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Level of Skill and Long-Felt Need: Notes on a Forgotten Future

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LEVEL OF SKILL AND LONG-FELT NEED: NOTES ON A FORGOTTEN FUTURE

by
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The Supreme Court's KSR *decision transforms the way we think about patent law's ordinary artisan. The ordinary artisan, the Supreme Court states, "is also a person of ordinary creativity, not an automaton." This transformation, which sweeps aside a contrary precept that had informed the Federal Circuit's nonobviousness jurisprudence for a generation, raises a key question: How do we fill out the rest of our conception, in a given case, of the ordinary artisan's level of skill at the time the invention was made? Reaching back to a large vein of case law typified by Judge Learned Hand's decisions about nonobviousness, as well as an all-but-forgotten nonobviousness bill that died in committee in 1948, the author shows that the modern "level of skill" inquiry can comfortably rely on evidence of long-felt, unmet need in the art and the failure of others to meet that need.*

[A]nd the best test of what persons of routine ingenuity can do is what they have done.
Judge Learned Hand[1]

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[1] Automatic Devices Corp. v. Cuno Eng'g Corp., 117 F.2d 361, 364 (2d Cir.), *rev'd*, 314 U.S. 84 (1941). *See also* W. States Mach. Co. v. S.S. Hepworth Co., 147 F.2d 345, 347 (2d Cir. 1945) (L. Hand, J.) ("As we have often repeated, in judging what

I. INTRODUCTION

"A person of ordinary skill is also a person of ordinary creativity, not an automaton."[2] The Supreme Court, with this statement, swept aside a contrary precept that had guided the patent law doctrine of nonobviousness for a generation at the U.S. Court of Appeals for the Federal Circuit ("Federal Circuit"). At the Federal Circuit, the person having ordinary skill in the art—or "PHOSITA," the objective construct from whose perspective one must judge the question of nonobviousness[3]—was "an uncreative plodder, incapable of making inventions of his own."[4] In *KSR*, its first decision about the nonobviousness doctrine in thirty-one years,[5] the Supreme Court transformed our understanding of the PHOSITA's generative capacity and skill: "Common sense teaches," for example, "that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle."[6] As a consequence, when analyzing the question whether an invention would have been obvious to the PHOSITA at the time the invention was made, "a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ."[7] As I have discussed elsewhere, I think the change from recent nonobviousness doctrine is fundamental.[8]

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requires uncommon ingenuity, the best standard is what common ingenuity has failed for long to contrive under the same incentive.").

[2] KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1742 (2007).

[3] 35 U.S.C. § 103(a) (2000).

[4] Rebecca S. Eisenberg, *Obvious to Whom? Evaluating Inventions from the Perspective of PHOSITA*, 19 BERKELEY TECH. L.J. 885, 891 (2004). *See also* Joseph P. Meara, *Just Who is the Person Having Ordinary Skill in the Art? Patent Law's Mysterious Personage*, 77 WASH. L. REV. 267, 276 (2002) ("Phosita is not the inventor, but rather an uncreative person that thinks along conventional lines, never seeking to innovate.").

[5] Sakraida v. Ag Pro, Inc., 425 U.S. 273 (1976). *Sakraida* was one of two decisions about nonobviousness decided in the October 1975 Term; the other was *Dann v. Johnston*, 425 U.S. 219 (1976).

[6] *KSR*, 127 S. Ct. at 1742. Others have noted the magnitude of the change from Federal Circuit doctrine. *See, e.g.*, Harold C. Wegner, *Making Sense of* KSR *and Other Recent Patent Cases*, 106 FIRST IMPRESSIONS 39, 41 (2007), http://www.michiganlawreview.org/firstimpressions/vol106/patentall.pdf ("Unlike the pre-*KSR* automaton, the post-*KSR* worker in the art has 'ordinary creativity.' As a result, inventions that were nonobvious the day before *KSR* suddenly became obvious to this modern man of ordinary skill in the art.").

[7] *KSR*, 127 S. Ct. at 1741.

[8] *See* Joseph Scott Miller, *Remixing Obviousness*, 16 TEX. INTELL. PROP. L.J. 237 (2007). I say "recent" because *KSR*'s recognition of the PHOSITA's creativity makes explicit what had long been implicit in the Supreme Court's deep skepticism about the likely patentability of inventions that merely reconfigure prior art elements in an admittedly new way. The Court expressed its skepticism most clearly in *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152 (1950) ("Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention [*i.e.*, nonobviousness] in an assembly of old elements."). If the PHOSITA is creative, and thus can remix prior art elements to

Whether the change it ushers is fundamental or modest, however, *KSR*'s rationale encourages us to explore more deeply how we can best determine the ordinary artisan's level of skill at the time the invention was made. The "level of ordinary skill in the pertinent art" is, after all, one of the "basic factual inquiries" that the nonobviousness requirement set forth in section 103(a) mandates.[9] *KSR* tells us that the PHOSITA is creative, rather than an automaton. How do we fill out the rest of the PHOSITA's skill profile in a given case? The inquiry is a challenge, because it pertains to both a hypothetical construct (rather than a concrete question about an actual person) and a technological domain that is likely unfamiliar to a generalist federal judge.[10] To date, "this critical factual inquiry has received comparatively little attention from the Federal Circuit."[11] Indeed, the now-common approach, typified by a cursory résumé-type statement,[12] looks a bit pallid in *KSR*'s brighter light.

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solve a problem, many solutions that are new will also be obvious: "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR*, 127 S. Ct. at 1739. And *KSR* expressly reaffirms *Great Atlantic. Id.* (quoting *Great Atl.*, and stating that "[n]either the enactment of § 103 nor the analysis in *Graham* disturbed this Court's earlier instructions concerning the need for caution in granting a patent based on the combination of elements found in the prior art."). I am not the first to note that the Court's skepticism about the likely patentability of combination claims grows out of the Court's sense of the PHOSITA's basic skills. *See* Mary Helen Sears, *Combination Patents and 35 U.S.C. § 103*, 1977 DET. C.L. REV. 83, 94 ("Manifestly, the Supreme Court has long been convinced . . . that merely combining old elements to arrive at a necessarily expected, additive result is *always* within the ordinary level of skill in any art and hence, obvious under section 103 and nonmeritorious of an exclusive patent grant."); *id.* at 99 ("the level of ordinary skill at any given time affords the basis for associating old elements in *any* manner which merely takes advantage of their known capabilities.").

[9] Graham v. John Deere Co., 383 U.S. 1, 17 (1966). *KSR* expressly reaffirms the Court's commitment to the *Graham* framework, including the importance of a finding about the PHOSITA's level of skill at the time the invention was made. *See KSR*, 127 S. Ct. at 1734 (quoting *Graham* and stating that "the [*Graham*] factors continue to define the inquiry that controls.").

[10] The Patent Office's expertise, though substantial, *see In re* Berg, 320 F.3d 1310, 1315 (Fed. Cir. 2003), delays rather than eliminates the problem of ignorance about a given technology. Appeals from Patent Office rejections are taken to the federal courts, either directly to the Federal Circuit or to the U.S. District Court for the District of Columbia with an appeal thereafter. *See* 35 U.S.C. § 141 (2000); 35 U.S.C. § 145 (2000) And, like all Article III federal judges, Federal Circuit judges come from a wide range of backgrounds. *See* S. Jay Plager & Lynne E. Pettigrew, *Rethinking Patent Law's Uniformity Principle: A Response to Nard and Duffy*, 101 NW U. L. REV. 1735, 1740 & n.28 (2007).

[11] Meara, *supra* note 4, at 268.

[12] *See, e.g.*, Pfizer, Inc. v. Apotex, Inc., 480 F.3d 1348, 1356, 1360 (Fed. Cir. 2007) ("The district court first found that a person of ordinary skill in the art would have a bachelor's degree in pharmaceutical science or analytical chemistry, and some experience in drugs and drug preparation."; "Neither party disputes the district court's characterization of the ordinarily skilled artisan."); Brown & Williamson Tobacco Corp. v. Philip Morris, Inc., 229 F.3d 1120, 1125 (Fed. Cir. 2000) ("The district court found, and the parties do not dispute, that a person of ordinary skill in the art of

Happily, there is a rich vein of Supreme Court and regional circuit case law from which to recover a more vivid, fact-laden method for establishing the PHOSITA's level of skill in a given technology at a given time. Judge Learned Hand's nonobviousness jurisprudence[13] exemplifies this method; he frequently established the ordinary artisan's level of skill by carefully sifting evidence of long-felt, unmet need in the art (or the lack thereof).[14] My goal here is to mine this jurisprudential vein, to help us weigh whether we should return evidence of long-felt, unmet need in an art to pride of place in determining the level of skill in that art. At least one commentator recently suggested this use of long-felt need evidence,[15] and *KSR* renews our need to recapture available wisdom from the nonobviousness jurisprudence of the regional circuit courts of appeals.[16]

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cigarette design in 1985 would have had a bachelor's degree in either engineering, chemistry, physics, or chemical engineering, and would have had at least five years experience in the field of cigarette design."). *See also* Meara, *supra* note 4, at 280–81 (noting the typical focus on a short statement of educational attainment and work experience).

[13] Most of Judge Hand's long judicial career—he served as a district court judge from 1909 to 1924, and as an appeals court judge from 1924 to 1961, GERALD GUNTHER, LEARNED HAND: THE MAN AND THE JUDGE xv–xvi, 133, 275–76 (1994)—predated Congress's 1952 codification of the nonobviousness requirement in 35 U.S.C. § 103 (now, § 103(a)). Before section 103's enactment, it was common to refer to the nonobviousness requirement as the invention requirement. *See* JANICE M. MUELLER, AN INTRODUCTION TO PATENT LAW 169 (2d ed. 2006). It is thus anachronistic, but only slightly so, to call Judge Hand's pre-1952 decisions a "nonobviousness jurisprudence." I do so for the reader's ease.

[14] *See* Clarence G. Galston, *Invention and the "Obvious,"* 13 F.R.D. 463, 466 (1952) ("Judge Learned Hand . . . finds invention when there is a long felt need in the art and a failure to meet the need until the inventor came along with the successful process or product."); Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CAL. L. REV. 803, 863 (1988) ("Perhaps no judge was more convinced that failure of others is a reliable consideration than Learned Hand. . . . Although references to commercial success appear in some of Hand's opinions, he reserved his most sweeping support for evidence of long-felt need and failure of others.") (footnote omitted).

[15] *See* Meara, *supra* note 4, at 295–96 ("Long-felt need and failure of others to make the invention should not be utilized as 'secondary' considerations, but rather as objective evidence of actual skill in the art. . . . When a problem is old in the art and has been the subject of more than de minimus research, it suggests that no one of any skill level was able to solve it. When combined with actual evidence that others failed to solve the problem, one can infer that the solution has eluded those of ordinary skill.") (footnote omitted). Prof. Chisum also notes long-felt need's value as evidence of the level of skill. *See* 2 DONALD S. CHISUM, CHISUM ON PATENTS § 5.03[4][a], at 5–209 (Supp. 2005) ("Yet, if an express finding as to the level of ordinary skill in the art is really critical in every case, then surely these factors [of "long-felt but unsolved needs and failure of others in the art"] would be considered as direct and primary evidence as to the level of skill in the pertinent art.").

[16] *See* KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1739 (2007) ("Throughout this Court's engagement with the question of obviousness, our cases have set forth an expansive and flexible approach. . . . To this end, *Graham* set forth a broad inquiry and invited courts, where appropriate, to look at any secondary considerations that would prove instructive.").

I proceed in three steps. First, I quickly inventory the pertinent Supreme Court and regional circuit court decisions about nonobviousness that predate the 1952 Patent Act, in which Congress first codified the nonobviousness requirement. Evidence of a long-felt, unmet need for the inventor's new solution often played a vital role in assessing whether an invention would have been obvious. Next, by examining how Congress came to codify the nonobviousness requirement, I show that section 103's analytical method comfortably accommodates proof of long-felt need and the failure of others as key circumstantial evidence of the level of skill in the art at the time the invention was made. Those who championed section 103 acknowledged that the statute gives only the barest framework, and using long-felt need (or the lack of it) to show the level of skill comports with the framework. Finally, using section 103 cases from the regional circuits, decided both before and after the Supreme Court's assay of section 103 in *Graham*, I provide a glimpse of an alternative future we briefly had—and could have again.

II. ASSESSING PATENTABILITY WITH LONG-FELT NEED EVIDENCE

The modern nonobviousness requirement entered U.S. law with the Supreme Court's 1851 decision in *Hotchkiss v. Greenwood*.[17] In *Hotchkiss*, the Court struck down a patent claim to a clay doorknob on the ground that the new doorknob configuration was too small an improvement to merit protection.[18] The new configuration included a clay knob around a dovetail-based metal rod; the prior art included clay knobs with straight rods and metal or wood knobs with dovetail rods.[19] The Court assumed, for purposes of argument, "that, by connecting the clay or porcelain knob with the metallic shank in this well-known [dovetail] mode, an article is produced better and cheaper than in the case of the metallic or wood knob."[20] Nevertheless, it held the new configuration to be unpatentable. According to the Court, an invention is not patentable unless its achievement is marked by "more ingenuity and skill . . . than were possessed by an ordinary mechanic acquainted with the business."[21] The Court thus contrasted "the work of the skillful mechanic" with "that of the inventor,"[22] whose creative response to the problem at hand reaches past those that the ordinary mechanic, any ordinary mechanic, would offer in that same situation. Section 103 continues this "functional approach," mandating the same "comparison between the subject matter of

[17] 52 U.S. (11 How.) 248 (1851). *See* Mueller, *supra* note 13, at 170.

[18] *Hotchkiss*, 52 U.S. at 266–67. For an engaging discussion of the *Hotchkiss* case and its role in the history of the nonobviousness standard, *see* Edward C. Walterscheid, *The* Hotchkiss *Unobviousness Standard: Early Judicial Activism in the Patent Law*, 13 J. INTELL. PROP. L. 103 (2005).

[19] *Hotchkiss*, 52 U.S. at 265.

[20] *Id.* at 266.

[21] *Id.* at 267.

[22] *Id.*

the patent, or patent application, and the background skill of the calling."[23]

The nonobviousness inquiry poses, in effect, a causation question: "What caused the inventor's success in making the invention? Her extraordinary insight and skill beyond that of the ordinary inventor, or her encounter with a problem situation that prompted an ordinary artisan's conventional response?" Cognitive social psychologists have, since at least the 1960s, studied how we make causal attributions of this type.[24] Fritz Heider, attribution theory's intellectual godfather,[25] described the impact of evidence about exceptional success or failure:

> If a person successfully completes an action, we say, 'He can do it' but the implications are very different if we conclude 'He can do it because it is so easy' or 'He can do it because he has such great ability.' . . . If we know that only one person succeeded or only one person failed out of a large number in a certain endeavor, then we shall ascribe success or failure to this person—to his great ability or to his lack of ability. On the other hand, if we know that practically everyone who tries succeeds, we shall attribute the success to the task. The task is then described as being easy. If hardly anyone succeeds it is felt to be difficult.[26]

Heider's description bears a striking resemblance to the inference we draw from long-felt, unmet need in an art, and the failure of others to meet that need:

> A defect in a product or process spurs the businessman to deploy resources for discovering a solution. . . . Existence of the defect creates a demand for its correction, and it is reasonable to infer that the defect would not persist were the solution 'obvious.' This is the rationale of longfelt demand and its justification as a test of nonobviousness.[27]

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[23] Graham v. John Deere Co., 383 U.S. 1, 12 (1966); *see also id.* at 17 (Section 103 "was intended merely as a codification of judicial precedents embracing the *Hotchkiss* condition"); KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1739 (2007) ("the principles laid down in *Graham* reaffirmed the 'functional approach' of *Hotchkiss*.").

[24] *See generally* ATTRIBUTION: PERCEIVING THE CAUSES OF BEHAVIOR (Edward E. Jones et al. eds., 1971); Harold H. Kelley, *Attribution Theory in Social Psychology*, 1967 Nebraska Symposium on Motivation 192; Harold H. Kelley, *The Processes of Causal Attribution*, 28 AM. PSYCHOLOGIST 107 (1973). For a general review of attribution theory, see SCOTT PLOUS, THE PSYCHOLOGY OF JUDGMENT AND DECISION MAKING 174–88 (1993).

[25] *See* Kelley, *The Processes of Causal Attribution*, *supra* note 24, at 107 (Heider's work "has played a central role in the or[i]gination and definition of attribution theory and continues to be the major source of ideas.").

[26] FRITZ HEIDER, THE PSYCHOLOGY OF INTERPERSONAL RELATIONS 89 (1958).

[27] Richard L. Robbins, Note, *Subtests of "Nonobviousness": A Nontechnical Approach to Patent Validity*, 112 U. PA. L. REV. 1169, 1172 (1964). In *Graham*, the Supreme Court cited this student note in support of the proposition that "[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the sub-

This reasoning taps our basic framework for assessing causation generally, and thus remains quite powerful.

The reasoning also has a strong pedigree in Supreme Court and regional circuit patent cases. The Supreme Court first relied on this method of assessing patentability in 1875, upholding patent claims to vulcanized rubber dentures against a *Hotchkiss*-style attack in *Smith v. Goodyear Dental Vulcanite Co.*[28] The Court's careful reasoning about the state of the art at the time it was made merits extended quotation:

> We cannot resist the conviction that devising and forming such a manufacture by such a process and of such materials was invention. More was needed for it than simply mechanical judgment and good taste. Were it not so, hard rubber would doubtless have been used in the construction of artificial sets of teeth, gums, and plates long before Cummings applied for his patent. To find a material, with a mode of using it, capable of being combined with the teeth in such a manner as to be free from the admitted faults of all other known combinations, had been an object long and earnestly sought. It had been a subject for frequent discussion among dentists and in scientific journals. The properties of vulcanite were well known; but how to make use of them for artificial sets of teeth remained undiscovered, and apparently undiscoverable, until Cummings revealed the mode. But when revealed its value was soon recognized, and no one seems to have doubted that the resulting manufacture was a new and most valuable invention.[29]

The evidence points quite directly to the conclusion that Cummings accomplished something out of the ordinary; ordinary artisans, with just as much incentive and access to the building blocks of the invention as Cummings had, failed to do what he did.[30] In subsequent cases, the Court continued to verify that an invention would not have been obvious by relying on evidence that it satisfied a long-felt, unmet need.[31] The Court

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ject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy." *Graham*, 383 U.S. at 17–18.

[28] 93 U.S. 486 (1876).

[29] *Id.* at 494–95.

[30] Judge Conner, who was a patent litigator before becoming a federal district court judge, noted that "although all such types of evidence [about the history of the art] are frequently referred to collectively and indiscriminately as 'circumstantial,' evidence of unsuccessful efforts may closely approach the status of direct evidence." William C. Conner, *Some Highly Personal Reflections on Section 103*, 5 APLA Q.J. 77, 78 (1977). Indeed, he described his own litigation experience this way: "So in every case I tried, I looked desperately for evidence of trial and failure; if I found it, which I usually did, I hammered away at that one theme, almost to the disregard of everything else. And it succeeded to an amazing degree." William C. Conner, *Winning Patent Infringement Suits—The Art of Swimming Against the Tide, in* NONOBVIOUSNESS—THE ULTIMATE CONDITION OF PATENTABILITY 4:401, at 402 (John F. Witherspoon ed., 1978).

[31] *See* Goodyear Tire & Rubber Co. v. Ray-O-Vac Co., 321 U.S. 275, 279 (1944); Expanded Metal Co. v. Bradford, 214 U.S. 366, 381 (1909); Potts v. Creager, 155 U.S. 597, 608 (1895); Gandy v. Main Belting Co., 143 U.S. 587, 594 (1892); Washburn &

also relied on the *absence* of evidence of long-felt need to support the inference that an invention would have been obvious to the PHOSITA.[32]

Throughout the era that preceded the enactment of section 103, the regional courts of appeals routinely analyzed nonobviousness by focusing on evidence of long-felt, unmet need and the failures of others (or the lack thereof). Apart from Second Circuit cases, which require special note, there are at least 17 such regional court of appeals cases that predate section 103,[33] as well as five pre-section-103 cases that review rejected applications on appeal from the Patent Office.[34] The Second Circuit, by itself, issued at least 23 long-felt need decisions before the enactment of section 103; Judge Learned Hand authored 16 of these,[35] and other judges authored seven.[36]

Moen Mfg. Co. v. Beat 'em All Barbed Wire Co., 143 U.S. 275, 282–83 (1892); Loom Co. v. Higgins, 105 U.S. 580, 591 (1881).

[32] *See* Universal Oil Prods. Co. v. Globe Oil & Refining Co., 322 U.S. 471, 486–87 (1944); Altoona Publix Theatres, Inc. v. Am. Tri-Ergon Corp., 294 U.S. 477, 488 (1935); Paramount Publix Corp. v. Am. Tri-Ergon Corp., 294 U.S. 477, 488 (1935).

[33] Watson v. Heil, 192 F.2d 982, 985 (4th Cir. 1951); Lincoln Stores, Inc. v. Nashua Mfg. Co., 157 F.2d 154, 163 (1st Cir. 1946); Trabon Eng'g Corp. v. Dirkes, 136 F.2d 24, 27 (6th Cir. 1943); Steiner Sales Co. v. Schwartz Sales Co., 98 F.2d 999, 1003 (10th Cir. 1938); Peerless Equip. Co. v. W.H. Miner, Inc., 93 F.2d 98, 104 (7th Cir. 1937); Remington Rand Bus. Serv. v. Acme Card Sys. Co., 71 F.2d 628, 632 (4th Cir. 1934); Mantle Lamp Co. v. George H. Bowman Co., 53 F.2d 441, 444 (6th Cir. 1931); Hughes Tool Co. v. Int'l Supply Co., 47 F.2d 490, 492 (10th Cir. 1931); Frick Co. v. Lindsay, 27 F.2d 59, 61 (4th Cir. 1928); U.S. Indus. Chem. Co. v. Theroz Co., 25 F.2d 387, 390–91 (4th Cir. 1928); Trane Co. v. Nash Eng'g Co., 25 F.2d 267, 269 (1st Cir. 1928); Yablick v. Protecto Safety Appliance Corp., 21 F.2d 885, 886–87 (3d Cir. 1927); Allis-Chalmers Mfg. Co. v. Columbus Elec. & Power Co., 19 F.2d 860, 863 (5th Cir. 1927); Elliott & Co. v. Youngstown Car Mfg. Co., 181 F. 345, 349 (3d Cir. 1910); Am. Caramel Co. v. Thomas Mills & Bro., 149 F. 743, 746 (3d Cir. 1906); Farmers' Mfg. Co. v. Spruks Mfg. Co., 127 F. 691, 694 (4th Cir. 1904); Davis v. Parkman, 71 F. 961, 964 (1st Cir. 1895).

[34] Levin v. Coe, 132 F.2d 589, 596 (D.C. Cir. 1942); Thornton v. Coe, 102 F.2d 247, 252 (D.C. Cir. 1938); Carbide & Carbon Chems. Corp. v. Coe, 102 F.2d 236, 241 (D.C. Cir. 1938); Wach v. Coe, 77 F.2d 113, 114–16 (D.C. Cir. 1935); *In re* Fawick, 56 F.2d 873, 874 (C.C.P.A. 1932).

[35] Landis Mach. Co. v. Parker-Kalon Corp., 190 F.2d 543, 546 (2d Cir. 1951); Clark v. Wright Aeronautical Corp., 162 F.2d 960, 966 (2d Cir. 1947); Safety Car Heating & Lighting Co. v. Gen. Elec. Co., 155 F.2d 937, 939 (2d Cir. 1946); Condenser Corp. v. Micamold Radio Corp., 145 F.2d 878, 879 (2d Cir. 1944); Automatic Devices Corp. v. Cuno Eng'g Corp., 117 F.2d 361, 363–64 (2d Cir.), *rev'd*, 314 U.S. 84 (1941); U.S. Hat Mach. Corp. v. Boesch Mfg. Co., 108 F.2d 417, 419 (2d Cir. 1939); Nagy v. L. Mundet & Son, Inc., 101 F.2d 82, 82–83 (2d Cir. 1939); Textile Mach. Works v. Louis Hirsch Textile Machs., 87 F.2d 702, 704 (2d Cir. 1937); Hazeltine Corp. v. Abrams, 79 F.2d 329, 332 (2d Cir. 1935); Buono v. Yankee Maid Dress Corp., 77 F.2d 274, 276 (2d Cir. 1935); Ruben Condenser Co. v. Aerovox Corp., 77 F.2d 266, 268 (2d Cir. 1935); Hookless Fastener Co. v. G.E. Prentice Mfg. Co., 68 F.2d 940, 941 (2d Cir. 1934); E.I. du Pont De Nemours & Co. v. Glidden Co., 67 F.2d 392, 397 (2d Cir. 1933); H.C. White Co. v. Morton E. Converse & Son Co., 20 F.2d 311, 313 (2d Cir. 1927); Kirsch Mfg. Co., v. Gould Mersereau Co., 6 F.2d 793, 794 (2d Cir. 1925); Auto Pneumatic Action Co. v. Kindler & Collins, 247 F. 323, 327–28 (2d Cir. 1917). I have not made any systematic search among Judge Hand's opinions for the U.S. Dis-

Judge Hand was by no means a blind adherent to the focus on long-felt, unmet need evidence. He recognized, for example, that a focus on long-felt need "is a dangerous test to apply, and will lead one astray unless jealously watched."[37] Long-felt need might be explained, in a given case, by something other than the successful inventor's acumen:

> If the machine or composition appears shortly after some obstacle to its creation, technical or economic, has been removed, we should scrutinize its success jealously; if at about the same time others begin the same experiments in the same or nearby fields, or if these come to fruition soon after the patentee's, the same is true. Such a race does not indicate invention.[38]

All the same, Hand appreciated—and explained—the comparative advantage, for a generalist judge, of relying on evidence of long-felt need where the evidence was available. Perhaps best known is his account in the *Safety Car Heating* case:

> Courts, made up of laymen as they must be, are likely either to underrate, or to overrate, the difficulties in making new and profitable discoveries in fields with which they cannot be familiar; and, so far as it is available, they had best appraise the originality involved by the circumstances which preceded, attended and succeeded the appearance of the invention. Among these will figure the length of time the art, though needing the invention, went without it: the number of those who sought to meet the need, and the period over which their efforts were spread: how many, if any, came upon it at about the same time, whether before or after: and—perhaps most important of all—the extent to which it superseded what had gone before. We have repeatedly declared that in our judgment this approach is more reliable then a priori conclusions drawn from va-

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trict Court for the Southern District of New York; I do know, however, of at least one that focused on long-felt need evidence. *See* Todd Protectograph Co. v. Safe-Guard Check Writer Co., 291 F. 613, 614 (S.D.N.Y. 1923).

[36] Minton Mfg. Co., v. Cont'l Briar Pipe Co., 93 F.2d 271, 272 (2d Cir. 1937); Elec. Mach. Mfg. Co., v. Gen. Elec. Co., 88 F.2d 11, 14–15 (2d Cir. 1937); Gen. Elec. Co. v. Paramet Chem. Corp., 82 F.2d 280, 282 (2d Cir. 1936); Am. Graphophone Co. v. Universal Talking Mach. Mfg. Co., 151 F. 595, 598–99 (2d Cir. 1907); George Frost Co. v. Cohn, 119 F. 505, 507–08 (2d Cir. 1902); Brunswick-Balke-Collender Co. v. Thum, 111 F. 904, 905–06 (2d Cir. 1901); Schenck v. Singer Mfg. Co., 77 F. 841, 844 (2d Cir. 1897).

[37] *Textile Mach.*, 87 F.2d at 704.

[38] *Ruben Condenser*, 77 F.2d at 268. Professors Merges and Duffy explain the point this way:

> In many situations, valuable innovations are obvious responses to recent changes in economic, social or technological circumstances. Where those changes are exogenous to the party seeking patent rights (i.e., that party is not responsible for the relevant changes), it is neither fair nor economically sensible to confer on that party exclusive rights to an obvious way to exploit the changed circumstance.

ROBERT P. MERGES & JOHN F. DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS 615 (4th ed. 2007).

> porous, and almost inevitably self-dependent, general propositions.[39]

The virtue of the natural experiment that long-felt need evidence establishes—many tried, only one succeeded—is that it can spare the judiciary a substantive technological assessment that its generalist judges are not especially well-suited to make.

III. SECTION 103, AND THE LONG-FELT NEED LAW THAT ALMOST WAS

By the 1940s, the use of long-felt need evidence to prove nonobviousness was well-established, as patent law treatises from that era show.[40]

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[39] *Safety Car Heating*, 155 F.2d at 939. His account in the *Landis* case is similar:

> The issue is always how far beyond commonplace contriving was the foresight necessary to think out the combination. Usually, though not always, it is practically impossible to decide that issue by a mere inspection of the patented disclosure against the background of the prior art. Moreover, it scarcely needs more than the statement of the question to disclose the fatuity of asking judges, undisciplined in the craft and untutored in its inarticulate presuppositions, to say how far the innovation is beyond the powers of merely competent craftsmen. For that reason we have over and over again resorted to the history of what went before, the duration of the period during which the invention was needed but failed to appear and its acceptance when it did. These circumstances have seemed to us, not indeed an absolute determinant of invention, for there is none; but at least the best, and indeed almost always the only, rational approach to a solution.

Landis Mach. Co., 190 F.2d at 546.

[40] 1 WILLIAM C. ROBINSON, THE LAW OF PATENTS FOR USEFUL INVENTIONS § 119, at 172 n.1 (Little, Brown, & Co. 1890) (collecting cases for the proposition "[t]hat inventive skill is indicated when the new art or article satisfies a long-felt want and is accepted as such satisfaction by the public"); *id.* § 122, at 174–76 ("[T]here is another fact which indicates . . . the necessity for inventive skill in the creation of the means whereby it is attained. This fact consists in the unsuccessful attempts of others to produce the same results. The courts assume that no such efforts would be made unless the want existed and were felt, while from the failure of all previous endeavors to supply it they draw the inference that nothing then existed in the arts from which the imitative faculties alone could have constructed a method of attaining to the satisfaction now enjoyed.") (footnote omitted); HARRY A. TOULMIN, JR., INVENTION AND THE LAW § 37, at 161 (1936) ("Where there has existed in an industry for a considerable period an unsatisfied public demand for a given result or the accomplishment of a given object, the one who is able by his invention to satisfy that public demand is an inventor. The most practical test of utility and novelty depends upon the unsatisfied public demand, and the extent and character of the use of the invention as the result of fulfilling that demand."); *id.* § 38, at 164 ("When, after numerous unsuccessful attempts to produce a given machine or a particular process in order to effect a specified result, the solution is found which makes a great commercial success in the art, that is, usually, invention."); *id.* § 39, at 166–67 ("The contrast between the long search for results, with the endless accumulation of failures, and the final step that has turned these failures into success, is a demonstration that there must be invention in the manner, method, and mechanism proposed by the inventor. In invention, as in other things, nothing succeeds so much as success."); ALBERT H. WALKER, TEXT-BOOK OF THE PATENT LAWS OF THE UNITED STATES OF AMERICA § 26 (4th ed. 1904).

Courts used other methods too, however,[41] and this variety of approaches led some to criticize the resulting confusion.[42] As Judge Hand colorfully put it, the nonobviousness "issue is as fugitive, impalpable, wayward, and vague a phantom as exists in the whole paraphernalia of legal concepts."[43]

Congress enacted section 103, according to its Revision Note, "with the view that an explicit statement in the statute may have some stabilizing effect" on the case law.[44] Others have canvassed the congressional efforts that culminated in the passage of section 103,[45] and there is no need to rehearse those efforts here. Instead, I highlight two aspects of section 103's history. First, I focus on a precursor of section 103 that proposed using long-felt need as the central standard for nonobviousness. This bill died in committee, but reflects the prominence of long-felt need evidence as a nonobviousness determinant in the pre-section-103 era. Second, I highlight that section 103, by design, provides no substantive content to the nonobviousness inquiry. Its two central champions, Giles Rich and P.J. Federico,[46] acknowledged as much about the section 103 frame-

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[41] This is not the place to offer a comprehensive review of the range of nonobviousness frameworks the courts used. For discussions of the courts' approaches, see MERGES & DUFFY, *supra* note 38, at 626–30; John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, 86 TEX. L. REV. 1 (2007); Edward B. Gregg, *Tracing the Concept of "Patentable Invention,"* 13 VILL. L. REV. 98 (1968); Lawrence C. Kingsland, *The Statutes and Decisions Presenting the Better Tests of Inventions*, 34 J. PAT. OFF. SOC'Y 473 (1952); Edmund W. Kitch, Graham v. John Deere Co.: *New Standards for Patents*, 1966 SUP. CT. REV. 293 (1966); Frank D. Prager, *Standards of Patentable Invention from 1474 to 1952*, 20 U. CHI. L. REV. 69 (1952); Robbins, *supra* note 27; Sears, *supra* note 8.

[42] *See, e.g.*, NAT'L PATENT PLANNING COMM'N, THE AMERICAN PATENT SYSTEM, H.R. Doc. No. 78-239, at 5 (1943) ("The most serious weakness in the present patent system is the lack of a uniform test or standard for determining whether the particular contribution of an inventor merits the award of the patent grant. . . . The present confusion threatens the usefulness of the whole patent system and calls for an immediate and effective remedy."); Comment, *Patent Policy and Invention*, 46 ILL. L. REV. 609, 612 (1951) ("Standing for basic policy considerations, this indefinable requirement has been the subject of much confused and inconsistent language of the judiciary."). Professor Mueller, summarizing the pessimism of that time, recounts that "[j]udges in different courts around the United States came to treat 'invention' somewhat like obscenity, by applying an I-know-it-when-I-see-it type of analysis devoid of common guidelines or uniform analytical framework." MUELLER, *supra* note 17, at 171.

[43] Harries v. Air King Prods. Co., 183 F.2d 158, 162 (2d Cir. 1950).

[44] S. REP. NO. 82-1979 (1952), *as reprinted in* 1952 U.S.C.C.A.N. 2394, 2411 [hereinafter *Revision Notes*].

[45] *See, e.g.*, STAFF OF S. COMM. ON THE JUDICIARY, 85TH CONG., EFFORTS TO ESTABLISH A STATUTORY STANDARD OF INVENTION (Comm. Print 1958). This study report is one of a series collected in the two-volume work entitled *Research Studies in Patent Law, 1956–1963*. RESEARCH STUDIES IN PATENT LAW VOLUME I & II, 1956–1963 (Hein & Co., 1979).

[46] Rich and Federico described their respective roles in bringing about § 103 in a group of essays. *See* P.J. Federico, *Origins of Section 103*, 5 APLA Q.J. 87 (1977); P.J. Federico, *Further Comments and Observations on the Origin of Section 103*, *in* NONOBVIOUSNESS, *supra* note 30, at 1:301; Giles S. Rich, *Congressional Intent—Or, Who*

work. It is no surprise, then, that this framework—bare as it is—can comfortably accommodate long-felt need evidence in the prescribed level of skill inquiry.

A. *The Gamble (Really, the Meigs) Bill*

In May 1948, the House Judiciary Committee's Subcommittee on Patents held hearings over three days to consider bills that would amend the patent laws.[47] Two of the bills addressed what we now know as the nonobviousness requirement of section 103. One of the bills, H.R. 5248, would have added the following language to the Patent Act:

> Patentability of inventions and discoveries, including discoveries due to research, and improvements thereof, shall be determined objectively by the nature of the contribution to the advancement of the art, and not subjectively by the nature of the mental process by which the invention or discovery, or the improvement thereof, may have been accomplished.[48]

This language, akin to a fix the National Patent Planning Commission had proposed in its 1943 report,[49] is plainly similar to the language we now see in section 103(a)'s second sentence: "Patentability shall not be negatived by the manner in which the invention was made."[50] It would have ruled out a disfavored approach to assessing nonobviousness, rather than provide a metric of nonobviousness.

The other bill, H.R. 4061, *did* seek to provide an affirmative metric. In addition to stating that the nonobviousness "question shall be one of fact," this bill made long-felt need the central metric:

> *If the preponderating weight of such evidence shows that the subject matter of the claim* complies with the requirements previously set forth in this section and *fills a long-felt want, such evidence shall be deemed sufficient to constitute proof that the subject matter of the claim amounts to invention,* provided the preponderating weight of such evidence further shows that, prior to such invention, the skill of the art to which the inven-

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Wrote the Patent Act of 1952?, *in* NONOBVIOUSNESS, *supra* note 30, at 1:1; Giles S. Rich, *Why and How Section 103 Came to Be*, *in* NONOBVIOUSNESS, *supra* note 30, at 1:201. Professor Mueller describes the two as "co-authors" of the 1952 Patent Act. MUELLER, *supra* note 17, at 171.

[47] *See Contributory Infringement in Patents—Definition of Invention: Hearings Before the Subcomm. on Patents, Trade-marks, and Copyrights of the Comm. on the Judiciary H.R.*, 80th Cong. (1948) (Serial No. 21) [hereinafter *Hearings*].

[48] STAFF OF S. COMM. ON THE JUDICIARY, *supra* note 45, at 3 (providing text of H.R. 5248, 80th Cong.); *Hearings*, *supra* note 47, at 2 (same).

[49] *See* NAT'L PATENT PLANNING COMM'N, *supra* note 42, at 6 ("The Commission therefore recommends the enactment of a declaration of policy that patentability shall be determined objectively by the nature of the contribution to the advancement of the art, and not subjectively by the nature of the process by which the invention may have been accomplished.").

[50] 35 U.S.C. § 103(a) (2000). Judge Rich noted the connection in his account of section 103's genesis. *See* Rich, *Why and How*, *supra* note 46, at 1:209–10.

> tion appertains had not supplied such want and in its then state of development was unable so to do.[51]

Although Representative Gamble of New York introduced this bill,[52] it was authored by Joseph V. Meigs, a patent lawyer who practiced in New York City.[53] As Meigs explained at the hearing on the bill, his intent was for the bill to "reestablish" "what Judge Hand has referred to as the classic test of an invention."[54] The text of the bill suggests that evidence of long-felt need would not be the *exclusive* way to show nonobviousness, and Meigs's formal written statement in support of the bill denies any intent to create an exclusive test.[55]

Giles Rich also appeared at the hearing on the Meigs bill.[56] Rich acknowledged that "[t]he courts have been applying" the long-felt need approach "for years."[57] He spoke against H.R. 4061, however, on the ground that its focus on a single positive metric of nonobviousness was too restrictive:

> I am speaking for the New York Patent Law Association. The principal objection [to H.R. 4061] is that it legislates into existence simply one of the tests which is applied to the term "invention."

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[51] STAFF OF S. COMM. ON THE JUDICIARY, *supra* note 45, at 7 (providing text of H.R. 4061, 80th Cong.) (emphasis added); *Hearings*, *supra* note 47, at 2 (same) (emphasis added).

[52] *Hearings*, *supra* note 47, at 35. Representative Gamble served in Congress from November 1937 to January 1957. Biographical Directory of the United States Congress, Gamble, Ralph Abernathy, http://bioguide.congress.gov/scripts/biodisplay.pl?index=G000031.

[53] *See Hearings*, *supra* note 47, at 35, 43–44; *Joseph V. Meigs, 65, Ex-Patent Lawyer*, N.Y. TIMES, Nov. 1, 1959, at 86 (obituary). I find Joseph Meigs a highly engaging figure in the story of section 103. As he explained at the congressional hearing at which he testified, he "d[id] not represent any association or group." *Hearings*, *supra* note 47, at 36. So far as it appears from the hearing, he simply saw a legal problem in need of a solution—the case law's confusion about nonobviousness—and offered the best solution he could devise. Law was Meigs's second career. His first was as a chemist, during which he co-authored a book, *see* CARLETON ELLIS & JOSEPH V. MEIGS, GASOLINE AND OTHER MOTOR FUELS (1921), and received a number of patents, *see, e.g.*, U.S. Patent No. 1,868,215 (filed Mar. 5, 1926); U.S. Patent No. 1,868,216 (filed Jan. 15, 1927). As a patent lawyer, he wrote at least two books and two articles. *See* JOSEPH V. MEIGS, TIME, THE ESSENCE OF PATENT LAW (1940); JOSEPH V. MEIGS, INTERPRETATION OF PATENT CLAIMS (1937); Joseph V. Meigs, *Court Proceedings Based on Patent Office Oppositions and Cancellations*, 26 J. PAT. OFF. SOC'Y 664 (1944); Joseph V. Meigs, *Panics, Prosperity and Patents*, 66 U.S. L. REV. 243 (1932).

[54] *Hearings*, *supra* note 47, at 38; *see also id.* at 42 ("[T]he whole theory . . . is if an invention . . . is a matter of mere skill of an artisan or technologist, then the existence of a demand would normally produce that invention and the fact that it has not been produced shows that something beyond skill is required because the pressure of the demand would, if it merely required the skill of an artisan or technologist, ordinary skill, would produce that article.").

[55] *Id.* at 39 ("No all-embracing comprehensive definition of what constitutes invention has ever been devised and H.R. 4061 does not attempt to do so.").

[56] *Id.* at 46–49.

[57] *Id.* at 46.

> We think that would be a very bad policy, that it would emphasize this one test as against all of the others, and that it might have a bad influence on the courts and incline them away from sustaining the validity of the patent which happened to fall into situations where there isn't any long-felt want.[58]

The Chicago Patent Law Association voiced much the same objection.[59] Given that confusion was the principal vice of the then-existing cases, it would seem the professional patent associations rejected the good in the hopes of achieving what they viewed to be the perfect. Indeed, as Judge Rich later remarked, they "feared that to enact as statutory law only one of the pro-invention tests would be worse than nothing."[60]

The Meigs bill "was not reported out of committee."[61] Four years after the hearing, Congress enacted section 103.[62]

B. "Section 103—It's metric free!"

Most statutes don't have slogans. The nonobviousness requirement is no exception. If, however, it *had* a slogan, the one my subheading offers could serve well enough.

Section 103 does not actually provide a metric for measuring whether the technical advance embodied in the invention under review is a large enough advance in the art to merit patent rights. This may seem surprising, given that "nonobviousness can accurately be described as a 'nontriviality' requirement in patent law."[63] Nevertheless, all section 103 provides is a framework that helps guide one's nonobviousness judgment. Specifically, the statute gives a set of interrelated "basic factual inquiries."[64] "Against th[e] background" the resulting findings provide, the Supreme Court instructs, "the obviousness or nonobviousness of the subject matter is determined."[65] The metric is not provided. Professors Merges and Duffy state the quandary this way: "But how precisely does a court make that ultimate determination? *Graham* is not clear on that point . . . ."[66]

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[58] *Id.* at 47.

[59] *Id.* at 88 ("We believe that the determination of the question of invention must be left to the sound discretion of the court according to the particular case, giving due weight to the various tests of invention which have been set forth in various court decisions. [¶] To try to substitute some 'nickel and slot' method of determining invention . . . will not, it is believed, aid in a solution of this inherently difficult question.").

[60] Rich, *Why and How*, *supra* note 46, at 1:208–09.

[61] STAFF OF S. COMM. ON THE JUDICIARY, *supra* note 45, at 3.

[62] PUB L. NO. 82-593, 66 Stat. 792, 798 (1952).

[63] MERGES & DUFFY, *supra* note 38, at 612.

[64] Graham v. John Deere Co., 383 U.S. 1, 17 (1966).

[65] *Id.*

[66] MERGES & DUFFY, *supra* note 38, at 663.

Perhaps the lack of a metric in section 103 is less surprising when we consider the objections to the Meigs bill, described above. The professional patent law associations did not *want* a positive metric; rather, they wanted to eliminate the "flash of creative genius" standard invoked in the much-reviled *Cuno Engineering Corp. v. Automatic Devices Corp.*[67]—a goal achieved in section 103(a)'s second sentence[68]—and to "have some stabilizing effect" on the cases.[69] Interestingly, section 103's Revision Note obliquely observes that the provision has no positive metric of nonobviousness, calling it "a basis for the addition *at a later time* of some criteria which may be worked out."[70]

Separately, Rich and Federico noted that section 103 gives a framework for making a judgment, not a standard for that judgment. Describing section 103, Judge Rich opined that "there was no need for a positive statement saying how patentability *shall* be determined, a statement also felt to be dangerous as possibly restrictive" (echoing his objection to the Meigs bill).[71] Federico, in a similar vein, said, "I look at Section 103 as a requirement or a condition for patentability, rather than a standard .... There is no standard in this section. It sets up a requirement (in a negative manner); how one is going to determine whether the requirement has been met is not answered by the section."[72] Finally, some commentators criticized section 103 precisely because it fails to give a positive metric of nonobviousness. Judge Galston, for example, complained of the continued need for "guessing" and then echoed the Meigs bill: "All of this could have been avoided by the simple requirement that a long existing and unsatisfied need in the art at the time the invention was made, with data available, would raise a presumption of invention."[73]

We are left, then, with the basic factual inquiries that section 103 prescribes. One of these, "the level of ordinary skill in the pertinent

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[67] 314 U.S. 84, 91 (1941). According to Judge Rich, *Cuno* "drove patent lawyers up the wall." Giles S. Rich, *Laying the Ghost of the "Invention" Requirement*, 1 APLA Q.J. 26, 30 (1972).

[68] *See Graham*, 383 U.S. at 15. In *Graham*, the Court sheepishly disavowed *Cuno*'s flash language as "but a rhetorical embellishment." *Id.* at 15 n.7.

[69] *Revision Notes*, *supra* note 44, at 2411.

[70] *Id.* (emphasis added).

[71] Rich, *Why and How*, *supra* note 46, at 1:211.

[72] P.J. Federico, *Further Comments and Observations on the Origins of Section 103*, *in* NONOBVIOUSNESS, *supra* note 30, at 1:304; *see also* P.J. Federico, *Commentary on the New Patent Act* (1954), *reprinted in* 75 J. PAT. & TRADEMARK OFF. SOC'Y 161, 184 (1993) ("The problem of what is obvious and hence not patentable is still of necessity one of judgment. The statute does not purport to categorize the particular criteria according to which the judgment is to be exercised ....").

[73] Galston, *supra* note 14, at 465. *See also* Prager, *supra* note 41, at 95 ("Conflicts between past decisions will not be eliminated by a new magical formula like the test whether 'the subject matter as a whole would have been obvious.' In spite of the opposition of a minority of judges it would be more constructive to set forth detailed and historically accepted rules of invention.").

art,"[74] seems to be a natural occasion for canvassing the art's recognition of the problem the claimed invention solves, and the art's relative success—or failure—at solving that problem. In short, long-felt need evidence fits comfortably within the section 103 framework. Courts, for their part, continued to use it.

IV. THE FORGOTTEN FUTURE OF THE LEVEL OF SKILL INQUIRY

Courts continued, after the passage of section 103, to rely on long-felt need evidence in assessing nonobviousness. Judge Hand, for example, wrote for the Second Circuit that "we can see no escape from measuring invention in cases where all the elements of the new combination had been long available, (1) by whether the need had long existed and been desired, and (2) whether, when it was eventually contrived, it was widely exploited as a substitute for what had gone before."[75] Moreover, he continued to ground his strong preference for evidence of long-felt need on the institutional competence analysis he offered in *Safety Car Heating*. Calling the "test laid down" in section 103 "misty enough," he justified his approach as follows:

> It directs us to surmise what was the range of ingenuity of a person 'having ordinary skill' in an 'art' with which we are totally unfamiliar; and we do not see how such a standard can be applied at all except by recourse to the earlier work in the art, and to the general history of the means available at the time. To judge on our own that this or that new assemblage of old factors was, or was not, 'obvious' is to substitute our ignorance for the acquaintance with the subject of those who were familiar with it. There are indeed some sign posts: e.g. how long did the need exist; how many tried to find the way; how long did the surrounding and accessory arts disclose the means; how immediately was the invention recognized as an answer by those who used the new variant?[76]

The Tenth Circuit, at least, also continued in the years before *Graham* to rely on long-felt need evidence as a key indicator of nonobviousness.[77]

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[74] Graham v. John Deere Co., 383 U.S. 1, 17 (1966).

[75] Norman v. Lawrence, 285 F.2d 505, 506 (2d Cir. 1960). *See also* Lyon v. Bausch & Lomb Optical Co., 224 F.2d 530, 535 (2d Cir. 1955) ("The most competent workers in the field had for at least ten years been seeking a hardy, tenacious coating to prevent reflection; there had been a number of attempts, none satisfactory; meanwhile nothing in the implementary arts had been lacking to put the advance into operation; when it appeared, it supplanted the existing practice and occupied substantially the whole field. We do not see how any combination of evidence could more completely demonstrate that, simple as it was, the change had not been 'obvious * * * to a person having ordinary skill in the art'—§ 103.").

[76] Reiner v. I. Leon Co., 285 F.2d 501, 503–04 (2d Cir. 1960).

[77] McCullough Tool Co. v. Well Surveys, Inc., 343 F.2d 381, 399 (10th Cir. 1965); Bewal, Inc. v. Minn. Mining & Mfg. Co., 292 F.2d 159, 164–65 (10th Cir. 1961).

The Second, Ninth, and Tenth Circuits focused on long-felt need evidence even after *Graham*.[78]

Judge Hand died in 1961, four years before the Supreme Court's decision in *Graham*. He thus did not have an opportunity to explain how best to knit together his prior focus on long-felt need evidence with the Supreme Court's apparent preference for thinking of long-felt need and the failure of others as a "secondary consideration[]" that can "give light to the circumstances surrounding the origin of the subject matter sought to be patented."[79] Specifically, would he have viewed the level of skill inquiry as an appropriate rubric for considering whether the record shows evidence of a long-felt, unmet need and failures of others to meet that need? Some of his decisions suggest that he would.[80] In any event, we know with certainty that others *did* take this view. Two decisions, in particular, merit discussion here.

In *Reeves Instrument Corp. v. Beckman Instruments, Inc.*, the Ninth Circuit reviewed a trial court decision upholding the nonobviousness of patent claims directed to an apparatus for "checking the operation of the numerous elements of an analog computer prior to utilization of the computer."[81] As the court recounted in detail, "the problem of checking analog computers was born with the development of such computers and ha[d] since occupied much time and effort in the computer industry."[82]

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[78] Shackelton v. J. Kaufman Iron Works, Inc., 689 F.2d 334, 340–41 (2d Cir. 1982); U.S. Philips Corp. v. Nat'l Micronetics Inc., 550 F.2d 716, 723 (2d Cir. 1977); Timely Prods. Corp. v. Arron, 523 F.2d 288, 294 (2d Cir. 1975); A.E. Staley Mfg. v. Harvest Brand, Inc., 452 F.2d 735, 737–38 (10th Cir. 1971); Reeves Instrument Corp. v. Beckman Instruments, Inc., 444 F.2d 263, 272 (9th Cir. 1971).

[79] *Graham*, 383 U.S. at 17–18. The Supreme Court did not explain what it meant by the phrase "secondary considerations." *Id.* Moreover, the student note the Court cited (after listing examples) did not, itself, use this phrase. *See* Robbins, *supra* note 27. Instead, the Robbins note refers to "subtests" of nonobviousness that "would be based upon nontechnical facts." *Id.* at 1172.

[80] *See, e.g.*, Clark v. Wright Aeronautical Corp., 162 F.2d 960, 966 (2d Cir. 1947) ("In dealing with the issue of invention, we have tried, so far as possible, to rely upon objective factors in preference to our a priori judgment, drawn from what seems to our untutored experience to be within the range of a person skilled in the art. Instead of trying ourselves to mirror his capacities, we look to the length of time during which the incentive existed to contrive the invention, to the number of unsuccessful efforts that were made in that period, to the density—so to speak—of those efforts at about the time when the invention was made, to whether success came independently to several inventors at about the same time, and to the extent to which after the invention appeared, it supplanted what had gone before. These usually are hard questions to answer; but when they can be answered, they form a substantial basis for inference.") (footnote omitted); Kirsch Mfg. Co. v. Gould Mersereau Co., 6 F.2d 793, 794 (2d Cir. 1925) ("Courts cannot avoid the duty of divining as best they can *what the day to day capacity of the ordinary artisan will produce.* This they attempt by looking at *the history of the art*, the occasion for the invention, its success, its independent repetition at about the same time, and the state of the underlying art, which was a condition upon its appearance at all.") (emphasis added).

[81] 444 F.2d 263, 263 (9th Cir. 1971).

[82] *Id.* at 264.

McCoy, the named inventor of the patent in question, solved the problem, where many others had failed.[83] The Ninth Circuit affirmed the trial court's judgment. In the course of doing so, the court quoted from *Graham* as "the most definitive statement of the requirement of nonobviousness" under section 103.[84] After noting the content of the prior art, and the key difference between the claims and that prior art, the court brought the traditional long-felt need approach under the umbrella of the level of skill inquiry:

> Whether this difference rises to the level of patentability depends upon the level of ordinary skill in the pertinent art. It is difficult to set forth any meaningful quantitative evaluation of the level of skill in a given art. Rather, such determination can be made only by an analysis of the problem allegedly solved by the invention and the efforts of others to arrive at a satisfactory solution. In this respect, the Supreme Court has noted that "[s]uch secondary consideration as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented."[85]

The court thus felt quite comfortable using long-felt need evidence to assess the skill that ordinary artisans had brought to bear, unsuccessfully, on the problem the claimed invention solved.[86] The failure of others to meet the longstanding need, which was surely a reflection of their level of skill, was a circumstance surrounding the origin of the claimed subject matter and, thus, fair game for consideration.

Four years after *Reeves*, the Court of Claims—one of the Federal Circuit's two predecessor courts, the decisions of which the Federal Circuit adopted as binding precedent at its creation[87]—followed the *Reeves* court's approach to the level of skill inquiry. In *Jacobson Bros. v. United States*, a Court of Claims appellate panel affirmed a trial court decision rejecting a patent infringement claim against the United States on the ground that the patent in suit was invalid for obviousness.[88] Indeed, the panel adopted the trial judge's decision as its own.[89] Relying on *Reeves* as

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[83] *Id.* at 272–73.

[84] *Id.* at 271.

[85] *Id.* at 271–72 (quoting Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966)).

[86] *Id.* at 272 ("Substantial efforts by others in the art which fail to accomplish the result achieved by the patented invention are persuasive indications of nonobviousness.").

[87] South Corp. v. United States, 690 F.2d 1368, 1370 (Fed. Cir. 1982) ("That body of law represented by the holdings of the Court of Claims and the Court of Customs and Patent Appeals announced before the close of business on September 30, 1982 is most applicable to the areas of law within the substantive jurisdiction of this new court. It is also most familiar to members of the bar. Accordingly, that body of law is herewith adopted by this court sitting in banc.").

[88] 512 F.2d 1065, 1066 (Ct. Cl. 1975).

[89] *Id.*

well as Judge Hand's decisions in *Reiner* and *Safety Car Heating*, the Court of Claims analyzed the level of skill inquiry this way:

> The determination of whether these differences are sufficient to satisfy the requirement of nonobviousness contemplated by § 103 must be made with reference to "a person having ordinary skill in the art." A finite quantitative definition of this ordinarily skilled person is difficult at best. *Reeves Instrument Corp. v. Beckman Instruments, Inc.*, 444 F.2d 263 (9th Cir. 1971), *cert. denied*, 404 U.S. 951; *Reiner v. I. Leon Co.*, 285 F.2d 501 (2d Cir. 1960). Rather the various prior art approaches employed, the types of problems encountered in the art, the rapidity with which innovations are made, the sophistication of the technology involved, and the educational background of those actively working in the field are among the factors which will ofttimes aid in developing a picture of what is the level of skill of the ordinary person in an art. Considerations such as commercial success and the failure of others, characterized as "secondary" in *Graham*, are nonetheless invaluable as real-life indicia not only of the level of skill in the art but also in the ultimate determination of validity. *See, e. g., Safety Car Heating & Lighting Co. v. General Electric Co.*, 155 F.2d 937, 939 (2d Cir. 1946).[90]

Jacobson, even more clearly than *Reeves*, roots the level of skill inquiry in Judge Hand's long-felt-need jurisprudence, harmonizing the latter with section 103.

The Federal Circuit, far from overturning *Jacobson*, has relied on *Jacobson* as the cornerstone of its level of skill jurisprudence.[91] Curiously, however, the Federal Circuit's cases make no mention of *Jacobson*'s express reliance on long-felt need evidence (or the lack of it) to help establish the level of skill in a given art at a given time. Instead, the Federal Circuit lists evidentiary factors that do not include, at least on the surface, evidence of long-felt need in the art or the failure of others to meet that need.[92] Is there room in the modern level of skill inquiry for long-felt

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[90] *Id.* at 1070–71.

[91] The leading Federal Circuit case on analyzing the level of skill in the art remains *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693 (Fed. Cir. 1983). *See, e.g.*, Daiichi Sankyo Co. v. Apotex, Inc., 501 F.3d 1254, 1256 (Fed. Cir. 2007) (quoting *Environmental Designs*); Meara, *supra* note 4, at 277–78 (noting the status of *Environmental Designs*). *Environmental Designs* cites the Federal Circuit's analysis of level of skill in *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1382 (Fed. Cir. 1983). *See Environmental*, 713 F.2d at 696 (citing *All Orthopedic*). *All Orthopedic*, in turn, quotes the level of skill analysis in *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1011 (Fed. Cir. 1983). *See All Orthopedic*, 707 F.2d at 1382. Finally, *Orthopedic Equip.* quotes *Jacobson*'s list of factors pertaining to the level of skill inquiry, but omits the references to *Reeves*, *Reiner*, and *Safety Car Heating*. *See Orthopedic Equip.*, 702 F.2d at 1011.

[92] *See Environmental Designs*, 713 F.2d at 696 ("Factors that may be considered in determining level of ordinary skill in the art include: (1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.").

need evidence? The door to such evidence is still ajar: "These factors [from *Environmental Designs*] are not exhaustive but are merely a guide to determining the level of ordinary skill in the art."[93] Moreover, the third *Environmental Designs* factor—"prior art solutions to those [prior art] problems"[94]—retains a slight trace of Judge Hand's focus on the history of the art, with its successes and failures.

Reeves and *Jacobson* wove Hand's nonobviousness jurisprudence into the level of skill inquiry. The Federal Circuit has dropped this thread, but not severed it. A skilled advocate can, I think, pick it up again.

V. CONCLUSION

"A person of ordinary skill is also a person of ordinary creativity, not an automaton."[95] To determine what would have been obvious to such a person of ordinary skill, we must, the Supreme Court instructs, use "an expansive and flexible approach."[96] An unbroken line of cases from 1876[97] to 1982[98] show the prudence of looking to evidence of long-felt need, and the failure of others to meet that need, when assessing whether an invention would have been obvious to the PHOSITA. These cases also show the ease with which the level of skill inquiry embraces such evidence. Perhaps, as advocates flex their own creativity in the wake of *KSR*, they will reinvigorate the synthesis glimpsed in *Reeves* and *Jacobson*.

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[93] *Daiichi*, 501 F.3d at 1256.

[94] 713 F.2d at 696.

[95] KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1742 (2007).

[96] *Id.* at 1739.

[97] Smith v. Goodyear Dental Vulcanite Co., 93 U.S. 486, 494–95 (1876).

[98] Shackelton v. J. Kaufman Iron Works, Inc., 689 F.2d 334, 340–41 (2d Cir. 1982).