformity of the PTFE material" and that "fibril lengths vary along each tube." *Cooper I*, 154 F.3d at 1329. The court also noted that Goldfarb testified that "fibril

length varied tremendously . . . within the same graft." *Id.* (internal quotation omitted).

Finally, Matsumoto was already before the PTO during prosecution of the '135 patent, and the PTO did not find that Matsumoto anticipated the '135 patent. *See Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984), *abrogated on other grounds by Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1288–90 (Fed. Cir. 2011) (en banc) (stating that when "no prior art other than that which was considered by the PTO examiner is relied on by the attacker, he has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job . . . to issue only valid patents").

The Supreme Court has recently held that invalidity needs to be proved by clear and convincing evidence. *Microsoft Corp. v. i4i Ltd. P'ship*, 131 S. Ct. 2238, 2242 (2011). Based on this record, a reasonable jury could find that Gore failed to show by clear and convincing evidence that Matsumoto anticipated the claimed invention. Accordingly, the district court did not err in denying Gore's motion for judgment as a matter of law on anticipation.

C.

When reviewing the denial of a motion for judgment as a matter of law, "this court reviews a jury's conclusions on obviousness, a question of law, without deference, and the underlying findings of fact, whether explicit or implicit within the verdict, for substantial evidence." *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1324 (Fed. Cir. 2008) (internal quotations and citations omitted).

The jury found the '135 patent valid under 35 U.S.C. § 103 because the subject matter of the '135 patent would

not have been obvious to a person of ordinary skill in the art in light of Volder alone for claims 20 to 24 and 27, or Volder and Matsumoto in combination for claims 20 to 27. *Verdict Form*, at 17. The district court denied Gore's motion for judgment as a matter of law on obviousness. *Obviousness II*, 2009 WL 886515, at *7; *Obviousness I*, 2008 WL 2954187, at *6.

Volder discusses how "grafts of Gore-Tex porous polytetrafluoroethylene (G-PTFE) were evaluated" and that "G-PTFE is a material with extremely promising characteristics" for A-V shunts. Volder at 38. Volder found that "[s]hunts of G-PTFE have as favorable characteristics that . . . are readily available" because "the material withstands puncturing, and there is neointima healing with extensive ingrowth of fibroblasts and capillaries." *Id.* at 39. Additionally, while "the tissue infiltration is not complete in certain areas," Volder "believed that by increasing the average pore size of the material, at the moment 5 μ, it will be possible to accelerate the process of tissue infiltration and development of capillaries," which would "result in a faster healing and more durable neointima." *Id.*

A claim is obvious when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103. To determine whether a patent is obvious, a district court must base its determination on factual inquiries involving: (1) the scope and content of the prior art, (2) differences between the prior art and the claims, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations, such as commercial success, satisfaction of a long-felt need, and

failure of others. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966).[11]

The asserted claims require specific "average distance[s] between nodes." '135 patent, col.12 ll.4–5, 24, 33, 38. In light of Volder alone, the district court found that the following evidence at trial supported the legal conclusion that claims 20 to 24 and 27 are not obvious:

> (1) Volder was "repeatedly considered by the PTO before, during, and after Gore's interference" proceeding, in which Gore itself consistently distinguished Volder from Goldfarb's invention;
> (2) Dr. Volder, the author himself, stated under oath in an unrebutted affidavit that he thought "that the prosthetic vascular structure conceived and developed by [Goldfarb] . . . was by no means obvious to those actively conducting research on expanded PTFE

[11] Bard argues that Gore waived all theories of obviousness except that claim 20 was invalid in light of Volder alone because that was the only Rule 50(a) motion Gore made before the jury verdict. However, the district court specifically held that "any renewed JMOL motion Gore chooses to file as to obviousness shall not be limited to Claim 20 and the Volder article." *Obviousness I*, 2008 WL 2954187, at *4. This court is "not disposed to override a district court's determination of non-waiver." *Trading Techs. Int'l, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1360 (Fed. Cir. 2010) (internal quotation marks omitted). Thus, we will not disturb the district court's determination that Gore's renewed motions for judgment as a matter of law on obviousness beyond claim 20 in light of Volder alone were not waived.

> vascular structures during 1972 and 1973";
>
> (3) researchers were unable to invent a successful graft even after Volder and Matsumoto were published, and Cooper testified in 1975 that he was "compelled to steal Dr. Goldfarb's histology slides" to determine why others were not successful;
>
> (4) Goldfarb testified that neither Volder nor Matsumoto taught his invention, and Anderson testified that he would not have been able to create a working graft based on Volder and Matsumoto; and
>
> (5) "pore size" and "internodal distance" are not synonymous based on several pieces of record evidence, including Wilbert L. Gore's, Gore's founder, declaration that "'[p]ore size' is not synonymous with 'fibril length'" in Volder and Cooper and Goldfarb's agreement "that pore size bears no relationship to fibril length" in the Interference.

Obviousness II, 2009 WL 886515, at *4–5 (some internal quotation marks and citations omitted); *see also Obviousness I*, 2008 WL 2954187, at *5.

In light of Volder and Matsumoto in combination, the court also found, in addition to its above findings on Volder alone, that the following evidence at trial supported the legal conclusion that claims 20 to 27 are not obvious:

> (1) like Volder, Matsumoto was "repeatedly considered by the PTO during the

> pendency of the Goldfarb application" and was found not to invalidate the claimed invention;
> (2) other doctors, including ones working for Gore itself, were unable to solve the problems with graft development after both Volder and Matsumoto were published, and Cooper himself could not determine why other researchers were failing;
> (3) "other researchers could not determine the structure disclosed in" Matsumoto or use Matsumoto "to create a working vascular graft";
> (4) Goldfarb's testimony that "Volder and Matsumoto . . . did not teach his invention," and Detton's testimony that "Gore researchers had no idea what type of ePTFE vascular graft Matsumoto used"; and
> (5) "Gore's own damaging admissions" that Matsumoto "failed to disclose the key parameter of internodal distance."

Id. at *5–6 (internal quotation marks and citations omitted).

The district court's exhaustive findings, summarily recited above, delineate the substantial evidence presented at trial to the jury about the scope and contents of Volder and Matsumoto, their differences from the claimed invention, and the objective indicia of nonobviousness. *See Obviousness II*, 2009 WL 886515, at *4–6; *Obviousness I*, 2008 WL 2954187, at *5. Neither Volder nor Matsumoto disclosed the importance of the internodal distance. Thus, the jury's verdict that claims 20 to 27 of the '135 patent are not invalid as obvious in light of

Volder alone, or Volder and Matsumoto in combination, is clearly supported. The district court did not err in denying Gore's motion for judgment as a matter of law on obviousness.

The district court determined that for the same reasons that it found Volder and Matsumoto in combination would not render the '135 patent obvious, there was also no basis for finding claims 20 to 27 of the '135 patent obvious in light of Matsumoto alone.[12] *Obviousness II*, 2009 WL 886515, at *7. We agree. For the reasons stated above regarding the nonobviousness of claims 20 to 27 of the '135 patent in light of Volder and Matsumoto in combination and Matsumoto's failure to anticipate claims 20 to 27 of the '135 patent, the district court did not err in denying Gore's motion for judgment as a matter of law that Matsumoto alone renders claims 20 to 27 of the '135 patent obvious.

D.

The issue of whether "a patent is invalid for failure to meet the written description requirement of 35 U.S.C. § 112, ¶ 1 is a question of fact, and we review a jury's determinations of facts relating to compliance with the written description requirement for substantial evidence." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1355 (Fed. Cir. 2010) (en banc) (internal quotation marks and citations omitted). The written description issue in this

[12] The jury's verdict form did not designate whether claims 20 to 27 of the '135 patent were obvious in light of Matsumoto alone, *see Verdict Form*, at 17, but it did ask whether those claims of the '135 patent were obvious in light of Volder and Matsumoto, without specifying whether both references had to be considered in combination, *id.* Based on the verdict form, the jury could have found that Matsumoto alone rendered those claims of the '135 patent invalid as obvious.

case is whether the written description of the '135 patent supports the claims that are not limited to a prosthesis with a wall thickness of 0.2 to 0.8 mm, namely claims 20 to 24 and 27. The jury determined that claims 20 to 27 of the '135 patent were not invalid for lack of adequate written description. *Verdict Form*, at 19. The district court found that substantial evidence demonstrated that wall thickness is not an essential element of Goldfarb's invention and, thus, denied Gore's motion for judgment as a matter of law for lack of written description. *Post-Trial I*, 586 F. Supp. 2d at 1091.

A patent's written description must "'clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.'" *Ariad*, 598 F.3d at 1351 (quoting *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563 (Fed. Cir. 1991)). The test for sufficiency of written description is "whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Id.* (citations omitted).

The '135 patent states that "the average internodal distance, as measured along the axis of expansion 12, *must* fall within a relatively narrow range of values, viz., between approximately 6 and 80 microns." Col.5 ll.31–34 (emphasis added). Thus, a specific average internodal distance is a requirement of the claimed invention. *See id.* Alternatively, the written description also states that "[w]all thickness is another *factor* affecting the establishment and maintenance of a viable neointima in grafts." *Id.* col.6 ll.40–42 (emphasis added). Thus, although "[g]rafts embodying the present invention, having wall thicknesses in the range between 0.2 and 0.8 millimeters . . . have exhibited excellent mechanical properties" and "[g]rafts falling outside these ranges have been found to be marginal or clinically unacceptable," the language of

the '135 patent does not mandate a wall thickness within the stated range for the claimed invention. *Id.* col.7 ll.9–13, 15–17; *see Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1371 (Fed. Cir. 2009) ("[A] patent claim is not necessarily invalid for lack of written description just because it is broader than the specific examples disclosed.") (citations omitted).

Additionally, in the Interference, the PTO itself proposed a count that did not include a wall thickness limitation. *See Cooper I*, 154 F.3d at 1326. Even though Goldfarb testified that a graft outside the range of 0.2 to 0.8 mm was "technically harder to handle," he did "not say[] it wouldn't work." J.A. 32117. Further, although Goldfarb moved to amend the count to include a range for wall thickness, the PTO denied the motion because "there is evidence that fibril length is *the* critical variable, and in terms of an interference, the broadest possible patentable claim must be used as the count" and an amended count with a wall thickness limitation would be "narrower than the present count." J.A. 41463. Cooper himself responded that "[o]nce it is known that fibril length is the key to successful tissue growth, however, optimizing the other structural features of the graft is, and was, a matter of routine experimentation" and that "[t]he present count . . . is *supported by each party's application* [and] broadly *covers the real invention*." J.A. 25672–73 (emphases added); *see also* J.A. 41462 ("Cooper argues . . . vigorously that only fibril length is critical to the operability of the claimed device.").

Finally, at trial, Goldfarb testified that his invention did not require a specific wall thickness because "wall thicknesses were really dependent on the application of the graft and not one wall thickness for all . . . implantations" was appropriate. J.A. 9400–01.

Accordingly, substantial evidence supports the jury's finding that claims 20 to 24 and 27 of the '135 patent are not invalid for lack of written description, and the district court did not err in denying Gore's motion for judgment as a matter of law on the issue.

E.

Determining whether or not infringement is willful is a question of fact that must be established by clear and convincing evidence and is reviewed for substantial evidence. *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1190 (Fed. Cir. 1998). The jury found that Gore's infringement of claims 20 to 27 of the '135 patent was willful, despite a November 2002 opinion of counsel that the claims of the '135 patent were invalid. *Verdict Form*, at 20. The district court found that there was "sufficient evidence for the jury to have found willful infringement by clear and convincing evidence." *Post-Trial I*, 586 F. Supp. 2d at 1089. The evidence included an extensive litigation history before the PTO where Goldfarb was the sole inventor and Gore was the losing party, and also included Gore's reliance on the same references that were before the PTO, which the PTO found did not invalidate the '135 patent, to support its invalidity defenses. *Id.*

To establish willful infringement, "a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent." *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc). For a finding of willfulness, once the "threshold objective standard is satisfied, the patentee must also demonstrate that this objectively-defined risk . . . was either known or so obvious that it should have been known to the accused infringer." *Id.* Drawing inferences,

especially for "an intent-implicating question such as willfulness, is peculiarly within the province of the fact finder that observed the witnesses." *Rolls-Royce Ltd. v. GTE Valeron Corp.*, 800 F.2d 1101, 1110 (Fed. Cir. 1986).

Bard presented substantial evidence to satisfy both prongs of the *Seagate* standard and support the jury's finding that Gore's infringement was willful. The jury heard evidence of the eighteen-year Interference, in which Goldfarb was awarded priority of invention. *Post-Trial I*, 586 F. Supp. 2d at 1089; *see Cooper II*, 240 F.3d 1378; *Cooper I*, 154 F.3d 1321. Based on the Interference, Gore was aware of both the '135 patent's existence and Goldfarb's research activities at AHI. In addition, Gore relied on Matsumoto and Volder to support its invalidity defenses, even though those references were previously considered and rejected as not invalidating by the PTO. *See* '135 patent at [56]; *Am. Hoist*, 725 F.2d at 1359. Further, for example, the district court found that "Gore ha[d] no valid evidentiary basis for meritoriously arguing that Claims 20 through 27 of the Goldfarb patent [we]re, by clear and convincing evidence, obvious" in light of Matsumoto and Volder, which was "not a close call." *Obviousness II*, 2009 WL 886515, at *7. Based on this evidence alone, it would have been reasonable for the jury to find that Gore manufactured and sold grafts despite an objectively high likelihood the grafts infringed the valid '135 patent.

Additionally, "an infringer's reliance on favorable advice of counsel . . . is not dispositive of the willfulness inquiry." *Seagate*, 497 F.3d at 1369. In cases "where willful infringement is found despite the presence of an opinion of counsel," the "opinion of counsel was either ignored or found to be incompetent." *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 829 (Fed. Cir. 1992), *superseded on other grounds as recognized by Hoechst Celanese Corp. v.*

BP Chems. Ltd., 78 F.3d 1575 (Fed. Cir. 1996). As the district court determined, Bard presented substantial evidence that Gore's opinion of counsel was not based on an objective perspective. *Damages*, slip op. at 9–11. In addition to the opinion's reliance on Matsumoto and Volder, which were already rejected by the PTO, the bases of alleged invalidity asserted in the opinion were "directly contrary to the validity arguments [Gore] presented to the PTO when attempting to patent Dr. Goldfarb's invention." *Damages*, slip op. at 9. With the same law firm representing Gore both before and after the '135 patent was issued, the district court viewed the objectivity of the opinion as questionable. *Id.* at 10. The district court also found that the opinion was not "premised on the best evidence available" because it excluded certain available evidence that was relevant to Gore's invalidity defenses. *Id.* Thus, there was also substantial evidence presented to the jury that supports the finding that Gore knew or should have known of the objectively high likelihood that its grafts infringed the '135 patent.

Gore's presentation of "several defenses at trial . . . does not mean the jury's willfulness finding lacks a sufficient evidentiary basis . . . . [T]he jury was free to decide for itself whether [Gore] reasonably believed there were any substantial defenses to a claim of infringement." *i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 860 (Fed. Cir. 2010), *aff'd*, 131 S. Ct. 2238 (2011) (citations omitted). Accordingly, substantial evidence supports the jury's finding that Gore willfully infringed the '135 patent, and the district court did not err in denying Gore's motion for judgment as a matter of law on willfulness.

F.

The jury concluded that Bard was entitled to damages for Gore's infringement of the '135 patent: lost profits in the amount of $102,081,578.82, reasonable royalties in the amount of $83,508,292.20, and a reasonable royalty rate of 10%. *Verdict Form*, at 22–23. In exercising its discretion, the district court awarded Bard double enhanced damages of $371,179,742.04 and attorneys' fees and costs of $19 million. *Damages*, slip op. at 23.

Section 284 of Title 35 of the United States Code allows a court to "increase the damages up to three times the amount found or assessed." This court has held that "an award of enhanced damages requires a showing of willful infringement." *Seagate*, 497 F.3d at 1368. However, "the decision to grant or deny enhanced damages remains firmly within the scope of the district court's reasoned discretion, informed by the totality of the circumstances." *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1274 (Fed. Cir. 1999).

The district court did not abuse its discretion in awarding enhanced damages. In addition to the jury's finding of willfulness that is supported by substantial evidence, the court conducted a detailed and exhaustive review of all nine *Read* factors to ascertain whether Gore acted in bad faith to merit an increase of the jury's damages award. *Damages*, slip op. at 4–19. The *Read* factors for determining whether an infringer has acted in bad faith include:

> (1) whether the infringer deliberately copied the ideas or design of another; (2) whether the infringer, when he knew of the other's patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed; (3) the infringer's behav-

> ior as a party to the litigation; (4) defendant's size and financial condition; (5) closeness of the case; (6) duration of defendant's misconduct; (7) remedial action by the defendant; (8) defendant's motivation for harm; and (9) whether defendant attempted to conceal its misconduct.

Liquid Dynamics Corp. v. Vaughan Co., 449 F.3d 1209, 1225 (Fed. Cir. 2006) (citing *Read*, 970 F.2d at 826–27). The court found that all of the factors, except as to whether Gore attempted to conceal its misconduct, weighed in favor of enhanced damages. Three of those eight favorable factors, however, were only slightly in favor of enhancement: namely, the good faith belief of invalidity or non-infringement, behavior as a party to the litigation, and closeness of the case. *Damages*, slip op. at 19–20. Thus, the court exercised its discretion by only doubling the jury's damages award, and not tripling as it had the authority to do. *Id.* at 20. Based on the evidence, the district court did not abuse its discretion in awarding enhanced damages to Bard.

Section 285 of Title 35 of the United States Code states that a "court in exceptional cases may award reasonable attorney fees to the prevailing party." Whether a case is exceptional and, thus, eligible for an award of attorneys' fees requires the district court to first, make a factual determination of whether a case is exceptional and second, exercise its discretion to determine whether attorneys' fees are appropriate. *Cybor*, 138 F.3d at 1460.

The district court also found that there was sufficient basis for deeming this case exceptional based on the jury's verdict of willfulness, the evidence supporting willfulness, and the extensive litigation history between the parties that Gore repeatedly lost yet continued to infringe.

Damages, slip op. at 21–22. The court also determined that Gore argued contradictory positions on infringement throughout the litigation and relied on testimony that was not credible. *Id.* at 22–23. Thus, the court concluded that this case was exceptional, justifying the exercise of its discretion in awarding of attorneys' fees and costs.[13] Based on the record, the district court did not abuse its discretion in awarding Bard attorneys' fees and costs.

The district court denied Bard's request for a permanent injunction finding that it was in the public interest to allow competition in the medical device arena, but in lieu thereof granted Bard an ongoing royalty to compensate for Gore's future infringement. *Injunction*, 2009 WL 920300, at *4–10; *see eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006) (permitting the denial of a permanent injunction if the public interest would be disserved). The court set a 12.5% to 20% royalty rate on Gore's grafts depending on the different types of graft. *License*, slip op. at 15–16.

The award of an ongoing royalty instead of a permanent injunction to compensate for future infringement is appropriate in some cases. *Paice*, 504 F.3d at 1314; *see also Shatterproof*, 758 F.2d at 628 (upholding a court-ordered royalty based on sales as a remedy for continuing operations). Because of the public interest as the court here determined, "the district court may wish to allow the parties to negotiate a license amongst themselves regarding future use of a patented invention before imposing an ongoing royalty." *Paice*, 504 F.3d at 1315. But if the parties cannot reach agreement, "the district court could step in to assess a reasonable royalty in light of the ongo-

[13] The parties stipulated that $19 million was a reasonable amount of attorneys' fees and non-taxable costs in this case. *Damages*, slip op. at 21.

ing infringement." *Id.* For this court to determine whether the district court abused its discretion in setting the ongoing royalty rate, the district court must explain the reasoning in establishing the appropriate royalty rate. *Id.* (citing *Hensley v. Eckerhart*, 461 U.S. 424, 437 (1983) ("It [is] important . . . for the district court to provide a concise but clear explanation of its reasons for the fee award.")).

Here, Bard proposed a royalty rate of 35% for Gore's surgical graft products and 20% for Gore's stent graft products, while Gore proposed a royalty rate of 5.25% for all of its infringing products. *License*, slip op. at 4. The district court explained its reasons for establishing the various royalty rates at "20% on surgical grafts, 15% on stent-grafts, 12.5% on the VIABAHN® stent-graft, and 15% on the PROPATEN® surgical graft against" Gore. *Id.* at 15–16. The court reasoned that a different royalty rate was warranted between Gore's surgical and stent graft products because for surgical graft products, Gore competes directly with Bard in the more established market, while for stent graft products, a more recently developed market, Bard does not presently directly compete with Gore. *Id.* at 12. Thus, the court concluded that "a free-market license between Bard and Gore would separate the royalty rates on the two sets of products to account for those differences." *Id.* Thus, taking economic market forces into account is a reasonable and valid assumption by the district court.

Next, the district court determined that the ongoing royalty on all of Gore's products "should be higher than the 10% reasonable royalty rate" set by the jury. *Id.* The court considered the parties' changed legal post-verdict status: namely that the jury found the '135 patent enforceable and not invalid and Gore had willfully infringed; the court deemed this case exceptional so that Bard was

awarded enhanced damages and attorneys' fees and costs; and Gore voluntarily chose to continue its post-verdict infringement unabated. *Id.* at 13; *see Amado v. Microsoft Corp.*, 517 F.3d 1353, 1361–62 (Fed. Cir. 2008) ("Prior to judgment, liability for infringement, as well as the validity of the patent, is uncertain, and damages are determined in the context of that uncertainty. Once a judgment of validity and infringement has been entered, however, the [damages] calculus is markedly different because different economic factors are involved." (citation omitted)). The court also considered other economic factors, including that Bard and Gore compete directly with respect to surgical grafts, Gore profits highly from its infringing products, Gore potentially faces stiffer losses that include a permanent injunction if Bard prevails in a second lawsuit, and Bard seeks adequate compensation and lacks incentive to accept a below-market deal. *Id.* at 13. Finally, the court reasoned that the value Gore added to its VIABAHN® and PROPATEN® grafts that are bonded with heparin warranted lower royalty rates on those products. *Id.* at 13. Based on the district court's reasoning, the court did not abuse its discretion in setting a 12.5% to 20% royalty rate for the ongoing royalty on Gore's infringing grafts.

Accordingly, the district court's award of enhanced damages, attorneys' fees and costs, and an ongoing royalty as described in thorough and well-reasoned orders was not an abuse of discretion.

CONCLUSION

For the foregoing reasons, we affirm the judgment that the '135 patent is valid and willfully infringed because the jury's verdict is supported by substantial evidence. We also conclude that the district court did not abuse its discretion in awarding enhanced damages,

attorneys' fees and costs, and an ongoing royalty. We commend the district court for its well-reasoned and well-grounded opinions and its extensive and thoughtful analysis of the case.

AFFIRMED

United States Court of Appeals for the Federal Circuit

BARD PERIPHERAL VASCULAR, INC.
AND DAVID GOLDFARB, M.D.,
Plaintiffs/Counterclaim Defendants-Appellees,

AND

C.R. BARD, INC.,
Counterclaim Defendant-Appellee,

v.

W.L. GORE & ASSOCIATES, INC.,
Defendant/Counterclaimant-Appellant.

2010-1510

Appeal from the United States District Court for the District of Arizona in Case No. 03-CV-0597, Judge Mary H. Murguia.

NEWMAN, *Circuit Judge*, dissenting.

The court today holds that a person who performs the requested test of a material that is provided to him for testing for a specified use, can then, when the test is successful, patent the material he was provided, for the use for which it was tested. My colleagues hold that Dr.

David Goldfarb, who was provided with Gore-Tex® tubular material for testing as a vascular graft in dogs, can patent as his own the Gore-Tex material that Gore employees provided to him, and assert the exclusive right to the use for which the material was provided. My colleagues hold that Dr. Goldfarb then can enforce this patent against the provider of the Gore-Tex material that he tested. My colleagues on this panel endorse and defend these errors and improprieties, and now rule that Gore is the willful infringer of this improperly obtained patent on Gore's product and use. My colleagues find no blemish in this history of incorrect law, impropriety, questionable advocacy, and confessed perjury. I respectfully dissent.

DISCUSSION

The saga of the patent in this suit starts in February 1973, when employees of W.L. Gore & Associates, in connection with an ongoing program led by Gore's Plant Manager Peter Cooper, invited Dr. Goldfarb at the Arizona Heart Institute to participate in testing the Gore-Tex expanded polytetrafluoroethylene (ePTFE) for use as a vascular graft. Gore-Tex ePTFE had already been successfully tested as vascular grafts in dogs and sheep, by surgeons at various universities and hospitals. Peter Cooper and Gore employee Richard Mendenhall visited Dr. Goldfarb, told him of the material, its properties, and the results obtained and in progress, and invited him to participate in the testing program. Dr. Goldfarb accepted the invitation, and Cooper provided him with several Gore-Tex tubes with the ePTFE structures that had been found to be most effective as vascular grafts, in studies by the other researchers. Dr. Goldfarb then implanted in dog arteries the Gore-Tex tubes that Cooper provided, observed that the material was indeed effective, and in October 1974 filed a patent application on the effective

Gore-Tex graft materials and this use, naming himself as the inventor.

Gore had already filed a patent application on the effective Gore-Tex graft materials, with Peter Cooper as inventor. Prosecution continued for twenty-eight years, including a patent "interference" that lasted for eighteen years, with two appeals to the Federal Circuit. On August 20, 2002 the Patent and Trademark Office ("PTO") issued a patent to Dr. Goldfarb. In 2003 Goldfarb and his then-assignee, the C.R. Bard Company, sued Gore for patent infringement.

The record shows Gore's extensive experience with these Gore-Tex graft materials, experience that preceded Dr. Goldfarb's entry into Gore's testing program, including various prior art activities of record in the PTO. Dr. Goldfarb acknowledged in the interference proceeding that use of Gore-Tex ePTFE as a mammalian graft had been known as early as 1970 or 1971, when Dr. Ben Eiseman of the University of Colorado began testing Gore-Tex vascular grafts. *Brief for the Junior Party David Goldfarb*, Interference No. 101,100, PX 116.6818 at 6, in *Bard v. Gore*, No. CV 03-0597-PHX-MHM. Dr. Goldfarb also acknowledged to the PTO that "[a]t about the same time, Dr. Matsumoto in Tokyo, Japan, obtained a sample of expanded PTFE tubing and implanted it in dogs as a small diameter graft," and "Matsumoto reported a 100% success rate …." *Id*. at 7. Dr. Matsumoto, of the Department of Thoracic Surgery of the University of Tokyo, published several scientific articles on this work, *e.g.*, Matsumoto *et al.*, "Studies of Porous Polytetrafluoroethylene as a Vascular Prosthesis: Application to Peripheral Arteries," *Artificial Organs*, Vol 1, No. 1, p. 44 (1972). Another Matsumoto publication, in *Surgery*, Vol. 74, No. 4, p. 519 (October 1973) states that "Gore-Tex tubes manufactured by W. L. Gore Associates" were implanted

in dogs for up to ten months. The *Surgery* article states that after the implant period "the internal surface of the grafts were visualized macroscopically and microscopically," and includes photomicrographs of the Gore-Tex tubes showing the fibrous and internodal structure that is claimed in the Goldfarb patent. Figure 3 of the *Surgery* article is a photomicrograph "of an expanded polytetrafluoroethylene prosthesis removed ten months after operation. The neointima is very well developed and firmly adherent to the inner surface"; properties that the jury (and the PTO) was told were discovered by Dr. Goldfarb. Figure 4 is a "microscopic picture of an expanded polytetrafluoroethylene prosthesis removed 4.5 months after operation. Fibroplasis is well formed through pores"; these are all properties that the jury and the PTO were told were discovered by Dr. Goldfarb.

In 1972, well before Dr. Goldfarb was first contacted by the Gore employees, an internal memorandum written by Cooper entitled "Who Is Doing What With GORE-TEX Veins and Arteries and Other Experiments," dated August 15, 1972, reports experiments conducted by Dr. Jay Volder of the University of Utah, using Gore-Tex tubes provided by Cooper, for vascular grafts in sheep:

> 4. University of Utah: Dr. Jay Volder - Jugular Vein, Carotid Arteries 5.3 and 9.9 mm. On Dr. Kolff's Staff.
>
> 10 sheep each. Arteries are perfect. Some veins clotted in a few weeks. When smaller, more porous tubes were used as veins, they did not clot but the intima "was not well adhered". Do not know if higher flow rates or more porous structure was cause of better success - could be both. We will supply even more highly expanded 5 mm ma-

> terial, .2-.3 gms/cc compared to .53 which he used. He plans to write a paper.

PX 116.17703, *Bard v. Gore*, No. CV 03-0597-PHX-MHM. A trip report by Cooper dated November 3, 1972 states:

> Dr. Volder has had excellent success in GORE-TEX arteries and veins. The artery work has been perfect using two densities of GORE-TEX: the vein work only when the lower of the two densities was used. Our letter to Dr. Volder describing the properties of the two tubes he has used is in the University of Utah file.

Id., PX 116.17766. Dr. Volder's work was published, "A-V Shunts Created In New Ways," *Transactions of the Amer. Soc. for Artificial Internal Organs*, Vol. 20, p. 38 (November 1973), in which Dr. Volder described the structure and properties of the Gore-Tex materials, and stated: "It is believed that by increasing the average pore size of the material, at the moment 5μ [microns], it will be possible to accelerate the process of tissue infiltration and the development of capillaries." *Id.* at 39.

Several other surgeons had previously tested the Gore-Tex material as vascular grafts in dogs. In November 1972 Cooper provided Gore-Tex tubes of various fibrous structures to Dr. William J. Sharp at the Akron City Hospital and Dr. Glenn Kelly at the University of Colorado Medical School. This activity is summarized in *Cooper v. Goldfarb*, 154 F.3d 1321 (Fed. Cir. 1998) ("*Cooper I*"), the court stating that "In the spring of 1973, the researchers participating in the three-structure experiment began obtaining results." *Id.* at 1324. The court stated that in "a letter dated April 2, 1973, Dr. Sharp informed Cooper that two of his grafts had been successful." *Id.* at 1324. Dr. Sharp described the characteristics of fibroblastic infiltration and the nature of the neointima

as viewed by microscope – characteristics that Dr. Goldfarb stated were his discovery. Dr. Sharp provided his photomicrographs to Mr. Cooper, and wrote:

> RESULTS: Group I-416-10312-3 (.31g/cc). There were a total of four grafts inserted into the dog's carotid artery. Two remained patent in the same animal for 21 days and 2 clotted before 21 days in another animal. The low power microscopic views demonstrate excellent fibroblastic infiltration of the wall of the graft (Figure # 1) and a fairly thick, but well attached neointima (Figure # 2). There was only moderate reaction externally. (Figure # 3).

PX 116.17829, *Bard v. Gore*, No. CV 03-0597-PHX-MHM.

This court also reviewed Dr. Kelly's studies, at the University of Colorado, of various Gore-Tex materials as vascular grafts in dogs, in which Dr. Kelly identified the structures that were most effective. The court summarized Dr. Kelly's histological studies and microscopic investigation of tissue ingrowth – characteristics that Dr. Goldfarb claimed as his discovery. The Federal Circuit summarized this work:

> On April 17, 1973, Dr. Kelly sent Cooper four histological slides of harvested grafts. Cooper testified that he reviewed the slides under a microscope on April 22, 1973, and then photographed the slides, measured the fibril lengths shown, and recorded his conclusions in his laboratory notebook. The first page of Cooper's notebook contains a photomicrograph of a harvested graft along with a notation indicating that the graft was submitted by Dr. Kelly. The page also contains a sticker with a 100 micron scale indicated.

> The following is written above the photomicrograph:
>
> > I want to maximize the amount and rate of tissue ingrowth into Gore-Tex vascular prosthetics. Two qualities are necessary. 1. Uniform "poker chip" structure and 2. a minimal "skin" at both the O.D. and I.D. surfaces.
> >
> > Tissue has invaded Gore-Tex where the nodes are approx. 10-30 microns thick and with most separations between nodes at about 50-100 microns. Photo # 1. Other structures having approximately 5-10 micron node dimensions and spaces from about 5-30 micron do not appear to allow ingrowth-Photo # 2.

Cooper I, 154 F.3d at 1325. This court referred to Kelly's photomicrographs showing tissue ingrowth and internodal separation, yet Dr. Goldfarb, before the jury, accused Cooper of stealing Goldfarb's photomicrographs showing tissue ingrowth and internodal separation. By the time of trial, Cooper had died, leaving Dr. Goldfarb uncontradicted.

Dr. Goldfarb had told the PTO that it was "well known in 1972 and before" that for tissue ingrowth in a vascular graft, the internodal distance must be "at least the size of a fibroblast or red blood cell," that is, "in the range of 5-6 microns," so that the cells can infiltrate the ePTFE pores. *Goldfarb Decl.*, April 26, 1984 at ¶¶4-6; PX 116.9772, *Bard v. Gore*, No. CV 03-0597-PHX-MHM. This is the internodal distance that all of the investigators who preceded Goldfarb had observed to characterize the effective Gore-Tex graft materials. Yet at the infringement trial the jury was told that it was Goldfarb who discovered that Gore-Tex ePTFE had these properties and performance.

Dr. Goldfarb conceded at the infringement trial that he knew nothing about Gore-Tex or ePTFE before the Gore employees suggested that he participate in the test program for these materials:

> Q. Dr. Goldfarb, do you agree that the idea of trying out ePTFE tubes as an artificial vascular prosthesis was something that was first suggested to you by two Gore employees, Peter Cooper and Richard Mendenhall?
>
> A. Yes.
>
> Q. Before the Gore employees told you about trying ePTFE as a vascular prosthesis, you didn't know anything about that material, correct?
>
> A. That's correct.
>
> Q. And the first suggestion from Gore came in about February 1973 I think you said; is that right?
>
> A. That's correct.

Trial Tr. 677:20-678:3, Nov. 8, 2007. The record contains the following letter from Peter Cooper dated February 14, 1973, written after this initial contact:

> Dear Dr. Goldfarb,
>
> Enclosed are a variety of sizes of GORE-TEX tubes for your animal artery prosthetic experiments. I have also enclosed a short length of tubing with a small flange at each end and wonder if an anastomosis technique where a similar flange if formed on the end of the artery and butted against the GORE-TEX prosthetic might not be a better technique than suturing the butt ends together.
>
> We want to do whatever we can to help you with your project. When additional materials or further information is needed, do not hesitate to let us know.
>
> Very truly yours,
> /s/ Peter B. Cooper
> Plant Manager

PX 116.13350, *Bard v. Gore*, No. CV 03-0597-P/-IX-MHM.

On April 19, 1973 Cooper sent Dr. Goldfarb additional Gore-Tex tubes, with a letter stating that these materials "represent the latest attempt to achieve satisfactory patency rates in small artery prosthetics," based on the ongoing work of the other surgeons in the project. The Federal Circuit summarized Dr. Goldfarb's participation:

> Following a meeting with Cooper and Mendenhall in early February, Goldfarb set up an animal research facility at AHI. Over the next several months, Cooper periodically sent Goldfarb a variety of expanded PTFE tubes to use in his research. Using the samples provided by Cooper, Goldfarb conducted a series of experiments consisting of 21 grafts implanted in the left and right carotid and left and right femoral arteries of seven

> dogs. . . . Goldfarb began obtaining results from these experiments towards the end of May of 1973.

Cooper I, 154 F.3d at 1325-26.

Dr. Goldfarb obtained results that conformed to the results that had been achieved by the other surgeons, and then filed a patent application on the Gore-Tex materials that he had received from the Gore employees. He claimed, for use as vascular grafts, the materials that he had been provided by Gore for this purpose. He claimed these materials by the tubular shape and size and density of the materials that he had been provided, and by the internodal structure of the materials that he had been provided and that he, and others before him, had observed to provide effective tissue ingrowth.

After eighteen years of interference proceedings, the PTO granted the patent to Goldfarb, although the PTO found and the Federal Circuit affirmed that Cooper was the first to conceive of the invention, including the specified internodal structure, and held that Goldfarb's work "inures to Cooper's benefit":

> Applying the *Genentech* test to these facts, we hold that Goldfarb's recognition that the 2-73 RF graft from the Lot 459-04133-9 material was suitable for use as a vascular implant inures to Cooper's benefit.

Cooper v. Goldfarb, 240 F.3d 1378, 1385 (Fed. Cir. 2001) ("*Cooper II*"). Goldfarb had sold his rights to International Medical Products and Research Associates ("IMPRA"), a company that had been formed by former Gore employees, and that was sued by Gore for infringement of trade secrets. Goldfarb later recovered his patent rights, and sold them to Bard. Goldfarb and Bard then

sued Gore for infringement. The jury found infringement by Gore's entire line of Gore-Tex graft human prostheses.

The infringement trial was fraught with errors of law, misstatements of fact, and confessed perjury by Dan Detton, a witness in this case to whose testimony my colleagues on this panel give weight. Mr. Detton admitted to perjury concerning Goldfarb's activities in testimony that Detton gave in the trade secret litigation between Gore and IMPRA, and Detton admitted that his false affidavits had been filed in the Patent Office to support Dr. Goldfarb's patent application. At the infringement trial, after Mr. Detton had been called by Gore to testify as to various aspects of the relationship between Gore and Dr. Goldfarb, Gore's counsel introduced Detton's affidavits and brought out Mr. Detton's prior false testimony:

> Counsel: Is this the second affidavit that you signed in that meeting in January of 1976?
>
> Mr. Detton. Yes, it's one of the two.
>
> Counsel: If you would turn to paragraph 15, please, of Exhibit 3220 [the second affidavit]. And it's stated there that prior to the applicant's disclosure of the structure defined in the above-identified application, affiant, that's you, was unaware of any other vascular structure which incorporated a thin wall (in the range of thicknesses between 0.2 and 0.8 millimeters). Do you see that?
>
> Mr. Detton: Yes.

> Counsel: Is that a factually accurate statement, Mr. Detton?
>
> Mr. Detton: No, that would be inaccurate. That's contradictory to the findings that we were having, and the results.

Bard v. Gore, No. CV03-0579-PHX-MHM, Examination of D. Detton, Trans. 1897:19-1898:6 (Nov. 27, 2007). Bard's counsel, in turn, also addressed the falsity of Mr. Detton's prior testimony:

> Counsel: You were asked, "As far as I can tell -- inform me if I'm correct and tell me if I'm wrong -- the specifications for the next 64 graft verification experiments were set forth by Dr. Goldfarb about mid-June of 1973; is that about correct?"
> Your answer, "Correct."
> Is your testimony there knowingly false or truthful?
>
> Mr. Detton: No, that was inaccurate testimony.
>
> Counsel: Was it knowingly false?
>
> Mr. Detton: Yes, it was.
>
> Counsel: Perjury?
>
> Mr. Detton: Yes, it was.

Bard v. Gore, No. CV03-0579-PHX-MHM, Trans. 1915:5-15 (Nov. 27, 2007).

The panel majority complains about my reference to Mr. Detton's admissions of perjury, stating that it is not our appellate role to determine credibility. I am not determining Mr. Detton's credibility: he did that for us. He admitted that he lied in the testimony that he gave in support of the Gore ex-employees who formed the company IMPRA to which Goldfarb initially assigned his patent rights, and who were sued by Gore for misappropriation of trade secrets. He admitted that he lied in the affidavits that were filed with the patent examiner and that achieved allowance of the Goldfarb application. This is not an appellate assessment of credibility – there is no credibility to assess.

The panel majority also misstates that the Matsumoto and Volder articles were "fairly considered" as "prior art in this appeal," for the jury was told that the patent examiner had fully considered these articles and had granted the patent in light thereof. It is now admitted that the Detton affidavits, filed in the PTO to distinguish these articles, were perjured; Detton testified that he had told Dr. Goldfarb and Goldfarb's counsel that he wanted to withdraw the affidavits, and they refused.

Goldfarb's counsel used the cross-examination of Detton as a platform for misstating to the jury that "the Federal Circuit and the patent office determined Dr. Goldfarb had come up with this invention," for both the Federal Circuit and the Patent Office had determined that Cooper, not Goldfarb, had conceived the invention. Such misstatements to the jury are typified by this exchange:

> Counsel: The date up there at the top is 22-10-73. Do you understand that to be October 22, 1973?
>
> Mr. Detton: I would assume.

> Counsel: And this is, just so we orient ourselves, some four or five months after the Federal Circuit and the patent office determined Dr. Goldfarb had come up with this invention.

Trial Tr. 1958:17-23, Nov. 27. 2007.

Dr. Goldfarb also told the jury that the Federal Circuit held that the Patent Office "affirmed the patent" – although neither had done so.

> Counsel: Okay. And this is the March 2001 opinion that -- what was the impact of this opinion? This is the federal – second Federal Circuit opinion, Dr. Goldfarb. What's the impact of this opinion?
>
> Dr. Goldfarb: It says that judgment -- that the decision made by the patent office affirmed the patent.

Trial Tr. 707:17-22, Nov. 8. 2007. In a travesty of flawed proceedings, in which almost all of the witnesses were dead, unwilling, or hostile, misstatements of law and fact abound.[1]

As a matter of law, Dr. Goldfarb cannot deprive Gore of the invention Gore possessed and that was known to Gore and published by others before Goldfarb entered the scene. A person who tests a material provided to him for

[1] I take note of the panel majority's observation that this saga has overtones of a Shakespearian tragedy, for these events indeed illustrate that "to be honest, as this world goes, is to be one man picked out of ten thousand." W. Shakespeare, *Hamlet*, Act II, sc. ii.

testing, in the test for which the material was provided, does not become the inventor of the material and the use for which he tested it, and does not thereby become the owner of the material with the sole right to the use he was invited to test. As stated in *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985), "An inventor 'may use the services, ideas, and aid of others in the process of perfecting his invention without losing his right to a patent.'" (quoting *Hobbs v. U.S. Atomic Energy Comm'n*, 451 F.2d 849, 864 (5th Cir.1971)).

The panel majority states that Dr. Goldfarb invented "a homogeneously porous vascular prosthesis" with "small nodes interconnected by extremely fine fibrils to form an open superstructure which will allow uniform, controlled transmural cellular ingrowth and thereby assure the establishment and maintenance of a thin, viable neointima as well as firm structural integration of the graft into the body." Maj. Op. at 4. That is incorrect; the product that the panel majority describes is the Gore-Tex product that the Gore employees invited Dr. Goldfarb to test as a vascular prosthesis; it was not invented, designed, created, or produced by Goldfarb. The Gore employees provided Goldfarb with known samples having small nodes interconnected with fibrils, of the density and wall thickness and internodal distance of the samples that others had previously successfully tested as graft prostheses. They were not Goldfarb's invention.

The panel majority also misstates, or misunderstands, the findings of the interference, and the prior Federal Circuit rulings. This court held that Cooper had conceived the entire invention before, not after, Goldfarb's purported reduction to practice. This court found that Cooper had provided Goldfarb with the material that he tested, and that by "letter to Goldfarb accompanying the

Lot 459-04133-9 material, Cooper described the material as represent[ing] the latest attempt to achieve satisfactory patency rates in small artery prosthetics, indicating that he expected the material to be suitable as a vascular graft." *Cooper II*, 240 F.3d at 1381. The court "h[e]ld that Goldfarb's recognition that the 2-73 RF graft from the Lot 459-04133-9 material was suitable for use as a vascular implant inures to Cooper's benefit." *Id.* at 1385. The court's inquiry into "whether Cooper can obtain the benefit of Goldfarb's knowledge of the fibril lengths of the material Goldfarb tested" was directed to the interference contest between Cooper and Goldfarb, for it was undisputed that Cooper had knowledge of the structure of the successful products before Goldfarb tested the successful products.

Thus this court held in *Cooper I* that Cooper had conceived the invention, including the fibril length limitation, before Goldfarb reduced the invention to practice. 154 F.3d at 1326. The letter from Dr. Sharp dated April 2, 1973 related to the Lot 459-04133-9 material, and Cooper's letter to Dr. Goldfarb on April 19, 1973 accompanied the Lot 459-04133-9 material and described it as "represent[ing] the latest attempt to achieve satisfactory patency rates in small artery prosthetics." *Cooper II*, 240 F.3d at 1384. This was the material that Dr. Goldfarb patented as his own, although pictures of the fibrous structure of the Gore-Tex grafts had been made known to Cooper by Dr. Sharp and Dr. Allen, and had been published by Dr. Matsumoto and Dr. Volder.

Whatever Dr. Goldfarb's contribution, he did not invent the effective graft materials. The "microscopic superstructure of uniformly distributed nodes interconnected by fibrils," as the product is described by the panel majority, was the known structure of the Gore-Tex materials that others had already successfully tested as grafts

at Gore's request. The "uniform, controlled transmural cellular ingrowth and thereby assure the establishment and maintenance of a thin, viable neointima as well as firm structural integration of the graft into the body," was recorded in Cooper's laboratory notebook before Goldfarb was first contacted by Cooper and Mendenhall. In *Cooper II* the court observed that the graft identified as 2-73 RF had been successfully tested before it was given to Goldfarb, and that Cooper "expected the material to be suitable as a vascular graft" and "intended that Goldfarb use the [material] for vascular grafts, and to that extent Goldfarb's experiments could be said to have been performed at Cooper's request." 240 F.3d at 1384.

At the infringement trial, Gore raised the separate defense to the infringement charge, that even if the Goldfarb patent is not now subject to challenge, Gore's employee Cooper, who was acknowledged to have conceived the invention, was at least a "joint inventor" in terms of 35 U.S.C. §116. The panel majority cites several cases to negate any access to joint inventorship, although this court had already found that Cooper conceived the invention that Goldfarb patented. Precedent illustrates that "inventorship" and "joint invention" have been disputed in a variety of situations, although none reached a result that entirely excluded the person who conceived the invention that was patented. I review the cases relied on by the panel majority to support the exclusion of Cooper as an inventor:

In *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352 (Fed. Cir. 2009), the question was whether an additional employee of the patentee should have been joined as an additional inventor; it was held that the decision of joinder depended on whether the additional employee made a significant contribution; but the persons who conceived the invention were not thereby excluded. In *Eli*

Lilly & Co. v. Aradigm Corp., 376 F.3d 1352 (Fed. Cir. 2004), the question was whether the information discussed during various technical meetings on possible collaboration led to joint invention; it was held that it depended on which ideas were discussed and their relation to the patented subject matter. In *University of Pittsburgh v. Hedrick*, 573 F.3d 1290 (Fed. Cir. 2009), the question was whether a research assistant was a joint inventor along with the senior scientists; the court held that the assistant was not a joint inventor because the invention had already been conceived. The court recognized the rule that invention turns on conception, not reduction to practice. In *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997), the court explained that 35 U.S.C. §116 "sets no explicit lower limit on the quantum or quality of inventive contribution required for a person to qualify as a joint inventor. Rather, a joint invention is simply the product of a collaboration between two or more persons working together to solve the problem addressed." In *Pannu v. Iolab Corp.*,155 F.3d 1344 (Fed. Cir. 1998), the patent application was already on file when the claimant to joint inventorship status appeared as a possible licensee; the invention had already been conceived. In *Hess v. Advanced Cardiovascular Sys.*, 106 F.3d 976 (Fed. Cir. 1997), doctors who were working on a new catheter obtained technical advice and samples of material from a purveyor of Raytheon tubing; the court held that this did not convert the adviser into a joint inventor of the catheter.

None of these determinations rejecting "joint invention" tracks the facts herein. No precedent holds, or suggests, that a person who tests a material provided by someone else, for the use for which the material was provided, becomes the sole inventor of the material he was provided and the sole inventor of the use for which he

was invited to test the material provided. The cases cited by the panel majority support Gore's position, not Goldfarb's, for in all cases the person who conceived the invention was an inventor, whether or not other persons had also contributed sufficiently to be included in inventorship.

At the infringement trial, the jury found that Cooper and Goldfarb were not "joint inventors," apparently because of Goldfarb's testimony that they did not have an "open line of communication during . . . their inventive effort," as the district court instructed the jury. Jury Instr. #25, Doc. 769-2, p. 40-41 ("Persons may be joint or co-inventors even though they do not physically work together, but they must have some open line of communication during or at approximately the time of their inventive effort."). I take note that witness Dan Detton, whose direct supervisor was Peter Cooper, testified that he was assigned to visit Dr. Goldfarb weekly during this work.

The jury was told, over and over, that the Federal Circuit had decided that Dr. Goldfarb was the sole inventor (although the Federal Circuit found that Cooper, not Goldfarb, conceived the invention); that Cooper and Goldfarb did not communicate; and other aspects that Cooper, in death, could not contradict.

Whether or not there was some form of joint invention that could include Goldfarb, Gore cannot be excluded from the right to continue to do that which it disclosed to Goldfarb and had previously been published by Matsumoto and Volder. Even on Goldfarb's theory that he made useful observations, it has been clear since *General Electric Co. v. Jewel Incandescent Lamp Co.*, 326 U.S. 242, 249 (1945), that "It is not invention to perceive that the product which others had discovered had qualities they failed to detect." *See In re Kubin*, 561 F.3d 1351, 1357

(Fed. Cir. 2009) (the discovery of an inherent property of a known composition does not render the composition patentable to the observer of the inherent property).

The PTO found and the Federal Circuit affirmed that Cooper was the first to conceive the invention, and that Cooper provided Goldfarb with the material embodying the invention for further testing by Goldfarb, *see Cooper I*, 154 F.3d at 1330. These rulings have never been challenged, even in the conceded perjured testimony, and totally negate the panel majority's claims on behalf of Goldfarb. The law has heretofore been clear that a person who tests a product provided by another, for the purpose designated by the provider, cannot acquire the exclusive right to that product for that use, to the exclusion of the inventor of the use. Such a rule violates the most fundamental premises of patent law and property rights. The panel majority's endorsement of such a rule will breed much mischief, to the disruption of routine testing relationships.

My colleagues, applying these flawed rulings, affirm that Gore willfully infringed the Goldfarb patent on the product that Gore invented, developed, and commercialized. My colleagues hold that Bard, who purchased Goldfarb's rights, is entitled to all of Gore's profits on all Gore-Tex graft materials. Yet the entire history is permeated by errors of fact and law, lies, inconsistencies, and injustice. In *Shatterproof Glass*, 758 F.2d at 626, this court stated that "If prejudicial error occurred, or if the verdict is against the clear weight of the evidence, as an alternative to judgment n.o.v. a new trial may be granted, in the discretion of the trial judge." It is apparent that "the verdict is against the weight of the evidence, that the damages are excessive, or that, for other reasons, the trial was not fair to the party moving." *Montgomery Ward & Co. v. Duncan*, 311 U.S. 243, 251 (1940). *See Fairmont*

Glass Works v. Cub Fork Coal Co., 287 U.S. 474 (1933) (a new trial should be granted when justice requires). At a minimum a new trial is required, lest we "make a scarecrow of the law."[2] From the panel majority's ratification of this insult to judicial process, I respectfully dissent.

[2] We must not make a scarecrow of the law,
Setting it up to fear the birds of prey,
And let it keep one shape, till custom make it
Their perch and not their terror.
W. Shakespeare, *Measure for Measure*, Act II, sc. ii.