

March 1968

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James K. Stewart, *The Utility Requirement in Chemical Process and Chemical Intermediate Patent Claims*, 9 Wm. & Mary L. Rev. 826 (1968), <https://scholarship.law.wm.edu/wmlr/vol9/iss3/12>

THE UTILITY REQUIREMENT IN CHEMICAL PROCESS AND CHEMICAL INTERMEDIATE PATENT CLAIMS

INTRODUCTION

The validity of patent claims for chemical processes which yield products useful only as chemical intermediates hinges primarily upon the wording and interpretation of section 101 of the patent statute.¹ This section provides:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor subject to the conditions and requirements of this title.²

Because the patent statute does not further clarify "useful,"³ the utility requirement must find its definition in judicial construction. In the field of chemical research, the utility demand is particularly puzzling. This difficulty stems from the nature of certain chemical compositions, "useful" only as intermediates to be used in further chemical development.

To advance the thesis that these compositions are useful in their present state as end products would be to deny their nature as intermediates, but to state that the products and the process which yielded them fail to meet the utility requirement because they can only be used as building blocks in scientific research also denies their nature as intermediates. Coupled with the problem of assessing the utility of chemical intermediates has been the dilemma of whether the utility of a chemical process should be examined and tested independently of the

1. 35 U.S.C. § 101 (1964). The first patent law was passed in 1790 under the authority of article 1, section 8, clause 8 of the Constitution which allocates to Congress the power "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."

2. *Id.*

3. Of the three patentability requisites, utility, novelty and non obviousness, only utility is not clearly defined in the patent statute. Novelty is defined in 35 U.S.C. § 102 (1964) and non obviousness is limited in 35 U.S.C. § 103 (1964).

utility of its result. Three distinct time periods appear in which these dual problems have been dealt with.

This discussion will examine the patentability of chemical process and intermediate claims in light of sections 101 and 112⁴ in each of these periods: the pre-*Bremner*⁵ era, the span between *Bremner* and *Manson*,⁶ and the stifling atmosphere of the present and future created by the *Manson* decision.

UTILITY REQUIREMENT IN PROCESS CLAIMS BEFORE BREMNER

The classical judicial interpretation of the utility requirement was enunciated by Justice Story in *Bedford v. Hunt*⁷ and *Lowell v. Lewis*.⁸

By useful invention, in the statute, is meant such a one as may be applied to some beneficial use in society, in contradistinction to an invention which is injurious to morals, health, or good order of society. It is not necessary to establish that the invention is of such general utility as to supersede all other inventions now in practice to accomplish the same purpose. It is sufficient, that it has no obnoxious or mischievous tendency, that it may be applied to practical uses, and that so far as it is applied, it is salutary. If its practical utility be very limited, it will follow, that it will be of little or no profit to the inventor; and if it be trifling, it will sink into utter neglect. The law, however, does not look to the degree of utility; it simply requires, that it shall be capable of use, and that the use is such as sound morals and policy do not discountenance or prohibit.⁹

4. 35 U.S.C. § 112 (1964). "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claims shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof."

5. Application of *Bremner*, 182 F.2d 216 (C.C.P.A.) [hereinafter cited as *Bremner*].

6. *Brenner v. Manson*, 383 U.S. 519 (1966) [hereinafter cited as *Manson*].

7. 3 F. Cas. 37 (No. 1217) (C.C.D. Mass. 1817).

8. 15 F. Cas. 1018 (No. 8568) (C.C.D. Mass. 1817). See 1 ROGERS, ROGERS ON PATENTS 9 (1914); WALKER, WALKER ON PATENTS 97-103 (1904); MERWIN, PATENTABILITY OF INVENTIONS 75 (1883); PHILLIPS, LAW OF PATENTS FOR INVENTIONS 142 (1837).

9. *Bedford v. Hunt*, 3 F. Cas. 37 (No. 1217) (C.C.D. Mass. 1817).

Implicit in this delineation is a recognition of the differences in meaning between "useful" as incorporated in the patent statute and the general conversational connotation of the same word.¹⁰

Distinguishing between process-method claims and machine-apparatus claims only on the basis that with the former invention lies in the manner of doing, while in the later invention lies in the instrumentality itself, courts have adhered to the view that these two classes of claims present the same essential problems and demand identical application of the patent statutes.¹¹ The question of whether non-chemical process claims should be treated for validity against a framework different than the validity test for chemical claims was answered in the negative by the Supreme Court over one hundred years ago.¹²

The pre-*Bremner* test which evolved for determining validity of both chemical and non-chemical process claims was whether the device or process performed the acts claimed in the described method.¹³ Invalidity was escaped if the process was operative to a limited extent,¹⁴ and the fact that the process performed imperfectly or failed to perform as well as an improved process might, offered no basis for declaring the patent void for want of utility.¹⁵

Forged upon the general rule that a process must be tested according to whether it produced the result intended and claimed for it, was the requirement that process claims must pass or fail on their own merits.¹⁶ The steps comprising the process are the features to be considered in determining the validity of a process claim, not the substance or item to which the process applies, nor the particular product obtained

10. *Cusano v. Kotler*, 159 F.2d 159 (3d Cir. 1947).

11. *Bauer Bros. v. Bogalusa Paper*, 96 F.2d 991 (5th Cir. 1938). This is not to deny the thesis that a patent for a process may differ from a patent for an implement or a machine, as advanced in *Expanded Metal v. Bradford*, 214 U.S. 366 (1909). Because the *Bauer* view focused on the point of invention in both claims, it is in accord with *Expanded Metal*.

12. *O'Reilly v. Morse*, 56 U.S. (15 How.) 61 (1853).

13. *Callison v. Dean*, 70 F.2d 55 (10th Cir. 1934); *Dalton Adding Machine v. Rockford Milling Machine*, 253 F. 187 (N.D. Ill. 1918); *Engineer Co. v. Hotel Astor*, 226 F. 779 (S.D.N.Y. 1914); *In re Perrigo*, 48 F.2d 965 (C.C.P.A. 1931).

14. *Remington Cash Register v. National Cash Register*, 6 F.2d 585 (D. Conn. 1925); *Hildreth v. Mastoras*, 253 F. 68 (D. Ore. 1918); *Consolidated Ry. Electric Lighting and Equipment v. U.S. Light and Heat Corp.*, 246 F. 127 (W.D.N.Y. 1917).

15. *Plant Products v. Charles Phillips Chemical*, 96 F.2d 585 (2d Cir. 1938); *O'Donnell v. United Shoe Machinery Corp.*, 2 F. Supp. 178 (D. Mass. 1933).

16. *Fulton v. Bishop and Babcock*, 17 F.2d 1006 (6th Cir. 1927); *Application of Swain*, 154 F.2d 118 (C.C.P.A. 1947).

by the process application.¹⁷ This rule appears as a practical affirmation of the realities of invention and patent claims, as it often happens that an article lacking in one of the patent requisites may be constructed by a new, and thus patentable, process.¹⁸

Although these tests were widely applied in the years before *Bremner* to non-chemical process claims, few claims for chemical processes yielding chemical intermediates appeared in the courts. Both *Potter v. Tone*¹⁹ and *Ex parte Watt*²⁰ involved such chemical claims. Little difficulty appeared in either case in the application of the rule that process claims and product claims were to be dealt with separately, with the court in *Watt* impliedly recognizing the concept that chemical compounds will meet the utility requirement even if their characteristics clearly classify them as mere intermediates.²¹

In the pre-*Bremner* era identical treatment as to patentability was afforded both chemical and non-chemical process claims, despite significant differences in the process results and in the developmental capabilities of each type of process. This uniformity in application was appropriate as there was, and is, no statute stating that there should be a difference in the principles to be applied in determining utility and operativeness in chemical cases as contrasted with non-chemical cases.

The state of the pre-*Bremner* law as to the dual problems of chemical process utility and chemical intermediate utility was that the processes were patentable if they operated as disclosed while the intermediates, under the *Watt* doctrine, met the utility requirement.

THE BREMNER YEARS: A CLOUDED ENVIRONMENT

The court in *Application of Bremner*,²² after rejecting the utility of chemical intermediates, ruled that a process claim will fail if its result is lacking utility. The holding served to hinder rather than to encourage the "progress of science and useful arts."²³ In *Bremner* a patent application which disclosed new methods of polymerizing a dihydropyran but

17. *Application of Swain*, 154 F.2d 118 (C.C.P.A. 1946).

18. *In re Harvey*, 71 F.2d 200 (C.C.P.A. 1934); *In re Holmes*, 63 F.2d 642 (C.C.P.A. 1933); *In re Lawson*, 39 F.2d 667 (C.C.P.A. 1930).

19. 36 App. D.C. 181 (C.C.D.C. 1911).

20. 63 U.S.P.Q. 163 (1942) [hereinafter cited as *Watt*].

21. *Potter v. Tone* was concerned with the validity of product claims for chemical compounds. The court held that the describing of the compound as a reducing agent and non-conductor of electricity was sufficient to meet the utility requirement.

22. 182 F.2d 216 (C.C.P.A. 1950).

23. U.S. CONST. art. I, sec. 8, cl. 8.

did not indicate what use could be made of the resulting products was rejected on the basis of failure to disclose utility. The court's reasoning that

[T]he law requires that there be in the application an assertion of utility and an indication of the use or uses intended. It was never intended that a patent be granted upon a product, or a process producing a product, unless the product be useful. . . .²⁴

was seized, followed without question, and subsequently expanded by the Patent Office in future cases involving the patentability of chemical claims. Not only did the Patent Office's rigid, interpretative view of *Brenner*²⁵ deny the thesis that a chemical intermediate may be useful, a thesis which would validate the patent claim for the process which yielded it, but it also denied the rationale of Justice Story that a patent should issue absent any "obnoxious or mischievous tendency."²⁶ Although the Circuit Court of Patent Appeals²⁷ and the Patent Office agreed on the rule in *Brenner*, the application and influence of the rule on sections 101 and 112 of the patent statute was destined to become the fountainhead of a dispute between the two bodies. The basis for this dispute was the ambiguity of the *Brenner* rationale; first in failing to further enunciate and delimit the demand that a process product must be useful before a patent would issue for the process, and second in the merging of the requirements of sections 101 and 112 in the dual demand that an application must contain an assertion of utility and an indication of the uses intended.

In 1954 the Patent Office Board of Appeals in *Ex parte Tolkmith*²⁸ applied *Brenner* in a decision involving an application with claims to a compound and an allegation of use as an intermediate. In a vaguely reasoned opinion, the board held the application insufficient under section 112. The vagueness stemmed from the court's continual references

24. Application of *Brenner*, 182 F.2d 216, 217 (C.C.P.A. 1950).

25. In the following cases the Patent Office examiner and Board of Appeals broadened the *Brenner* rule into a strict, prohibitive requirement: *Petrocarbon v. Watson*, 247 F.2d 800 (D.C. Cir. 1957), cert. denied, 355 U.S. 955 (1958); Application of *Nelson*, 280 F.2d 172 (C.C.P.A. 1960); Application of *Wilke*, 314 F.2d 558 (C.C.P.A. 1963); Application of *Adams*, 316 F.2d 476 (C.C.P.A. 1963); Application of *Szwarc*, 319 F.2d 277 (C.C.P.A. 1963); Application of *Manson*, 333 F.2d 234 (C.C.P.A. 1964), reversed in *Brenner v. Manson*, 383 U.S. 519 (1966).

26. *Bedford v. Hunt*, 3 F. Cas. 37 (C.C.D. Mass. 1817).

27. Future references to this court will be to the CCPA.

28. 102 U.S.P.Q. 464 (1954).

to a failure to disclose utility, yet no mention was made of the section 101 utility requirement.

Six years after the formulation of the rule of *Brenner*, the court in *Reiners v. Mehlretter*²⁹ seemingly ignored that rule's section 101 requirement that it "was never intended that a patent be granted upon . . . a process producing a product, unless such product be useful."³⁰ By failing to recognize the demand, the court actually served to interpret it. Dealing with the characteristics of biological and chemical intermediates, the court stated that the establishment of product utility does not necessarily involve a showing that the product can "immediately and without change perform a useful function."³¹ The thesis was advanced that utility is shown if products serve as intermediates or starting materials for the production of other products which are useful. The rationale of *Reiners* was thoroughly consistent with the rule of *Brenner*, and the state of the law after *Reiners* appeared to be that the section 101 utility requirement was met by establishing that a chemical intermediate was useful in further research and development, and the "how to use" requirement of section 112 was met by asserting utility and indicating what uses were intended for the intermediate.

In 1957 two cases appeared which served to further define, either by recognition and application or non-recognition and non-application, the *Brenner* requirements. Although *Isenstead v. Watson*³² involved a patent application for a medical compound, the court's affirmation of the theory that utility implies capacity to perform as claimed by the applicant is significant as an application of a rule less strict than the *Brenner* demand. It is true that the key section 101 requirement interpretation of *Brenner* touches and concerns processes and not products, but in recognizing that utility is synonymous with operability the court appeared unwilling to create an artificial distinction between utility claims of products and processes. It is also true that nothing is advanced in *Isenstead* as to the utility of chemical intermediates, but the court's rationale is clear to the effect that if the intermediate will "attain the purpose and . . . operate as disclosed and claimed by the inventor,"³³ utility will be evidenced. In its failure to apply the strict guidelines of *Brenner* and its choice of the "capacity to perform" utility test, the case

29. 236 F.2d 418 (C.C.P.A. 1956).

30. Application of *Brenner*, 182 F.2d 216, 217 (C.C.P.A. 1950).

31. *Reiners v. Mehlretter*, 236 F.2d 418 (C.C.P.A. 1956).

32. 157 F.Supp. 7 (D.C. Cir. 1957).

33. *Id.* at 9.

serves as the first landmark in a period in which the *Bremner* rule would be questioned, re-evaluated, and finally disavowed.

In a precise and unquestioning adherence to the *Bremner* enunciation of the section 112 requirement—"that there be in the application an assertion of utility and an indication of the use or uses intended"³⁴—the court in *Petrocarbon v. Watson*³⁵ affirmed the Patent Office's decision denying a patent claim for a process which resulted in the production of polymers. The application stated that the polymers were useful in forming a film, but failed to indicate what use could be made of the film. The dissent, questioning severely the refusal to receive expert testimony as to their interpretation of "film", felt that "persons skilled in the art"³⁶ would have understood what the term meant and have recognized its obvious use and utility. The Patent Office Board of Appeals further strengthened *Bremner* in *Ex parte Klager*³⁷ as they held that no basis existed for allowing process claims when there was no assertion of utility or indicated use for its product.

The unfortunate development shown by the rationale of *Isenstead*, *Petrocarbon*, and *Klager* is that the rule of *Bremner* was unfailingly applied to chemical process and product claims, but was not as diligently applied to non-chemical cases. The pre-*Bremner* uniformity in the application of validity tests had disappeared. Even though the court in *Isenstead* addressed itself to an analysis of the section 101 utility requirement while the *Petrocarbon* and *Klager* courts made the "how to use" aspect of section 112 the focal point, the conflict in the decisions is apparent. The process claims in both *Petrocarbon* and *Klager* would undoubtedly have been validated by the *Isenstead* court, as both performed as claimed by the applicant. Under this theory the problems involved with the application of section 112 to the process result would not have arisen in testing the validity of the process claims.

*Application of Nelson*³⁸ not only marked the beginning of a conflict between the CCPA and the Patent Office Board of Appeals, but also served as the first major step in the eventual erosion of the strictly-read *Bremner* requirements.³⁹ Although the application was for a chemical

34. Application of *Bremner*, 182 F.2d 216, 217 (C.C.P.A. 1950).

35. 247 F.2d 800 (D.C. Cir. 1957), *cert. denied* 355 U.S. 955 (1958).

36. 35 U.S.C. § 112 (1964).

37. 132 U.S.P.Q. 206 (1959).

38. 247 F.2d 800 (D.C. Cir. 1957).

39. Although *Isenstead v. Watson*, 157 F.Supp. 7 (D.C. Cir. 1957) was classified as the first landmark in the *Bremner* questioning period, *Nelson* was the first case dealing directly with a chemical claim to doubt the influence of *Bremner*.

product and not a process, the court's holding that new androstrenes to be used as intermediates in steroid production were useful was a significant interpretation of the section 101 utility demands.

We have never received a clear answer to the question "Useful to whom and for what?" Surely a new group of steroid intermediates is useful to chemists doing research on steroids. . . . They are often actually placed on the market before much, if anything, is known as to what they are "good" for, other than experimentation and the making of other compounds in the important field of research. Refusal to protect them at this stage would inhibit their wide dissemination, together with the knowledge of them which a patent disclosure conveys, which disclosure the potential protection encourages. This would tend to retard rather than promote progress.⁴⁰

While refusing to accept *Petrocarbon* as a precedent,⁴¹ the court nevertheless was unwilling to alter the basic *Bremner* framework although they did not reverse the Patent Office's interpretation of these guidelines. As the application asserted that steroid compounds were useful⁴² and indicated that the intended use was as an intermediate in the field of steroid chemistry, the rule of *Bremner* was squarely met. It is apparent that had the application contained a process claim also, it would have been accepted, for once it was recognized that chemical intermediates met the utility requirement, it is clear that the process yielding the intermediate also meets the utility requirement. The *Nelson* rationale as it touched and concerned the utility establishment of chemical intermediates was not as liberal as the dissent or the Patent Office would argue. The majority did not do away with the utility requirement by holding that all chemical compounds are inherently useful as intermediates, but rather they carefully worded a caveat that the utility of chemical intermediates is a "question of fact to be determined in each case."⁴³

40. Application of *Nelson*, 280 F.2d 172 (C.C.P.A. 1960).

41. The *Nelson* court's reading of the *Petrocarbon* section 112 denial of the claim led them to the conclusion that anyone skilled in the arts would have recognized many possible uses for the polymer produced.

42. In dissecting the *Bremner* rule, the *Nelson* court was of the opinion that the demand of an assertion of utility was in reality a meaningless formality. The inference was drawn that by filing for patent protection, the applicant asserted his invention to be both new and useful.

43. Application of *Nelson*, 280 F.2d 172, 185 (C.C.P.A. 1960). For a discussion of the utility requirement in chemical patents through the *Nelson* decision see Cohen and

In the next case⁴⁴ involving the utility requirement in chemical intermediates, the CCPA again reversed the Patent Office Board of Appeals and relied on *Nelson* as the basis of the reversal. With regard to the section 101 requirement, the patent application contained the following assertion of utility:

The products of the aforesaid process are valuable as chemical intermediates for organic synthesis, for solvent uses, and for the preparation of toxic substances such as insecticides, fungicides, etc.⁴⁵

The board held that the application did not contain sufficient allegation of utility, but the CCPA responded with the view that all intermediates are products having utility, thus meeting the utility requirement of section 101. The advancement of this broad view was not necessarily demanded by the section 101 refinements of *Nelson*. In fact, the *Nelson* ruling that each intermediate case must be tested independently denies the establishment of any such general encompassing theory. The ultimate import of *Johnson*, however, is that when read with *Nelson*, it is readily apparent that the dual issues of chemical intermediate and chemical process utility were joined. The Patent Office, relying upon *Bremmer*, sought more than a declaration that the product was useful solely because of its intermediate characteristics, while the CCPA recognized that at least some, if not all, chemical intermediates possessed utility.

In retrospect, even though the *Johnson* and *Nelson* applications involved chemical product rather than process claims, the merging and interdependence of the process and product claims as to validity tests continued to be evident. Hypothetically, if both applications had involved chemical process claims the Patent Office would have undoubtedly rejected both claims, citing the *Bremmer* rule that a patentable process is one which yields a product that itself meets the utility requirement. As the Patent Office failed to recognize that chemical intermediates may meet the utility test, the process result clearly lacked that patentable requisite. Continuing hypothetically, the CCPA would then have reversed both decisions, holding that because a chemical inter-

Schwartz, *Do Chemical Intermediates Have Patentable Utility?*, 29 GEO. WASH. L. REV. 87 (1960).

44. Application of *Johnson*, 282 F.2d 370 (C.C.P.A. 1960) [hereinafter referred to as *Johnson*].

45. *Id.* at 371.

mediate is useful, the *Bremner* demand is adhered to as the process yields a useful product. The significance of both the actual and hypothetical rationale is that the trend in which the courts failed to apply a uniform test to both chemical and non-chemical claims, first evidenced in *Klager*, *Petrocarbon*, and *Isenstead*, was continuing.

In *Commonwealth Engineering v. Ladd*,⁴⁶ the court dealt with a non-chemical process claim for rapidly thawing and melting frozen blood. Rather than applying the *Bremner* rule concerning process patentability, the unanimous court invoked the process requirement that utility is synonymous with operability.⁴⁷

The patent application in *Application of Wilke*⁴⁸ contained both chemical product and process claims, and thus presented the CCPA with a factual situation similar to *Bremner* and *Petrocarbon*. The Patent Office Board of Appeals affirmed the examiner's rejection of certain process and product claims, holding that the process claims failed to meet the *Bremner* requirements as the specification did not teach a use for the process result. As in *Nelson*, confusion existed as to the precise statutory ground for refusing the claim. In the examiner's failure to separate the utility requirement from the "how to use" requirement can be seen the pronouncement of a complete invention theory.⁴⁹ With regard to a chemical compound or a chemical process, the merging of the patentability requisites changed to a great extent the concept of invention as embodied in the patent statute.⁵⁰ The examiner advanced the view that the invention in the case of a new compound or process was not the compound or process itself, but rather was the compound or process coupled with a disclosed use. The Patent Office failure to distinguish between the invention which is the subject matter of the claim and one of the factors weighed in evaluating the patentability of the sub-

46. 199 F.Supp. 51 (D. Col. 1961).

47. The court affirmed the board's denial of the process claim on the grounds that the inventor's intended result was not produced. Despite the fact that this denial and affirmation may have been impliedly grounded on the utility of the process product, thus assigning to the section 101 requirement something more than mere process operability, it is inescapable that the *Bremner* process test was not applied to this no-chemical process claim. It is just as inescapable that the *Johnson* and *Nelson* reliance on *Bremner* for product utility determination would have dictated their reliance on that same rule had the patent claims been for chemical processes.

48. 314 F.2d 558 (C.C.P.A. 1963). For further analysis of *Wilke* see 32 GEO. WASH. L. REV. 145 (1963).

49. *Application of Kirchner*, 305 F.2d 897 (C.C.P.A. 1962).

50. Included as patentable inventions in § 101 are processes, machines, manufactures, and compositions of matter.

ject matter⁵¹ drained chemical patent claims of the precision they demand. Reversing the Patent Office Board of Appeals' denial of the process claims, the CCPA held that when the steps of a process are defined and disclosed in the specification in such a manner that they teach one of ordinary skill in the art how to carry out the claimed process, section 112 is fully complied with. With regard to the utility requirement, the court favored the operability test as the determinant in either accepting or rejecting a process claim. Even beyond this holding, however, the prime impact of *Wilke* was its refusal to apply the *Bremner* rule as to process utility. Holding that if the Congressional intent had been that a process could not be patented unless its result complied with the utility requirement, it would have been included in either section 101 or 112 of the patent statute, the court recognized the independence of chemical process and product claims. This recognition led to the re-establishment of uniformity in testing the validity of both chemical and non-chemical process claims, a uniformity which had disappeared with the advent of the strict interpretative readings of *Bremner*.

Two months later *Wilke* was relied upon by the CCPA in another reversal of the Patent Office Board of Appeals. In *Application of Adams*,⁵² the examiner and board rejected product claims to certain steroids of androstane and pregnane series, and also rejected claims to the process which yielded the steroids. Refusing to adhere to the Patent Office's promise that method (process) claims and product claims stand or fall together, the court held that the disclosure of how to use the product need not be as complete when a process claim is involved and is demanded when only the product claim is being examined. The "is not required to be as complete"⁵³ clause must be seen as a questioning, and perhaps a defining of the *Wilke* doctrine. The *Adams* court did not base the validity of a process solely on operability, but seemed to demand some showing of result utility.⁵⁴ This delimitation of *Wilke* served to again raise the question of whether the *Bremner*

51. The CCPA addressed itself to section 112 which the Patent Office contended was the sole ground for refusing the claim. The court observed that the standard imposed may well have changed since the *Bremner* decision. As the "person skilled in the arts" phrase of section 112 is a factual standard, the increasing body of scientific knowledge which must be imputed to a skilled person must be considered.

52. 316 F.2d 476 (C.C.P.A. 1963).

53. *Id.* at 478.

54. It is not clear in the court's decision whether a mere assertion of result utility would suffice as a showing of utility.

demand that a process result evince utility before the process is patentable was still in force.

Answering the question in the negative, the court in *Application of Szwarc*⁵⁵ held that the rule of *Bremner* no longer applied to process claims. Recognizing the absence of statutory authority for that rule and citing the *Wilke* interpretation of the section 112 requirements, the court reasoned that "it was sufficient if the specification disclosed to a person of ordinary skill in the art the steps of how to carry out the claimed process."⁵⁶ Underlying the court's ruling that operability was the key to process claims was the rationale that if an applicant be compelled to fulfill the sections 101 and 112 requirements for the process result, he would be forced to establish patentability of an invention which he was not claiming. After *Szwarc*, the problematical status of chemical process law was singularly altered. No longer was it necessary for the applicant to concern himself with the patentability of the chemical intermediate process result. The *Nelson* rule that a chemical intermediate process was useful was no longer necessary in the evaluation of chemical process claims, as these claims were to be accepted or rejected solely on the basis of their operability.⁵⁷ After being abandoned by *Bremner*, revived by *Wilke*, and questioned by *Adams*, uniformity had returned to the sphere of chemical and non-chemical process claims.

It was with little difficulty that the CCPA in *Application of Manson*⁵⁸ applied the test of operability to process claims and again reversed the decision of the Patent Office examiner and board. Because *Wilke* and *Szwarc* were concerned with the "how to use" requirement of section 112 while *Manson* focused on the utility requirement, those cases were not directly controlling. They were influential, however, in that they indicated the recent thinking of the courts on the chemical process issue. From this foundation, the *Manson* court reasoned that the board's requirement that before an applicant may have claims to a chemical proc-

55. 319 F.2d 277 (C.C.P.A. 1963).

56. *Id.* at 286.

57. *Wilke* and *Adams* were controlling in *Application of Albertson*, 332 F.2d 379 (C.C.P.A. 1964). That court reaffirmed the view that each statutory class of claims should be considered independently with acceptance or rejection being decided on the claim's merits.

58. 333 F.2d 234 (C.C.P.A. 1964). This case did not concern a direct patent claim for the chemical process, but involved the question of whether the applicant for a patent on a new process is required to establish process result utility to satisfy the requirements of Patent Office Practice rule 204(b) preparatory to having an interference declared between his application and a prior patent.

ess he must show the utility of the result could not be justified in light of 101. At the base of this rationale was the recognition of a process as a separate category of patentable invention.

Clearly, a process which operates as disclosed to produce a known product is "useful" within the meaning of section 101. To add to this section the further requirement that such a process is "useful" only when a "use" for a known end product is disclosed seems to us to be an improper arrogation of the authority delegated to Congress by the Constitution. Had such a restriction been intended by Congress, we believe it would have been directly stated either in section 101 or in the definition of a process found in section 100 (b). We take the omission of any such requirement to be determinative of the issue here.⁵⁹

With the assurance that *Wilke* and *Szwarc* had overruled *Bremmer* as it applied the process claims and the section 112 requirement, the *Manson* court concerned itself solely with section 101 and held that "in the present case, our holding . . . eradicates as to process claims whatever remained of the so-called 'rule of *Bremmer*.'" ⁶⁰

The turmoil and confusion which settled about chemical process claims in the years after the introduction of *Bremmer* disappeared entirely in the wake of *Wilke* and *Manson*. Applicants for chemical claims faced a newly developed favorable environment which included not only the rule that chemical intermediates may possess utility, but also the rule that chemical process claims were to be tested against the same guidelines as non-chemical process claims. The only problem which remained was the continual clinging of the Patent Office to the rule of *Bremmer*, an approach diametrically opposed to the CCPA interpretation.⁶¹ To "resolve this running dispute over what constitutes utility in chemical process claims," ⁶² the Supreme Court granted certiorari.⁶³

THE MANSON DECISION: ESTABLISHMENT OF A STIFLING ENVIRONMENT

On certiorari, the Supreme Court reversed the CCPA and conse-

59. *Id.* at 235.

60. *Id.* at 237. For further discussion of the *Manson* decision see 14 AM. U. L. REV. 78 (1964).

61. In all the cases cited in note 26, *supra*, except *Petrocarbon*, the CCPA reversed the initial decisions of the Patent Office examiner and Board of Appeals.

62. *Brenner v. Manson*, 383 U.S. 519, 522 (1966).

63. 380 U.S. 971 (1965).

quently revitalized the rule of *Brenner* as it applied to process claims.⁶⁴ In holding a chemical process not "useful" within the framework of section 101, either when it produced the intended product or when the compound result was the subject of serious scientific investigation, the court based its adherence to the narrow definition of "useful" on a rationale featuring a two-pronged attack. The court reasoned first, in view of the encouragement to disclosure principle of the patent system, that:

[In] light of the highly developed art of drafting patent claims so that they disclose as little useful information as possible—while broadening the scope of the claim as widely as possible—the argument based upon the virtue of disclosure must be warily evaluated.⁶⁵

Secondly, it was held that a chemical process patent which has not been developed and pointed to a degree of specific utility "creates a monopoly of knowledge which should be granted only if clearly commanded by statute."⁶⁶

The unfortunate rationale of *Manson* which resulted in the return of non-uniformity in testing process claims and the re-introduction of a hampering atmosphere for chemical process claims applicants, proceeded on a misreading of *Nelson*, a failure to advocate uniformity in the law, and a failure to recognize the practical characteristics and possibilities of both chemical processes and chemical intermediates.

Nelson was obviously misread, as the *Manson* court referred to the application in that case as a "claim on a process yielding chemical intermediates."⁶⁷ The import of *Nelson* was its recognition of the possible utility of chemical intermediates, and in no way did it involve a process claim.

By reinstating the rule of *Brenner*, the court applied to chemical process claims a different validity test under section 101 than the operability which non-process claims were tested against.

In the *Manson* dissent,⁶⁸ a caveat was framed in recognition of the specific problems and possibilities which the chemical research field present and offer.

64. *Brenner v. Manson*, 383 U.S. 519 (1966).

65. *Id.* at 534.

66. *Id.*

67. *Id.* at 530.

68. Both Justices Harlan and Douglas dissented in part.

Chemistry is a highly interrelated field and a tangible benefit for society may be the outcome of a number of different discoveries, one discovery building upon the next. To encourage one chemist or research facility to invent and disseminate new processes and products may be vital to progress, although the product or process be without utility as the Court defines the term, because that discovery permits someone else to take a further but perhaps less difficult step leading to a commercially useful item.⁶⁹

The dissent also presented just as compelling an argument contra to the the majority views. As the majority chose to discuss and decide the issue of patentability in the abstract, so the dissent answered the charges in the abstract. To counter the thesis that a creation of a knowledge monopoly would result if a process patent was issued absent a showing of product utility, it was recognized in an enlightening approach that claims to a process involve no claims to the product, without regard to either its present or future utility. If any monopoly resulted, it would rest solely on the process and its ultimate development, not upon the product and the myriad of uses which might be uncovered for it. In answer to the charge of opaque drafting, it was seen that such an argument operates against all patent claims, whether chemical or non-chemical, process or product. The reason for singling out chemical claims and stating that the claimed invention will more likely be disclosed upon the refusal of patent protection than would a non-chemical claim appears totally illogical absent empirical study and data. Concerning itself with the problem of discouraging the search by people other than the applicant for further product uses, the dissent stated:

[T]here is no doubt this risk exists but the price paid for any patent is that research on other uses or improvements may be hampered because the original patentee will reap much of the reward. From the standpoint of the public interest the Constitution seems to have resolved the choice in favor of patentability.⁷⁰

In settling the running dispute over utility in chemical process claims, the *Manson* court affirmed the validity of the *Brenner* rule and in this affirmation re-introduced a doctrine singularly frustrating to the applicant in these chemical claims.

69. *Brenner v. Manson*, 383 U.S. 519, 539 (1966).

70. *Id.*

In the concurrently decided cases of *Application of Kirk*⁷¹ and *Application of Joly*,⁷² the CCPA was particularly concerned with the applicability and scope of *Manson*, and with the adequacy of utility assertions in applications claiming chemical processes and chemical intermediates. The *Joly* application included claims directed to a process for the manufacture of steroids claimed to be useful as intermediates, while the questionable claims in *Kirk* each were for chemical compounds also asserted to have value as intermediates. In both cases the claims were rejected by the examiner, the rejections were upheld by the Patent Office Board of Appeals, and the board's decision was affirmed by the CCPA relying upon *Manson*.

Dealing with an application strikingly similar to the claims in *Nelson*, the *Kirk* court expressly overruled *Nelson* while enunciating the following doctrine:

[J]ust as the practical utility of the compound produced by a chemical process is an "essential element" in establishing patentability of the process, so the practical utility of the compound, or compounds, produced from a chemical "intermediate," the "starting material" in such a process, is an essential element in establishing patentability of that intermediate.⁷³

In interpreting the *Manson* demands, the court not only expressly disavowed the operability test for determining the validity of chemical process claims, but also overruled, to the extent of their inconsistency with *Manson*, the decisions in *Wilke*, *Adams*, and *Szwarc*. Even more unfortunate than the overruling of those decisions, however, is the fact that the court chose to legislate by interpretation further tests into the section 101 utility requirement. The first addition is the requirement that to be patentable the intermediate must be usable in the production of a useful end. Secondly, that useful end must evince practical utility. The court in *Joly* referred to and relied upon these new interpretations in holding that process claims were not allowable absent a showing that the compound result met the new standards of section 101.

It has been strongly and persuasively argued that *Manson* did not demand the overruling of *Nelson*,⁷⁴ and that its application should be re-

71. 376 F.2d 936 (C.C.P.A. 1967) [hereinafter cited as *Kirk*].

72. 376 F.2d 906 (C.C.P.A. 1967) [hereinafter cited as *Joly*].

73. *Application of Kirk*, 376 F.2d 936, 945 (C.C.P.A. 1967).

74. *Application of Kirk*, 376 F.2d 936, 947-68 (C.C.P.A. 1967) (dissent); see Note, *Some Special Problems with the Utility Requirement in Chemical Patents*, 35 GEO. WASH. L. REV. 809 (1967).

stricted to section 101 utility issues when they arise in the context of a right to an interference claim. Despite the cogency of these arguments, *Nelson* has been overruled and *Manson* is not strictly limited in its application to identical factual situations. This present state of conflict is alarmingly analogous to the post-*Brenner* era with its decisions and arguments that the rule should be confined to identical fact cases, rather than being overread and misapplied. The analogy ceases when attention is focused upon the disputing elements. The clouded environment of the post-*Brenner* case law was engendered by a disagreement between the Patent Office and the CCPA. Such an environment was precluded and averted by the Supreme Court in *Manson*, and the disputing bodies which have emerged in the post-*Manson* decisions are the CCPA and Patent Office opposed by the minority in the CCPA. The *Manson* rationale may be debated and the influence of that decision may serve to stifle the environment in the field of chemical research and development, but that decision and the *Kirk* and *Joly* interpretations and expansions remain the law.

CONCLUSION

The dual problems of chemical process utility and chemical intermediate utility have stretched across three distinct periods in the development of the patent case law. In the years before *Brenner*, process utility was synonymous with operability and chemical compounds were useful, *per se*. The CCPA continued to follow these positions in the years from *Brenner* to *Manson*, but the Patent Office refused to recognize the utility of chemical intermediates and refused to apply the operability test to chemical process claims. With the advent of *Manson* came the complete disavowal by the CCPA and the Patent Office of the pre-*Brenner* tests in both utility areas. This sudden shift in the utility framework, coming after one hundred fifty years of patent law solidity and uniformity, was not based upon a statutory change in the utility requirement but was grounded solely on policy and practice changes within the Patent Office. The ultimate results of this shift are two-fold: first, the applicant is forced to discover and establish the utility of a product which he does not claim; second, the present state of the law serves to discourage rather than to encourage the disclosure of inventions.

The only two avenues of relief for the chemical applicant rest with the Supreme Court and with Congress. It is to be hoped that the Court will recognize the retarding influence which pervades the *Manson* ra-

tionale. The Court's holding that either process utility depends on operability or that a chemical intermediate may possess utility would lift the onerous burden now placed upon the applicant. If operability was again to become the key determinant in process patentability, the question of chemical intermediate utility would be irrelevant in testing the process validity. If chemical intermediates were again recognized as useful, then operability would not have to be the test for process utility, as a process which yields a useful product will also meet the utility requirement. Such court action, however, is extremely unlikely.

The only realistic solution to the present dilemma rests solely with Congress. Courts have continually struggled with the elusive Congressional intent underlying the section 101 utility requirement and the "how to use" demand of section 112. The failure of the patent statute to expressly define validity tests for processes or for chemical intermediates has led to presumptions of both patentability and non-patentability. The section 101 utility requirement should be amended to provide that chemical intermediates, per se, meet the utility requirement. This section should further be amended to provide that operability is the test of process utility. The presumption that anyone skilled in the arts will know how to use a chemical intermediate should be given effect in section 112. Through Congressional inaction, approval must be assumed. If Congress by inaction approves the existing state of law surrounding chemical claims, they will be remiss in their duty to encourage the progress of science and the useful arts. The power to eliminate the stifling environment of the chemical patent law lies with Congress; its exercise is earnestly encouraged.

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