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The Evaluation of the "Inventive Step" in the European Patent System - More Objective Standards Needed - Part Two

2. The Evaluation of the Inventive Achievement by Examiners and Judges

a. Construction and Interpretation of Legal Concepts

The relationship between "inventive step" and "non-obviousness," as laid down in the Convention, has been explained in the first part of this article. For the development of an examination method for the determination of non-obviousness a few preliminary remarks seem appropriate.

Since the initial use of quality requirements in patent law, whether in the middle of the nineteenth century in the United States or at the beginning of the twentieth century in Germany, 73) the attempts to interpret "invention," "inventive level," "inventive height" or "non-obviousness" were efforts of trial and error, frustration, despair or lethargic fatalism; and today, even before the first patents in the European Patent Office have been examined, voices are raised in Europe urging that we renounce the concept of inventive step and return to a broadly interpreted concept of novelty. 74) I do not want to repeat all the dogmatic arguments which have been used in the discussion nor deal with all the decisions pertaining to this question. I merely mention as a result which is shared by the majority of scholars and practitioners that non-obviousness is a question of law which must be decided in each single case by the examiner or judge. 75) Although it is a circumstantial element of the even broader concept of patentability, the inventive step or non-obviousness is not a fact which of itself can be established, verified or proved. Even the famous "person skilled in the art" cannot be used as an existing witness or as a fixed point of correlation, although this fictitious figure can well be employed to describe this requirement in a more plastic way. 76)

The decision on non-obviousness requires a judgment that is based on facts 77) and on their evaluation which are to serve as a basis for the theoretically only "correct" answer, an answer which in theory must be the same irrespective of the identity of the deciding person, provided that this person has the same information and instructions. 78) It cannot be emphasized vigorously enough that non-obviousness "is not a question which is up to the individual discretion of each single examiner or judge." 79) This means that any person must be able to reconstruct every step of the decision, since it must be based on objective factors and not on divine inspiration. Therefore examiners and judges have an obligation to give reasons for their decision, not only to convince the parties of its correctness and thereby establish judicial peace, but also because all judicial bodies bear a responsibility to the community and are subject to public control, the latter generally exercised by a higher instance of appeal. 80)

The reasons given to support a decision, to be sure, must not skip a sequence in the row of arguments. The conclusion that patentability must be denied because an invention lacks novelty and an inventive step, is certainly correct and does not need any additional logical explanations in the causal link between non-obviousness and patentability. However, the decision needs reasons which reveal how the examiner or judge arrived at the conclusion of lacking novelty and non-obviousness. In the case of novelty it usually suffices, if a simple comparison is made between the contents of the invention and the prior art, since the examination for novelty, under American as well as European patent law, consists in a mere objective examination of identity which can be verified directly.

The examination for non-obviousness is different. Here there is only an indirect method to establish its existence, and this method, due to the fact that the possibility must be provided, to reconstruct and review the decision can only consist of an exposition and discussion of objective facts. 81) Only such factual discussion and evaluation can convince the parties, and not the mere announcement of the results of deliberations which took place in the minds of examiners and judges. Therefore, for the purpose of possible reexamination and review not only the result of the consideration of such facts, but also the decisive criteria employed, must be dealt with. 82)

b. The Evaluation of Inventions by Means of Objective Criteria

aa) In General

The reason why I emphatically advocate the general use of circumstantial evidence or factual criteria in evaluating the requirement of non-obviousness is my belief that other methods do not allow an objective examination or are so complicated as to preclude a practical application.83) This belief is founded on comparative studies of the legal situations in different countries, especially of a multitude of case law. That this favourable attitude towards objective criteria is shared by many international patent lawyers, scholars and practitioners alike, is evident from the number of voices cited in this chapter. It is, therefore, not over-optimistic to hope that, at least for the future European patent law the majority of those dealing with patents will agree with the statement that: "A well-prepared system of objective criteria..., which is oriented to the spirit of the Convention and based on thorough comparative legal study, is an indispensable prerequisite for the functioning of the European Patent Office." 84)

Concerning the use of objective criteria two further comments must be made. The first concerns the demand which must be met of the decisional bodies - the examiners and judges. As to this point, it can be stated that detailed technical knowledge is not required in order to reconstruct, for example, the decision of an examiner, since the objective criteria relate to factors which, while they must be verified in the pertinent field of the art, are based on facts taken from the world at large. Thus, in addition to its technical aspect, the examination for an inventive step or non-obviousness gets at least an equally legal aspect, which is not only significant in view of the legal review by the European Court of Justice. The examination thereby becomes easier not only for lawyers but also for technically trained people. However, it remains sufficiently demanding, if one tries to shed light on the background of the objective criteria or to disprove their causal link with the invention. It is clear therefore that there will be an easier method also in the future, namely to declare the objective criteria as irrelevant in one short sentence and to deny the existence of non-obviousness "by experience and feeling." What makes the use of objective criteria, however, superior to any other approach, is the fact that they can be objectively established and that the judgment can thus be reached independently of a subjective or even biased opinion of the deciding person.

The second observation concerns the field where objective criteria should be used. It is not the purpose of this paper to advocate the addition of non-technical and inexperienced examiners to the staff of the European Patent Office and to substitute common sense for technical skill in the examination for patentability. The technical evaluation of inventions will never cease to remain one of the main components of a decision on patentability. 85) This technical test, however, should be supplemented, already at the level of the examining divisions, by an evaluation of objective criteria to the extent that they are available during the examination proceeding. The greater the time difference between the date of application and the date at which the evaluation takes place, for example in a later opposition or revocation proceeding, the greater should be the weight of objective criteria. 86) A careful analysis of the objective

circumstantial evidence should take place in order to avoid a hindsight decision based on ex post facto wisdom,⁸⁷) not only when the patent has been granted with its accompanying presumption of validity (which of course does not apply if new references have been found), but also if the refusal to grant a patent is attacked on appeal by the applicant because one or several indicia were disregarded by the examiner. It must be noted that at the higher decisional levels technical specialization diminishes and the legal elements gain importance. The boards of appeal, for example, consist of two or three technically qualified members (Art. 21 (3) MPC), but one cannot realistically expect that, in each case coming before the board, one member, let alone all, will be specialists in the specific field of the invention at issue. In the Enlarged Board of Appeal we finally find five legal members (in comparison to one or two in the Board of Appeal) and only two technically qualified members (Art. 22 (2) MPC). Thus it becomes clear that mere technical evaluation can no longer have the same significance in these instances.

If I call upon the lawyers at this point to look after the objective criteria with special care, this is done not only on the assumption that they will, in any event, be more inclined to evade difficult technical discussions in favour of the more easily understandable objective criteria; for also the majority of patent attorneys possessing technical qualification would rather argue with examiners and judges - at least in addition - in terms of factual circumstances. This appeal in favour of a consideration of objective criteria is connected far more with the general recognition that we should make an attempt today that certain areas, where judges and lawyers have partly or totally become dependent on expert opinions, become again understandable and controllable by the judiciary. Patent proceedings are an area, where such expert opinion can be reviewed on the basis of factual evidence and legally reviewable factors. ⁸⁸)

Critical voices which distrust the examination based on objective criteria, often point to the experience in Germany and the U.S.A. where, in spite of a recognition of objective criteria, one cannot speak of predictability in patent decisions. ⁸⁹) Such arguments are of little value, since one cannot cite examples where a practical method of using objective criteria has either not yet been developed or is not generally accepted by the Patent Office and the courts. In the examination stage, objective criteria are seldom employed in Germany or in the U.S.A., and in the opposition proceeding in Germany they are seldom given decisive importance, although applicants are using them more frequently as evidence of patentability. Only courts of general jurisdiction are less reluctant to rely on them, although one cannot yet speak of a generally accepted method of application.

The reason for this is a distrust of the objective criteria. "Real" cases are referred to, where if the decision had been based on objective criteria, the grant or validity judgment of a patent would have been "wrong." Such cases, which might at best amount to 5-10 % in practice, however, mostly concern inventions which are so clearly unpatentable - and therefore are so often referred to as examples - that, in reality, one does not need any additional evidence. Furthermore, with a correct application of objective criteria, as described above, these cases could also be found to lack an inventive step. But, apart from that, I cannot see why we should renounce the use of objective criteria in 90 % or 95 % of the cases merely because there may be some borderline cases to which other methods of examination must be applied. I am quite aware that the method proposed here can be further refined or modified where necessary. Scholars and practitioners have a wide field for experimentation here. But what I want to make clear is that the use of objective criteria is not a substitute for the examination for non-obviousness, but that it is the (or at least one approach of the) examination for non-obviousness. ⁹⁰)

bb) The Legal Nature of Objective Criteria

Objective criteria, also known as circumstantial evidence or indicia, are known from the field of criminal law even to non-lawyers. There they serve the same purpose as in patent law, namely to provide evidence of the existence of certain prerequisites of a crime, for instance, the proof of "intent" of the actor, which is as difficult to verify as the existence of non-obviousness of an invention.

In Germany the Federal Supreme Court has defined the legal character of objective criteria as being a substitute for full evidence in cases where a certain fact cannot be verified by itself. 91)

Objective criteria must not be confused with prima facie evidence. The difference is that a prima facie rule draws a causal link between a certain fact (event) and certain cause, because experience tells us that such a causal link is given in a preponderant majority of cases. 92) In cases of circumstantial evidence, however, each criterion can itself indicate the required fact or characteristic, its weight, however, is not as great, since other causal links must be eliminated, and, some indicia reflect only a partial aspect of the complete proof, so that only the combination of several indicia brings full evidence. 93)

cc) How Objective Criteria Can Be Applied

A thorough and exhaustive discussion of all sources where objective criteria or "secondary considerations" have been mentioned in the past is impossible here for lack of space. 94) Instead I will list those criteria that I have collected from case law and literature and found useful. I will provide a short explanation with each criterion with only some citations which refer to these criteria. I will then give some examples of how I believe the criteria should be used.

(1) Commercial Success

The reasoning for this criterion is that the purchaser is regarded as an objective judge who only spends his money for valuable contributions to the state of the art. 95) This argument was certainly valid in the early days of industrialization, but with today's sophisticated advertising, an outright belief in this criterion meets with scepticism. 96)

It must be conceded that modern methods of sales promotion can indeed lead to a manipulation of buyers. However, here one must distinguish between the different distribution levels, since wholesalers, purchasers of raw products from industry or users of newly-developed sophisticated machinery, must be judged differently from an average customer who buys an item for everyday use. 97) In considering this circumstance one should try to investigate the facts which led to the commercial success, so that factors not related to the merit of the invention are excluded. But with all the scepticism as to the objective character of this criterion, one should not forget that normally commercial success establishes the existence of an economic need which had not been fulfilled by the prior art. Therefore the argument, that "such success is to be expected when monopolistic protection is given to a useful but obvious advancement of the art, " 98) is, to say the least, surprising. For an applicant it is of course preferable if he can indicate, in addition to commercial success, other objective criteria which are less ambiguous. 99) Also, during the examination stage at the Patent Office, a commercial success will seldom be present so that one is often forced to look for further evidence. But it is certainly disputable, if the proof of outstanding commercial success with the subject matter of the invention having displaced all competitive devices in industry, is plainly disregarded "because there is always a risk of manipulation. " 100)

(2) Overcoming of Difficulties

Often a technical barrier is found in the prior art which was overcome by the inventor. In such a case, the time during which the barrier existed allows an objective measurement of the importance of a technical contribution by the invention. In the U.S., difficulties that have been overcome by the inventor are seldom used as evidence per se, whereas in Europe they can be found in quite a number of decisions. 101) It should be mentioned that it is not sufficient if the inventor himself had difficulties in achieving his result. What is required is that these difficulties should have existed in the art as such and that experts in the field generally were not able to deal with them.

(3) Satisfaction of Long Existing Need

The need for technological improvements is generally regarded as the main impulse of technical advance. Therefore, if the need for an improvement is recognized, usually all efforts concentrate on the search for a solution. If this need continues to exist for a long time, this is an indication that those working in the pertinent field were unable to remove the difficulties and find the solution. 102) The probative weight of this evidence is very high. Accordingly any decision, denying patentability of an invention for which this criterion is proved, which does not answer the question, "Why did nobody ever think of it before?" is lacking in sound reasoning.

Counter-arguments can only be based on facts, e.g., that nobody was interested in satisfying the alleged need, or on a total lack of commercial success, which would indicate that the consumer did not accept the proposed solution as the satisfaction of his need. If the need would be satisfied shortly after it had been realized, this could also contradict the non-obviousness of the invention.

(4) Failure and Unsuccessful Attempts of Experts

This subtest has some logical relationship with numbers (2) and (3). Attempts are undertaken if a need exists and experts in the field fail, because difficulties must be overcome. The same arguments apply if a number of unsuccessful attempts are undertaken by experts skilled in the art. A careful analysis of the number of unsuccessful attempts, the period during which these attempts were made and of the skill of those who failed can help to make the applicant's arguments more convincing. 103)

(5) Increased Performance, Greater Productivity

The better exploitation of resources and greater productivity are factors which can be measured objectively. If the improvement is not only marginal so that it would be attributed only to the expected every-day progress, i.e., if the art had existed for a long time with inferior results without being able to find a better solution, the proposed modification cannot have been obvious. 104) The argument for this criterion is that industry would have introduced a better solution before, in order to beat competitors, if it had been aware of the means. 105)

It must be mentioned in this context that an improvement is not a prerequisite of patentability, a fact which is often overlooked by people with little experience in patent law. Non-obviousness can also be given, if the inventor only proposes a different solution and uses different means without necessarily achieving a better result. This question of the so-called "second way" will be further discussed below under the heading "Technical Progress."

(6) Cheaper and More Economical Production

The development of cheaper manufacturing processes is a permanent aim of industry. Together with the selling of better products, the offering of cheaper products is a means of improving one's market position. Therefore, the same arguments apply as already discussed under number (5). 106) It cannot be decisive, of course, that, in spite of a reduction in manufacturing costs, maintenance costs or other savings due to the invention, the price of the endproduct remains the same because of higher profits of the manufacturer or dealer. It is not a question of social benefit we are dealing with, but of technical improvement.

(7) Simplification of Machines, Construction, Manufacturing Methods, etc.

This circumstance describes a special kind of improvement, where "less" is "more." The modification of complicated machines or processes by more simple devices and methods has always been a most convincing manifestation of inventive skill. 107) Here, as in the case of other objective circumstances, the period during which industry has been living with the more complicated solution as well as the proof of additional criteria like unsuccessful attempts and a long-felt want, strengthens its probative weight. 108)

(8) Technical Progress, Advance in the Art

Technical progress is generally regarded as one of the inherent goals of the patent system. Some national laws, for example the American and German patent laws, had initially required the existence of substantial technical progress as a prerequisite of patentability, 109) and only later developed the requirement of "non-obviousness." In Germany, where technical progress was counted among the three requirements of patentability, (novelty, technical progress and non-obviousness), this second requirement was expressly deleted by the ratification act of the Munich Patent Convention, in which Sec. 1 only repeats the text of Art. 52 MPC with the three requirements of novelty, industrial application and inventive step, thus expressly abolishing technical progress.

That this modification was not intended as an abandonment of the goal to advance the art by granting patents has been repeatedly emphasized, especially by German patent experts. 110) It is therefore suggested here that the proof of technical progress or an advance in the art should in the future be considered as an objective circumstance of non-obviousness. Technical progress, as it is understood here, covers the already mentioned indicia of an improvement (No. 5), cheaper production (No. 6), and the simplification of machines, construction, etc., (No. 7), but it also describes a number of other advantages which can be produced by an invention and which may be combined under this common heading. Like the afore-mentioned subtests, technical progress can also be verified objectively by a mere comparison of achievements obtained before and after the invention. 111) Wirth, the German inventor of the concept of "Erfindungshöhe" spoke of a "logical causal relationship" between technical progress and the inventive step. 112) This does not mean that one can equate technical progress and non-obviousness so that proof of technical progress, as little as it may be, would in itself result in an affirmative answer to the question of non-obviousness. If, however, it is agreed that technical progress does not in every case automatically indicate the existence of non-obviousness - since technical progress can also be achieved by applying obvious means - it should also be clear that technical progress, under European patent law, can no longer be regarded as a requirement of patentability. This consequence, which is only a logical result if one accepts technical progress as objective evidence instead of a prerequisite, is met with hesitation among some scholars and practitioners. It is feared that by the unconditional substitution of the concept of non-obviousness for technical progress,

inventions could be patented which do not involve an advance in the art or which even constitute a step back in the development of technology. The argument is that such "improvements" would have been made without the existence of a patent system, so that a reward for the inventor seems to be inappropriate. 113)

In reality, if one applies the non-obviousness standard in practice, the risk that inventions could be regarded as patentable which actually deserve protection by the patent system is minute. If we start from the assumption that a patentable invention by definition need neither be "better" nor "progressive," but that it must be non-obvious to a person skilled in the art, we must inevitably conclude that merely different solutions, using different means or consisting of the substitution of material, are patentable if the use or substitution was non-obvious. Is this really so bad? In an era where "recycling" has become a movement in the industrialized nations because of fear that raw material is becoming scarce, every alternative to existing methods of production is a potential safeguard of future progress. In principle, under German law, the so-called "second way" has always been regarded as patentable, even if the result obtained by such an alternative method was no better than already existing methods, provided that such new way was non-obvious to an expert skilled in the art. 114)

On the other hand, due to the requirement of technical progress, the practice of the Patent Office was that the "technical problem" in the sense of Rule 27 (1) (d) MPC had to be described in terms of intended improvements or technical progress. With the abolishment of technical progress as a prerequisite of patentability, to my mind the inventor under European law has the choice: the problem can either be to make something "better" (technical progress) or to make something "different" (alternative means without improvement). Experience tells us that some degree of improvement or advantage will always be achieved by an invention which is supposed to have the chance to meet the requirement of non-obviousness, and the inventor should always try to include advantageous effects in his application or to show why the proposed solution was desirable. 115) However it must be kept in mind that it was the intention of the European legislature that, as a principle, inventions should become patentable, the non-obviousness of which is undisputed, but which do not show, at the date of the examination, e.g. a saving of raw material or other social benefit. To my mind, the mere existence of a greater number of available processes constitutes an enrichment of the state of the art, and experience tells us that the economic advantage and social benefit of an invention is often only discovered at a later stage during the 20 year-life of a patent. 116) Those who are concerned that a patent which was granted *in dubio pro inventore* could become an economic burden to industry and thus hinder progress instead of promoting it, may be referred to a statement of Judge Rich that "a monopoly on something nobody wants is pretty much of a nullity. " 117) If an inventor has really received his inspiration from the state of the art or developed a solution which is practically worthless or already known, he will find it difficult to exercise his monopoly, first of all economically, since nobody will be interested in buying or licensing the item in question, and secondly legally, since an infringement suit will be very difficult to win if the alleged infringer like the "inventor" only copied the state of the art.

Technical progress, as the general heading of a number of circumstances representing an enrichment and improvement of the prior art, will therefore certainly become one of the most important and most often cited objective criteria under the European patent law. 118) And it may be interesting for the history of the Munich Convention that the Swiss delegation to the Munich Conference of 1973 had proposed including the criterion of technical progress in the Convention as one example of objective proof of non-obviousness. The only reason this proposal was not adopted was the expressed concern that technical progress would thereby be accorded exceptional weight among all other recognized or later developed objective criteria, which in the long run would perhaps have an effect opposite to that which the Swiss delegation had in mind. 119)

(9) Pioneer Inventions

This concept describes a kind of invention which constitutes a breakthrough, in the sense that it either changes the production methods of a whole industry or creates a totally new industry or branch of industry which had not existed before. In the latter case there would not be any prior art with which the invention could be compared, so that the discovery of a new technology as such is the best proof of non-obviousness. 120) Included among those new technologies clearly are nuclear fission, the TV tube and the laser, as well as inventions of everyday use like the production of laminated glass or a machine for the peeling of raw shrimp. 121)

It is true, that at the examination stage the full scope of the value of an invention can seldom be recognized, although the patentability of such inventions is rarely disputed. Therefore the qualification of a pioneer invention, in practice, is more important in the context of an infringement suit, because the scope of protection of such inventions is often an issue for the succeeding decades of the patent's life.

(10) Disbelief and Scepticism of Experts

The fact that experts tended away from the invention, that the solution found by the inventor was met with disbelief and scepticism by experts and that industry had become too discouraged to search in the direction where the inventor finally met success, is persuasive for the "non-obvious" judgment. Such circumstances are persuasive for the assumption that the persons skilled in the art were still far away from the invention. 122)

(11) New and Unexpected Results

This circumstance should not be developed from the viewpoint of the inventor, but from other references of experts in the art, if such references are available. Therefore, the question is not whether the result obtained by the inventor would have been unexpected to experts, since an answer to this question would be as subjective as the answer to the question of non-obviousness. Instead, objective testimony from literature or oral comments on the invention expressed by experts in the art are facts of objective evidence. 123) If, for example, in chemistry a certain compound was classified because of structural similarities under a certain general formula, it is expected that its characteristics are similar to, or identical with, those of the other compounds of the group. The fact that an inventor shows that this compound has a useful property which is totally different from the properties and characteristics of the other compounds must therefore be regarded as unexpected. 124)

(12) License Rights Acquired from the Inventor

This fact invariably belongs to the concept of commercial success. Like commercial success, a great number of granted licenses or applications for license grants shows that a need for the invention existed and still exists. In addition, however, the number of interested parties in the economic and industrial use of the invention also reflects the judgment of experts in the art and their appreciation of the invention. 125) Such purchasers usually remain unimpressed by exaggerated advertising or unjustified claims of the patentee. It can generally be assumed that such people, who are often competitors of the inventor, very carefully examine the value of the invention before entering into any agreement. 126) The consideration that competitors would certainly prefer copying the invention and thus risk an action for infringement if they

were convinced that they could win an infringement suit, might strengthen the probative weight of this circumstance. 127)

(13) Copying or Infringement of the Invention by Competitors

This criterion could be regarded as ambiguous in view of the aforementioned circumstance. The fact that someone infringes a patent could well lead to the presumption that he does not believe in its validity. But the possibility that someone would voluntarily risk the expense and inconvenience of an infringement suit for something which is worthless and could as well be manufactured by copying the prior art is at the same time unlikely. If he decides to copy someone's invention he must at least be convinced that he will benefit financially to an extent that even the costs of litigation would be covered by the profits. 128) In countries like Germany especially where the damages to be paid for infringement consist only in a hypothetical license fee - which the infringer would have been obliged to pay anyway had he obtained the license from the patentee - the risk to the infringer is very small and the temptation, therefore, very great to benefit from the invention illicitly. The infringer in such a context should answer the question why he did not imitate the prior art, or, if the prior art did not contain the solution, why he was unable to develop the patented idea himself. Little weight should also be accorded to the fact that an infringer draws a perfect picture of all the elements of the invention as being contained in the prior art, and if he furthermore shows how easily they could be combined. If he had been unable to combine them before the invention was published, such an ex post combination was probably beyond the skill of an ordinary expert. The closer the copy of the invention, the more conclusive is the probative weight of this circumstance.

(14) Circumvention

This criterion complements the above-mentioned one, because it is the lawful counterpart of using the inventive idea. If one or more competitors try to develop a substitution of a successful invention without touching the scope of protection of a patent, this means that they regard the invention as valuable and at the same time acknowledge its validity. Both circumstances are evidence of a surprise to those skilled in the art and therefore of the non-obviousness of the invention at issue. 129)

(15) Professional Recognition, Laudatory Comments of Others Working in the Art

Under this heading all comments by experts concerning the invention are assembled which do not belong to the specific categories 10 to 14 but which in some way also reflect the judgment by experts and their appreciation of the invention. Here articles from scientific journals and speeches, as well as descriptions of the invention in advertising material of competitors can be relevant sources. 130) Also other forms of scientific recognition and especially the award of scientific prizes to the inventor are evidence of extraordinary skill and therefore of non-obviousness of the invention. 131) In most cases such incidents which are not related to an actual infringement or nullity proceeding are much more realistic than the expert opinion submitted to a court.

(16) Costly and Long-Lasting Research and Development

This subtest constitutes a concrete description of what is normally called "inventive activity" (132). In this respect, however, it cannot be decisive whether the inventor himself had to overcome difficulties, since it is similarly irrelevant whether the inventor obtained his idea

in a dream or by some other pure accident, 133) the yardstick being the average person skilled in the art. However, if it can be verified that the inventor at least had the qualities of such an average expert and that he was not blind in looking for solutions in neighbouring areas, but that he nevertheless had to struggle with the problem for a long time, eventually together with the research team of his company, this history of the invention can be valid proof of its non-obviousness. 134)

In this context it should be remembered that it was - and still is - one of the fundamental principles of a patent system to grant patents as an equitable remuneration to the inventor for the intellectual work which he has performed for the benefit of the community. 135) And it can only be called short-sighted for some authors to pretend that, by taking into account the amount of research and development, we would supplement patents of inventors by patents of "investors," and compare companies investing money in R & D with the financiers of Queen Elizabeth who bought their monopolies without contributing anything to the advance of the art. 136) This opinion is "as clearly wrong as a judicial opinion on an intricate matter can possibly be," 137) since, if this view were accepted by the patent offices and the courts, 90% of all patents would be declared invalid, not only those of large companies, but also those of small inventors, who also must invest labour and costs for the reduction to practice and accomplishment of their ideas. And if we take into account the definition of non-obviousness as it is generally understood, it seems that if someone must spend enormous amounts of money, the solution he is looking for cannot have been so close and obvious, especially if he can prove that others had undertaken parallel, but unsuccessful, research in the same field. It has been proposed that, for an objective appreciation of the impact of research and development on the value of an invention, statistical data on the costs of, and time needed for, developing an average invention in specific fields should be made accessible by companies having an important research output. 138)

(17) Taking into Account of Granting Proceeding, Parallel Applications

Abroad and Previous Patent Litigation

This subtest is nearly unknown in Europe, but is sometimes referred to by American courts. For them the fact that in the granting proceeding a serious struggle for (and against) the patent had occurred and that the patent was finally granted, in spite of a number of references and opposers or interference parties, is conclusive indication that a majority of technical experts have confirmed the patentability of the invention. 139) The judgment in such prior proceedings, including the judgment of the examiner, it is argued, should only be invalidated on very serious grounds. For the European proceedings, a multitude of unsuccessful opposers or also a few but important opposers could be an indication of the importance as well as non-obviousness of the invention. Similarly, the patent grant in another examining country might have some probative value in favour of the applicant. Also the fact that considerable patent litigation has occurred, can be indicative of the importance others attribute to the invention, which would probably not occur if the invention would merely be a piece of the prior art. 140)

(18) Long-Existing Prior Art

Here we come back to the discussion on the relevant prior art which was mentioned above. The view taken here is that the availability of some or all elements of the invention in distant fields of technology is not a bar to patentability, if the combination and use of such elements was unobvious to a person skilled in the art. On the contrary, if such elements had already been available for a long time, even if well-known, their combination could not have been obvious, if the result obtained by the invention is useful and had not been obtained before. 141) The same argument applies, if an inferior and imperfect realization of the technical

solution had existed in the pertinent prior art for a long time and nobody had found the means to improve it in the way the inventor did. Of course, the mere discovery of an old document which belongs to the prior art cannot justify the award of a patent - nor can it lead to an automatic rejection of an application. One must examine, however, whether the information contained in the document was understandable for a person skilled in the art or whether a prejudice existed against the adoption of that solution and whether a need continued to exist in spite of the existence and availability of that document. Therefore, in order to increase the probative value of this subtest, it is mostly used in connection with numbers 2-4, 10 and 15, and only time-periods from 10 years onward should be regarded as relevant. Only in areas of extensive research and development can shorter periods be of significance. 142) The justification for awarding a monopoly position to the inventor lies in the fact that he has discovered and proposed to use "hidden treasures" existing in the prior art which nobody else had perceived or was able to use. The U.S. Supreme Court has described this circumstance as follows:

... but it is plain from the evidence and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skilful persons. It may have been under their very eyes, they may almost be said to have stumbled over it; but they certainly failed to see it or to estimate its value and to bring it into notice. 143)

The value of this circumstance can only be diminished by the fact that the need for a better solution only arose a short time before the application for a patent was filed, from which it could be deduced that there was probably no interest in putting the elements of the prior art together, but that this could have been done once the interest was stirred. 144)

(19) Special Choice Among a Multitude of Possible Solutions

This subtest can frequently be used, especially in the case of so-called selection inventions. It describes a situation where the inventor was confronted at the start of his research with a multitude of possible solutions and found the one or few working solutions among a theoretically unlimited number of unsuccessful ones. This circumstance has been used in many decisions of the Supreme Court, and is known in Germany as "glücklicher Griff."

dd. Negative Subtests

A few remarks seem to be appropriate as to the so-called negative indicia or subtests. Such subtests are, according to a number of decisions and legal scholars, an aggregation, an exchange of material, the use of equivalence, the change of size, form or proportion.

According to some decisions and authors, the presence of an aggregation, for example, leads to the conclusion that the invention in question is obvious and does not involve an inventive step. To my mind, so-called negative subtests are not eligible as indicia, since they cannot be objectively verified, but must themselves be defined by other criteria like the concept of non-obviousness itself. This can be shown by the decisions which applied such negative subtests and where the courts in each case decided whether an aggregation was present as subjectively as they usually do when defining the presence of an inventive step. 145) Those cases overlook that in the examination for the presence of a negative criterion in reality they are deciding on the presence or absence of non-obviousness by way of a value judgment which is as uncertain as if it were applied without the use of such legal references.

Similarly, the qualification of an invention as a combination patent as a positive criterion would not be a real help in deciding the question of non-obviousness. The fact whether patentability is given does not depend on a combined effect of the individual elements or on a "synergism," because the affirmative answer as to the existence of an inventive step depends

on the non-obviousness of the result of the invention to someone skilled in the art. Even if the cooperation of the elements were denied, the new application of one or several separate elements could nevertheless constitute a patentable invention. The definition of an invention described in a claim as a combination is only important in one respect: in the case of a combination, it must be examined whether combining the - new or previously known - elements was obvious to a person skilled in the art, 146) whereas, if one or several elements are claimed, or their application, one must ask whether this new use of the element (s), the manufacturing of the compounds or the construction of a certain device, was obvious to an expert. The qualification as a certain category of invention, therefore, does not help at all and cannot be taken as a prejudice in judging the inventive step in a given case. For the same reason the other "negative indicia" are useless. A change of form and size, for example, may well constitute the satisfaction of a long-felt need so that it cannot at the same time serve as a negative rule of patentability. 147) The same is true for the exchange of material, in many cases constituting a significant advance in the art which was not at all obvious to persons skilled in the art.

c. Expert Opinion as Evidence of Patentability

Article 117 MPC enumerates, among other means of giving or obtaining evidence under para. 1e, "opinions by experts." Experience in non-examining as well as examining countries tells us that the testimony of a technical expert who is appointed by the court or the Patent Office constitutes a valuable help for an objective explanation of the invention and its significance for the art. The danger in using such experts, who usually are highly qualified university professors (and more or less specialists in the field to which the invention pertains) is that they assume the role of the judge or the respective instance of the European Patent Office. Instead of answering questions of fact, they give their opinion as to the legal question of whether the invention was obvious to an average person or not. I have already pointed out how often courts are inclined to follow the opinion of an expert. 148) One can only hope that because of the representation of technical skill at all levels of the European Patent Office, the deciding body will be able to appreciate a technical opinion and that due weight will also be given to objective circumstances as they were discussed before. It is important that certain guidelines be developed as to how to use such experts, their selection, the questions to be asked of them and especially the exclusion of all legal questions. Rule 73 MPC, which deals with the commissioning of experts, needs very careful interpretation which must go beyond the brief explanations laid down in the Draft of the Guidelines. 149)

3. The Reasoning of the Instances of the European Patent Office

a. Procedural Rules

The Munich Patent Convention contains several procedural rules which are common to the different instances of the Patent Office, the Examining Division, the Opposition Division, the Legal Division and the Boards of Appeal. They correspond to a great extent to the rules of general jurisdiction.

One of the fundamental procedural rules is laid down in Art. 113, para. 1:

The decision of the European Patent Office may only be based on grounds or evidence on which the parties concerned have had opportunity to present their comments.

Rule 68, para. 2, furthermore requires that:

Decisions of the European Patent Office which are open to appeal shall be reasoned and accompanied by a written communication of the possibility of appeal.

From the wording of this rule it can be deduced that all decisions of the examining and opposition divisions must give grounds for the result they have reached. Since the second sentence of Rule 68, para. 2, provides that "the parties may not invoke the omission of the communication" of the possibility of appeal, the conclusion is certainly correct that the omission of the grounds of a decision can be invoked in an appeal. This construction alone is in conformity with universally accepted principles of due process. The purpose of this provision is to guarantee a review by the next instance.

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For the procedure before the Patent Office this means that it cannot be sufficient for the examiner to make a general reference to the prior art and thereby deny the novelty of the invention. The fact that the decision is subject to review also requires that the mental steps, the logical sequence of his reasoning, the way he reached the result, i.e. the "why" of his decision, be demonstrated. The Guidelines take a very clear position on this point: 150)

The actual reasoning of the decision delivered must indicate in logical sequence the conclusions drawn from the facts and evidence. The considerations leading to the decision must refer to the relevant item of evidence, e.g., the relevant parts of a publication and be set forth in detail, so that their result can be checked.

The Guidelines further make clear that it is not sufficient for the reasoning simply to state that the patentability of the subject matter of the patent must be denied in view of the documents, but "that it must be shown why this is so, by reference to specific points in the document... it is essential therefore that the chain of logic on all the matters to be resolved in the decision must be complete," the decision being the Board of Appeal's only source for the thinking of the department that issued the decision. For completeness and in order to avoid the false impression that arguments have been overlooked, the Guidelines provide that important arguments or evidence tending against the conclusion reached should not be left out.

These instructions seem to reflect the unsatisfactory experience of the present practice in many national systems and we can only hope that the staff of the European Patent Office, which has the chance to do everything better than all existing offices, will find time in its preparatory stages to read through the Guidelines very carefully.

b. The Logical-Causative Relationship Between Non-obviousness and the Subtests

The procedural significance of indicia has been dealt with before. We shall now briefly deal with the logical-causative links between the subtests and the presence of an inventive step, i.e., the question why subtests are susceptible to indicate non-obviousness, so that it would be contrary to the quoted "chain of logic," not to deal with them in the grounds of a decision.

In defining and describing the different subtests I have already referred to the greater significance and probative value of some of them which are in a particular idiomatic and etymological zone of likeness and resemblance to the concept of non-obviousness, for example, subtests Nos. 2, 3, 4, 9, 10 and 11. 151). This means that if these subtests are unmistakably proven, the existence of an inventive step or non-obviousness cannot be denied without violating the principles of logic. To take an example: If many experts in the pertinent art, whose qualification and knowledge are undisputed, concentrated all their efforts in the solution of a particular problem which was recognized as a bar to technical advance and if they have failed where the inventor succeeded, this fact would constitute the very essence of a non-obvious solution. Such evidence could only be refuted and non-obviousness be denied by proving that the asserted experiments were in fact directed to a totally different solution and that the experts had, deliberately, disregarded the inventor's solution because of serious

disadvantages which the inventor had not disclosed. Or, if the experiments were in fact directed to the same problem, this subtest could be disproved if the alleged "experts" who had made their experiments, for example, in the electronic field, were in fact members of a radio amateur club searching for a solution which had already belonged to the curriculum of the neighbouring technical university for years. 152) Similarly the subtest of a long-existing need can only be refuted by proof that the invention had satisfied this need in a rather unsatisfactory way or that the "long existence" of the need in reality extended only over a period of several months before the application date. 153) It is of particular significance that two of the most specialized courts in patent matters, the U.S. Court of Customs and Patent Appeals and the German Federal Patent Court have taken a clear and convincing stand in this area of uncertainty and subjective belief. The CCPA in 1970 reversed the decision of the Board of Appeals stating that:

In this, as in any case, a determination of obviousness must be based on facts and not on unsupported generalities. 154)

Prior thereto it had ruled:

Necessarily it is facts appearing in the record... which must support the legal conclusion of obviousness under Section 103. Merely stating that a compound or composition is obvious, without adequate factual support, is not sufficient. 155)

And in a decision of the German Federal Patent Court we find the following guidelines referring to the case law of the Federal Supreme Court:

The appreciation of patentability of a technical teaching must take into account the objective situation at the date of application and must disregard theoretical considerations of obviousness, especially a subjective estimation and conjecture as to the presence of an inventive step... knowledge which is contained in the specification must necessarily be discarded in order to avoid a retrospective evaluation that makes so many inventions obvious which in reality are inventive.... 156)

c. Reasoning and Burden of Proof

As already explained above, the technical evaluation of an invention is and must always remain of primary importance in the Examining Division. This follows from the fact that, at such an early stage, subtests will seldom be available, since the marketing of products cannot have started and the general public is thus not even aware of the existence of the invention. This does not exclude the possibility that the inventor can submit such legal references to the examiner who can then check his own judgment as to the value of the invention with such objective factors in order to determine whether his own expectations as to the skill of the expert in the art are not too high. 157)

The importance of the European examiners' attitude for the success or failure of the European patent system cannot be overestimated. If applicants have the feeling that the examiners of the European Patent Office use the requirement of non-obviousness as an easy and practical tool for patent invalidation 158) to which they can always refer without giving reviewable grounds in case of a negative decision, the European patent system will be far from a success. Similarly, it must be prevented that, under the pretence of a high European examination standard, a disguised hostility against patents pervades the examining divisions, a hostility which practitioners in the U.S.A. have noted in the majority of the American courts. 159) The applicant should not gain the impression, which he might have today in some examining countries, that the examiner understands his task to be a battle against profane inventions

while permanently waiting for the ingenious pioneer invention. 160) Why should not an examiner also cite documents which show a prejudice of experts in the art? Sympathy for the inventor is certainly not too much to ask of an international service institution such as the European Patent Office. 161)

At this point a brief comment on the burden of proof would seem appropriate. As already mentioned, the procedure before the European Patent Office is governed by the principle of an ex officio examination. According to Art. 114 MPC, this means that the office examines the facts "of its own motion" and that it is not restricted to the facts, evidence and arguments provided by the parties. Therefore, it is not the task of the applicant to prove the patentability of his application or the validity of an already issued patent. This does not mean, however, that the applicant should have a "wait and see" attitude for the use of subtests. If subtests exist, they will mostly exist in the sphere of the applicant, so that the Patent Office will seldom be aware of them. If the applicant mentions such subtests, the Patent Office may, of course, make inquiries, but here again it is most often the applicant who can prove their existence. If he asserts commercial success, he must of course provide his sales records, and he must name witnesses to prove the existence of failures or an existing skepticism in the art. Nonetheless it is not the applicant who bears the burden of proof for patentability as a whole. If one concedes to the examining divisions, because of their specialized technical skill, the competence for a primarily technical appreciation, it should however be made sure at a later stage, - where the distance in time increases and the technical specialization decreases, i.e. in opposition and appeals proceedings (Arts. 99 et seq., 106 et seq. MPC) and especially in the revocation procedure (Arts. 56 et seq. LPC), - that the use of objective subtests replace as far as possible the judgment based on a technical understanding and appreciation of the invention. In those proceedings the fact that the patent was once granted by a highly qualified technical examiner should be of decisive importance. If, furthermore, objective criteria exist, a revocation of a patent should only be thinkable, if a subsequently found document is so closely related to the invention that the subtests are refuted by factual evidence. "It is an error for a court to find a patent invalidity on the theory that, if a development is obvious to a court, it must be obvious to a person having ordinary skill in the art. " 162)

In such a case, however, it is not at all sufficient, as already pointed out, that the lack of an inventive step is stated apodictically in one sole sentence. 163) Reasons must be given why the subtests are no longer relevant. This can be done by confronting the anticipatory document with the subtests and by considering the following questions: Was the long-felt need already satisfied by the anticipation? Was the scepticism and prejudice by the experts directed also against the solution realized in the reference? Does the reference result in a technical advance similar to the invention? Did industry accept the reference as the solution which it had been waiting for (did they take licenses, was there a commercial success)?

If all questions can be answered in the affirmative, the subtests must in reality be applied to the anticipation. If it can be shown, however, that in spite of this alleged anticipating document the unsuccessful attempts of experts continued, that no commercial success occurred and that only the later invention proposed a solution which contradicted the prejudice of experts, the alleged anticipation must be regarded as irrelevant, as not belonging to the knowledge of the average expert in the art, and that its contents cannot have been more pertinent than the documents already cited during the examination procedure. In this respect, the requirements laid down in the Draft Guidelines are very clear: [The examiner] should take into account all that is known concerning the background of the invention and give fair weight to relevant arguments or evidence submitted by the applicant. If, for example, an invention is shown to be of considerable technical value, and particularly if it provides a technical advantage which is new and surprising..., the examiner should be hesitant in pursuing an objection that such a claim lacks inventive step. The same applies where the

invention solves a technical problem which workers in the art have been attempting to solve for a long time, or otherwise fulfils a long-felt need. 164)

If, in fact, references are cited which seem to anticipate the invention, they may belong to a distant field of technology, where they would not have been found by an average expert, so that they would have been unable to influence the development in the pertinent art of the invention without the inventor's contribution. Here a very simple check often leads to a fair and equitable decision. Blanco White describes the rather realistic British approach where the applicant or patentee has the benefit of any doubt, 165) and he emphasizes that if the answer to the patentee's problem was obvious, others in the art would have seen it sooner (provided that the solution was in fact worth adopting, as already mentioned above). If no satisfactory answer can be given and if furthermore objective circumstances have been proved by the patentee, only a decision affirming non-obviousness is possible. Such evidence could only be refuted if it were found that equivalent solutions were known before, that the solution of the inventor was too complicated or that it was not susceptible to industrial application.

It is not suggested here that examiners, members of the Board of Appeal, and judges should become some sort of legal slot machines that grant patents if they are fed with a sufficient number of subtests. As already explained, the verification and qualification of the circumstances are indeed more objective and also easier than the technical appreciation of the invention. They require, however, judicial experience and knowledge, since it often turns out that subtests asserted by the applicant or patentee are either not relevant to the inventive feature, that they do not belong to the pertinent art of the invention, or that their timely connection with the invention is not given. Furthermore, it will be an important task of future case law to attribute to the various subtests their respective probative weight and to develop new and different subtests which have not yet come up.

An interesting question which must also be dealt with is whether the fact that no indicia are present should have any influence on the examiner's or judges' decision. It should be kept in mind that subtests are not prerequisites of patentability, which means that if a decision invalidating a patent is based only on the fact that no indicia have been proved, such decision would certainly be wrong. First of all, at the examination stage many subtests are not yet available because they only arise after the marketing of the subject matter has begun. Some types of inventions just do not produce subtests, e.g., pioneer inventions are seldom produced due to existing need or the failure of others since nobody had ever thought of the problem, let alone tried to solve it. Also, if the inventor were a real genius, he might not even have overcome any difficulties, and long and costly research and development would also be nonexistent if the invention had been created by the famous "flash of genius." Inventions, like the laser, do not bring about a cheaper or simpler production, since there has been no pertinent prior art with which the invention could have been compared. The same is true for the TV tube. Similarly, a huge commercial success and the taking of many licenses is impossible if the invention concerns, for example, a machine which is only used in highly technical research laboratories, only a dozen of which exist in the whole world.

These few remarks may show that not in every case must the lack of indicia of non-obviousness necessarily lead to the assumption that an invention does not meet the standard of non-obviousness. However, one must admit that often a patented article's having no commercial success - perhaps even in spite of excessive advertising - may indicate that at least no need for the subject matter existed. This may justify the assumption that already known products were able to serve the same purpose, that they were perhaps even better and possibly cheaper than the protected product. But in such cases also it should be possible to reveal the factual background so that one need not fear that a pioneer invention, which is ahead of its time, remain "by accident" unprotected or that the patent may be invalidated after it has been granted.

III. Concluding Remarks

It would be unrealistic for the author to believe that the ideas and proposals expressed here are so convincing and "obvious" that they will be followed or immediately applied by the Examining and Opposition Divisions and the Boards of Appeal of the European Patent Office, and that one can therefore expect an objective and uniform examination for patentability from the opening day of the EPO. 166) In spite of the fortunately clear indications in the Draft of the Guidelines concerning the application of objective subtests, the consideration of non-technical references would also be "novel" for those examiners who come from examining countries accustomed to a mere technical evaluation of the inventions, and it will certainly take some time until they regard the use of objective criteria as an "advance in the art." Nevertheless, from the compilation of the literature and case law of important patent countries it has become clear that a rather favourable attitude towards a more objective examination generally prevails and that the interested circles are ready to support its reduction to practice. In view of the heterogeneous background of the staff of the European Patent Office, the acceptance of a common platform and a uniform legal basis is probably the most important goal. Such a common denominator must soon be defined, since it would certainly be disastrous if the respective "national groups" started from the assumption that, in reality, nothing has changed and that they can continue working as heretofore under their national systems. The Munich Patent Convention is still a virginal text. A curious but prudent approach, therefore, seems appropriate. Scholars and practitioners have done their best to prepare and bring into being this most important work of unification and harmonization in the field of industrial property law. It now remains for the European Patent Office and its highly qualified international staff to satisfy this long-felt need after so many failures of others.

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73) In the U.S. since the Hotchkiss case: *Hotchkiss v. Greenwood*, 52 U.S. 261 (1850); in Germany since WIRTH's article in 1906: "Das Maß der Erfindungshöhe" (The Standard of Inventive Level), GRUR 1906 57; on the history of the concept of "Erfindungshöhe," see also SCHUSTER, GRUR 1942 237 et seq.; KUMM, GRUR 1964 236 .

74) See LECCA in an unpublished manuscript of 1974; similarly SAVIDGE, 1976 CIPA 108; also WESTON, Strasbourg 1974, supra note 7, at 40, opposed BEIER, Strasbourg 1974, supra note 7, at 61.

75) See for further details on German law, PAGENBERG, supra note 43, at 172 et seq., with further references, particularly footnote 3; one should more correctly speak of a relative character, since the invention must be compared with the state of the art, the capacities of a skilled person and the date of priority; see also MATHÉLY, supra note 31, at 156, 160; accord PHELIP, supra note 47, at C-19; also Swiss Patent Office Board of Appeals in 1972 SchPMMBl. I 23; on the Swiss law, also BLUM & PEDRAZZINI, supra note 57, at 111. On the "question of law" also ULLRICH, "Standards of Patentability for European Inventions," 1 IIC Studies 37 et seq., n. 157 (Weinheim, 1977); BOSSUNG, 1974 Mitt. 148..

76) See Part One, suprap. 16.

77) Therefore, one should not speak of a subjective judgment in determining the inventive step, since the definition of "non-obviousness" was expressly chosen because of its objective character. See GRAHAM V. JOHN DEERE CO., 148 USPO 459 (Supreme Court 1966), and infra, at p. 123 et seq.; opposed to a "subjective approach" by taking into account the effort of the inventor, PHELIP, supra note 47, at C 22; very clearly the distinction made by MATHÉLY, Strasbourg 197 1, supra note 40, at 89, between the "relative" and the "subjective way of examination.

78) See supra Part One, at p. 15.

79) See BOSSUNG, 1974 Mitt. 148; similarly ULLRICH, supra note 75, at 37.

80) See MATHÉLY, Strasbourg 1971, supra note 40, at 68, who demands a severe control by the Supreme Court of the reasoning of the lower courts.

81) The view that the "inventive step" or "non-obviousness" must be interpreted objectively is not yet shared by all those concerned with European patent law; in favor of an objective interpretation, however, MATHÉLY, supra note 31, at 159: "caractère essentiellement objectif"; CHAVANNE, Strasbourg 1971, supra note 40, at 77; DELAIRE, 1977 JCP I 2852; PHELIP, supra note 47, at C 20; from German case law see very clearly the Federal Patent Court, 1975 Mitt. 87 et seq.; opposed CASALONGA, Strasbourg 1971, supra note 40 at 82.

82) For more details see infra, at p. 145 et seq.; the same opinion as here presented by MATHÉLY, supra note 31, at 161. ARMITAGE also mentions the frequent use of intuition by judges, Strasbourg 1974, supra note 7, at 32.

83) See examples cited by PAGENBERG supra note 43, at 169, as well as by ULLRICH, supra note 75, at 39, n. 165, who speaks of "exotic attempts."

84) See BOSSUNG, 1974 Mitt. 148; in the same sense MATHÉLY, supra note 31, at 161; PHELIP, supra note 47, at C 23; CASALONGA, Strasbourg 1971, supra note 40, at 10; sceptical, ULLRICH, supra note 75, at 35, n. 142.

85) In favour of a better support of judges, also PEDRAZZINI, supra note 13, at 20.

86) For the U.S., see SHAPIRO, 17 IDEA 3, 13, at n. 26, who proposes the abolishment of a technical appreciation of inventions and the creation of special patent courts.

87) See also the Guidelines, Part C IV, at 9.9.; also against hindsight judgment, MATHÉLY, supra note 31, at 158; PPNEL, Strasbourg 1974, supra note 7, at 70; from German case law see Federal Patent Court 1975, 1975 Mitt. 87 et seq.; Federal Supreme Court of March 22, 1977, Case No. X ZR 32/74, at 37 of the original decision. "Obviousness does not mean that one skilled in the art can perceive the solution after it has been found..." Honolulu Oil Corp. v. Shelby Poultry Co., 293 F. 2d 127, 131 (2d Cir. 1961).

88) According to statistics made available to the author by Mr. Helmut Görtz, patent attorney in Frankfurt, the German Federal Supreme Court, between 1961 and 1973, overruled the ex-pert opinion of the court expert only sixteen times in 185 nullity proceedings, whereas it overruled the decision of the first instance in 24 cases. In the decisions in which the Court disagreed with the expert opinion, it invalidated the patent in the majority of cases, whereas it contradicted the expert opinion in favor of the patentee in only five instances. This result has been confirmed in a study being prepared by LIEDEL, "Das Deutsche Patent-Nichtigkeitsverfahren (The German Patent Nullity Procedure) who states that the tendency of the

89) ULLRICH, supra note 75, at 45, n. 187, who, contrary to earlier attempts to discredit the use of objective criteria, for the first time, carefully collects the issues which might pose a problem in practice. I believe, however, that his arguments are not strong enough to do away with an objective examination of non-obviousness, especially since Ullrich does not offer a different, let alone a better solution, see also the remarks by LIEDEL, supra note 88, Part 2, IV, Sec. 14, No. 3 g.

90) See the Guidelines Part C IV, at 9.9.

91) German Federal Supreme Court of September 18, 1970, 1970 BB 1, 414 et seq.

92) On the empirical rules see Federal Supreme Court, 1 IIC 467, 472 (1972) - "Anthradipyrazole," (only partly translated). See complete German text in GRUR 1970 408, 413.

93) See PAGENBERG, supra note 43, at 263, with further references concerning the special weight which should be accorded the different circumstances.

94) For extensive references concerning all the circumstances and objective criteria listed here as far as U.S. and German case law is concerned, see PAGENBERG, supra note 43, at 187-251; see also the list of SHAPIRO, 17 IDEA 3, 12, 19; PANEL, "La Protection des Inventions en Droit Européen des Brevets" 47 et seq. (1977); MATHÉLY, supra note 31, at 160 et seq. CASALONGA, supra note 48, at 9; also VOHLAND is preparing a study on Italian law: "Die Voraussetzungen der Patentfähigkeit in Italien - Ein Vergleich zum Münchener Abkommen" (The Prerequisites of Patentability in Italy - A Comparison with the Munich Patent Convention).

95) See for an early U.S. case, Smith v. Goodyear Dental Vulcanite Co., 93 U.S. 486 (1877); see also SCM Corporation v. Radio Corporation of America, 167 USPQ 196, 213 (S.D.N.Y. 1970); TERRELL, infra note 141, at 127 et seq.

96) See the Guidelines Part C IV, at 9.9; rejected by LECCA, supra note 74; and ULLRICH, supra note 75, at 44, n. 184.

97) See also BLUM & PEDRAZZINI, supra note 57, at 134.

98) Hamlow v. Scientific Glass, 164 USPQ 340 (9th Cir. 1970); see, however, KAYTON, "The Crisis of Law in Patents" I, 13 (Washington D.C., 1970), who calls this argument the "non-sequitur of the century" and rightly asks, how a patent can make a commercial success of an obvious invention.

99) E.g., a "satisfaction of a long existing need," "failure and unsuccessful attempts of experts," etc., see infra, at p. 129 et seq.; the same recommendation also given by the Guidelines Part C IV 9.9; in favor also PHELIP, supra note 47, at C 23; DEMOUSSEAU & DE BOISSE, supra note 51, at 49 et seq.; WESTON, Strasbourg 1974, supra note 7, at 37; MOUSSERON, Strasbourg 1974, supra note 7, at 34; BLUM & PEDRAZZINI, supra note 57, at 133; from case law see the decisions of Austrian Patent Office Board of Appeal, 1969 ÖPatBl. 118; Letraset Ltd. v. Rexel Ltd., [1973] F.S.R. 302 H.C.; Parks-Cramer Co. v. G. W. Thornton & Sons Ltd., [1966] R.P.C. 407 C.A.; Ortho Pharmaceutical Corp. v. American Hospital Supply Corp., 190 USPQ 397 (7th Cir. 1976).

100) For an unbiased approach vis-à-vis commercial success, see from U.S. case law especially the decisions of the CCPA, In re Fie/der & Underwood, 176 USPQ 300, 304 (1973) and, as an example of careful verification of the facts, In re Tiffin, 170 USPQ 88 and 171 USPQ 294 (CCPA 1971); more recently, Charvat v. Commissioner of Patents, 182 USPQ 577 (C.A. D.C. 1974); Lancaster Colony Corp. v. Aldon Accessores, Ltd. 184 USPQ 193 (2d Cir. 1974); Scandiamant Aktiebolag v. Commissioner of Patents, 184 USPQ 201 (C.A.D.C. 1974); Columbia Broadcasting System, Inc. v. Zenith Radio Corp., 185 USPQ 662, 668 (N.D. Ill. 1975).

101) See U.S. v. Adams, 148 USPQ 479, 480 (Sup.Ct. 1966); The Cold Metal Process Co. v. Republic Steel Corp., 233 F.2d 828, 838 (6th Cir. 1956); "technological block"; Tribunal de grande instance de Pars of December 19, 1973, 1974 PIBD III, at 219; Tribunale di Milano of April 13, 1956, 1958 Riv.Dir.Ind. II 250; Austrian Patent Office Board of Appeals, 1966 ÖPatBl. 100; Swiss Patent Office Board of Appeals, 1964 SchwPMMBI. I 15; BGH of February 20, 1969 (X ZR 26/66); BGH of December 22, 1952, GRUR 1953 120, 123 Glimmschalter; cf. also RICH, 46 JPOS 853, 872 (1964); ULLRICH, supra note 75, at 41, speaks of a "virtually exact description of what was beyond the skill of the ordinary expert in a given case" (p. 41); also mentioned by PHELIP, supra note 47, at C 23; MOUSSERON, Strasbourg 1974, supra note 7, at 54; rejected by BLUM & PEDRAZZINI, supra note 57, at 126.

102) See Safety Car Heating and Lighting Co. v. General Electric Co., 69 USPQ 401 (2d Cir. 1948); Duo Flex Corporation v. Builders Service Co., 138 USPQ 542, 544 (5th Cir. 1963); In re Tiffin, 170 USPQ 88, 93 (CCPA 1971); Scandiamant Aktiebolag v. Commissioner of Patents, 184 USPQ 201 (C.A.D.C. 1974); for Dutch law see Octrooiraad of February 25, 1966, 1966 B.I.E. 82; for the French law, Tribunal de grande instance de Pars of March 26, 1975, 1976 PIBD III, at 5; cf. also TERRELL, infra note 141, at 128; SAVIDGE, 1976 CIPA 112; SCHULZE, 1976 Mitt. 132, at 137; PHELIP, supra note 47, at C 23; DEMOUSSEAU & DEBOISSE, supra note 51, at 78; MOUSSERON, Strasbourg 1974, supra note 7, at 54; also mentioned in the Guidelines Part C, ch. IV 9.9, rejected by Austrian Patent Office Board of Appeals, 1971 ÖPatBl. 82.

103) See Ric-Wil Co. v. E. B. Kaiser Co., 84 USPQ 121, 124 (7th Cir. 1950): 154 prior patents; King-Seeley Thermos Co. v. Taste Freez Industres Inc., 145 USPQ 596, 599 (N.D. Ill. 1965): 22 Patents; Pursche v. Atlas Scraper & Engineering Co., 132 USPQ 104, 110 (9th Cir. 1960): 90 Patents & References; Tribunale di Milano of June 22, 1963, 1974 Giur. Ann.Dir.Ind. 845; Parks-Cramer Co. v. G. W. Thornton & Sons Ltd. [1866] R.P.C. 407 C.A.; also mentioned in the Guidelines supra note 102 and by ULLRICH with same remark as in supra note 101; see also PHELIP, supra note 47, at C 23.

104) See *Landon, Inc., v. Marne Swimming Pool Equipment Co.*, 129 USPQ 339 (S.D., Cal. 1961); *In re Lunsford*, 148 USPQ 716, 719 (CCPA 1966); *Copease Manufacturing Co. v. American Photocopy Equipment Co.*, 298 F.2d 772, 781 (7th Cir. 1962); *Trbunal de grande instance de Pars*, June 14, 1973, 1978 PIBD III 359; German Federal Supreme Court of January 16, 1968 (X ZR 18/1965), and of February 24, 1970, 1 IIC 467 (1970) - Anthradipyrazole, *Corte di Appello di Brescia*, 1962 *Temi* 511; *Corte di Appello di Milano*, 1965 *Rass.Prop.Ind.* 202.

105) See *Potts v. Creager*, 155 U.S. 597 (1894); *Helene Curtis Industres Inc. v. Sales Affiliates, Inc.*, 233 F.2d 148 (2d Cir. 1956); Judge Rich dissenting in *In re Alford*, 133 USPQ 281, 286 (CCPA, 1962); *opposed Burgess Cellulose Co. v. Wood Flong Corp.* 166 USPQ 417, 420 (2d Cir. 1970).

106) See *Jeoffry Manufacturng Inc. v. Graham*, 104 USPQ 261, 267 (5th Cir. 1955); *The Wyott Manufacturing Co., Inc., v. The Doran Coffee Roasting Co., Inc.*, 117 USPQ 120, 122 (D.Color. 1958); for the U.K., see *Ancar A.C's Appl.*, [1970] RPC 113; *Minnesota Mining & Mfg. Co. v. Bondins Ltd.* [1973] R.P.C. 491 H.D.

107) See *In re Sporck*, 301 F.2d 686 (CCPA 1962); *Panduit Corp. v. Stahlin Bros. Fibre Works Inc.*, 162 USPQ 114 (W.D. Michigan 1969); *Trbunal de grande instance de Pars* of June 11, 1974, 1974 PIBD III 419; *Trbunal de grande instance de Paris* of October 29, 1976, 1977 PIBD III, 231; *Corte di Cassazione* of May 15, 1972, 1973 *Giur. Ann. Dir. Ind.* 40; *Trbunale di Milano*, 1967 *Rass.Prop.Ind.*, 287; *Handelsgericht Zurich*, 73 BIZR, No. 95 (1974); *Austrian Patent Office Board of Appeals*, 1966 *ÖPatBl.* 40.

108) Expressly so, *Palmer v. U.S.*, 163 USPQ 250, 255 (Ct. Cl. 1969) where the prior art contained expensive and complicated machines; similarly *National Latex Products Co. v. Sun Rubber Co.*, 274 F.2d 224, 240 (6th Cir. 1959) where unsuccessful attempts at simplification had been made.

109) See *Shields-Jetco Inc. v. Torti*, 166 USPQ 397 (D.R.I., 1970); *Sinclair & Carroll Co. Inc. v. Interchemical Corp.*, 65 USPQ 297, 299 (Sup.Ct., 1954); cf. also ULLRICH, supra note 75, at 97.

110) See BEIER, 3 IIC 423 (1972); SCHULZE, 1976 *Mitt.* 132 et seq.; PAGENBERG, supra note 43, at 215, 292; on the concept of technical progress recently HORN & HORN, GRUR 1977 329 et seq.; BLUMENBERG & GRÜNECKER, GRUR 1978 63 et seq.

111) See BUEREN, GRUR 1933 341, 348; TRÜSTEDT, GRUR 1958 309 et seq.; ZUTRAUEN, GRUR Int. 1959 335, 339; see also BLUM & PEDRAZZINI, supra note 57, at 105 et seq.

112) GRUR 1941 58, 59.

113) See ULLRICH, supra note 75, at 103 et seq., with further references; similarly BLUMENBERG & GRÜNECKER, supra note 110.

114) German Supreme Court (Reichsgericht) of February 24, 1939, GRUR 1939 601; similarly *Ex parte Maxey*, 177 USPQ 468 (P.O. Bd. App. 1972): "To be patentable, an invention need not advance the art in the sense that it be better than that which came before."

115) This does not mean, however, that advantageous effects are a necessary condition to be included in the patent application. Rule 27 (1) (d) MPC is ambiguous in its English version; from the German and French text it can be concluded that advantages should be disclosed in case they are present.

116) This is also underlined by ULLRICH, supra note 75, at 100; similarly RICH, 42 JPOS 75, 83 (1960); *id.*, 2 APLA 214, 220 (1974); also TETZNER, GRUR 1974 766; HORN & HORN, GRUR 1977 329 et seq. see, however, BLUMENBERG & GRÜNECKER, supra note 110, who advocate that the German Patent Office continue to require proof of technical progress.

117) See Judge RICH in 42 JPOS 75, 85 (1960).

118) Cf. BOSSUNG, 1974 *Mitt.* 149; WINKLER, 1977 *Mitt.* 13 et seq.; in favor of technical progress as an indicium of non-obviousness, German Federal Supreme Court of July 11, 1974, X ZB 24/71 - *Aufladeverfahren*; similarly Federal Supreme Court of March 22, 1977, XZR 32/74 at 37 of the original decision; for the Swiss law, see BLUM & PEDRAZZINI, supra note 57, at 131, 195, with further references; in the same sense, HORN & HORN, GRUR 1977 322, 331, who define progress in the sense of a social utility and advocate its use as a guiding principle of patent promotion; similarly BEIER, 3 IIC 423 (1972) who also wishes to take into account technical progress as an indicium of non-obviousness; PEDRAZZINI, 1976 SJZ 171, calls technical progress the main figure of patent law; for the U.K., see *In re Scherng AG*, [1971] W.L.R. 1715; for Austria, Patent Office Board of Appeals, 1966 *ÖPatBl.* 40; for Italy, *Corte di Appello di Milano*, 1965 *Rass.Prop.Ind.* 202; for Switzerland, Swiss Federal Supreme Court, GRUR Int. 1971 399, with note by GEISSLER.

119) See SINGER, GRUR Int. 1974 63; KÜCHLER, supra note 17, at 48; MATHELY, supra note 31, at 161; SCHMIDT, "L'invention protégée" 119 (1972); PHELIP, supra note 47, at C 22; DEMOUSSEAU & DE BOISSE, supra note 51, at 78; similarly in the U.S., where the criterion of "long-felt want" was suggested as a statutory yardstick, but rejected for the same reason; see RICH, "Why and How Section 103 Came To Be"; address delivered at the BNA Conference, cited supra note 43; a similar suggestion was made as to "improvement" as a statutory requirement: 82nd Congress, 1st Session on H.R. 3760, at 192-199.

120) See *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486 (1876); *Reeves Instruments Corp. v. Beckman Instruments Inc.*, 161 USPQ 450 (C.D. Calif., 1968); cf. also DELLER, 27 JPOS 693 (1945); BAILEY, 42 JPOS 223, 249 (1960); for its definition also BLUM & PEDRAZZINI, supra note 57, at 154; also BEIER, 3 IIC 423 (1972), at 443 with further references in n. 70.

121) See *Duplicate Corp. v. Trplex Safety Glass Co. of North America*, 42 F.2d 739, 741 (3rd Cir., 1930); *Kaakinen Co. v. The Peelers Co.*, 301 F.2d 170, 173 (9th Cir., 1962).

122) See *U.S. v. Adams*, 148 USPQ 479, 484 (Sup.Ct. 1966); *Honolulu Oil Corp. v. Shelby Poultry Co.*, 293 F.2d 127, 131 (4th Cir. 1961); *Ortho Pharmaceutical Corp. v. American Hospital Supply Corp.*, 190 USPQ 397 (7th Cir. 1976); for Germany see Federal Supreme Court of December 22, 1964, GRUR 1965 473, 478 *Dauerwellen*; Federal Supreme Court of December 2, 1952, GRUR 1953 120 *Rohrhalterung*; for the U.K., *Imperial Chemical Ind.Ltd. (Haggis') Applic.*, [1975] R.P.C. 403; also mentioned by BLUM & PEDRAZZINI, supra note 57, at 124; TROLLER, supra note 64, at 197; PHELIP, supra note 47, at C 23.

123) See *Shaw v. Whiting Co.*, 163 USPQ 480, 487 (2d Cir. 1969); *Austrian Patent Office Board of Appeals*, 1968 *ÖPatBl.* 124; *Dutch Octrooiraad* of August 8, 1973, 1973 B.I.E. 244; in Italy *Corte di Appello di Tornoof* November 20, 1958, 1959

Riv. Dir. Ind. II 88; rejected has a condition of patentability by Corte di Cassazione of December 7, 1960, 1961 Riv. Prop. Int. e Ind. 303; in Austria, Patent Office Board of Appeals, 1971 ÖPatBl. 175 and 1968 ÖPatBl. 124; in Germany, Sup. Ct. of March 21, 1939, 1939 MuW 293; Sup. Ct. of October 25, 1940, 1941 MuW 51 et seq. Mentioned also by REIMER, "Die Europäisierung des Patentrechts" 95 (Munich, etc., 1955); TRUESTEDT, GRUR 1956 353.

124) Particularly in the U.S., see *In re Adams*, 148 USPQ 742 (CCPA 1966), *In re von Schickh*, 150 USPQ 300 (CCPA 1966); *In re Albrecht*, 185 USPQ 585, 590 (CCPA 1975).

125) See *Ransburg Electro-Coating Corp. v. Standard Container Co.*, 167 USPQ 426, 434 (M.D. Geo. 1970); *CBS Inc. v. Zenith Radio Corp.*, 185 USPQ 662 (N.D. Ill. 1975); mentioned also by SHAPIRO, supra note 43, at 12; ARNOLD-NATION in "Selling Your Sec. 103 Case," report given on the 25th anniversary of - 103, cited supra note 43.

126) *Universal Sewer Pipe Corp. v. General Construction Co.*, 42 F.Supp. 132 (N.D. Ohio 1941); *Cold Metal Process Co. v. Republic Steel Corporation*, 233 F.2d 828, 836 (6th Cir. 1956).

127) *Cold Metal Process Co. v. Republic Steel Corp.*, 233 F.2d 836 (6th Cir. 1956); *DuPont de Nemours & Co. v. Glidden Co.*, 67 F.2d 392 (2d Cir. 1933), *Kress & Co. v. Aghnides*, 246 F.2d 718, 721 (4th Cir. 1957); *Shaw v. Whiting*, 163 USPQ 480, 487 (2d Cir. 1969). In other countries, obviously, this subtest is included under the more general heading of commercial success.

128) Already mentioned in *Western Electric Co. v. La Rue*, 139 U.S. 601 (1891) as evidence of "utility;" as a subtest for non-obviousness in *Allied Research Product Inc. v. Heathbath Corp.*, 161 USPQ 527, 540 (N.D. Ill. 1969); *Lancaster Colony Corp. v. Aldon Accessores Ltd.*, 184 USPQ 193, 195 (2d Cir. 1974); also mentioned in the U.K., see WESTON, Strasbourg 1974, supra note 7, at 37; SAVIDGE, 1976 CIPA 112.

129) See *Tile Council of America v. Ceramic Tilers Supply*, 159 USPQ 204, 216 (C.D. Cal. 1968), also mentioned in *Pavement Salvage Co. v. Anderson, Black-Rock Inc.*, 159 USPQ 513, 516 (4th Cir. 1968).

130) *General Tire & Rubber Co. v. Firestone Tire Co.*, 174 USPQ 427, 439 (N.D. Ohio 1972); *Shaw v. Whiting Co.*, 163 USPQ 580, 587 (2d Cir. 1969); *Pavement Salvage Co. v. Anderson, Black-Rock Inc.*, 159 USPQ 513, 516 (4th Cir. 1968); *Ingersoll-Rand Co. v. Brunner & Lay, Inc.*, 177 USPQ 112 (5th Cir. 1973).

131) *Ziegler v. Philips Co.*, 171 USPQ 44, 48 (D. Texas 1971); Nobel Prize; *Union Carbide Corp. v. Filtrol Corp.*, 170 USPQ 482, 518 (C.D. Cal. 1971); for the U.K., see *C. van der Lely N. V. v. Bamfords Ltd.* [1961] R.P.C. 296; also mentioned by PHELIP, supra note 47, at C 23; BLUM & PEDRAZZINI, supra note 57, at 134; rejected by German Patent Office decision of May 9, 1940, 1940 Mitt. 113.

132) See also MATHÉLY, supra note 31, at 161; TROLLER, supra note 64, at 197.

133) See also MOUSSERON, Strasbourg 1974, supra note 7, at 54; PANEL, Strasbourg 1974, supra note 7, at 73.

134) Here one must, of course, make a comparison in each single case between the "normal" expenses of money and time for research in the pertinent field of the art and the efforts which have led to the invention; see German Federal Supreme Court of May 12, 1961, GRUR 1961 529, 533 Strahlapparat; Federal Supreme Court of December 2, 1958, 1962 Mitt. 74; in the Netherlands, *Octrooiraad of December 17, 1960, 1961 B.I.E. 117*. The fact that, in spite of extensive research in a pertinent field, nobody found the solution of the inventor can of itself be evidence of non-obviousness, see for the U.K., Smith, Application [1971] R.P.C. 31.

135) On the patent theories see BEIER & STRAUS, 8 IIC 387, 392 (1977); also BEIER in 3 IIC 423 (1972); from case law see *In re Lunsford*, 148 USPQ 716, 720 (CCPA 1966); *Chicopee Manufacturing Corp. v. The Kendall Co.*, 125 USPQ 564 (W.D.S. Carol. 1960).

136) This view is taken by PRAGER, 20 Chic. Univ. L.R. 69, 85 (1952).

137) See PRAGER, supra note 136, at 86 in a comment of the A & P case.

138) See HASTINGS, 33 JPOS 703, 708 (1951) who for 1950 calculated the development of an average mechanical invention at \$ 500,000 and 55 months.

139) See *Guiberson Corp. v. Equipment Engineers, Inc.*, 116 USPQ 425, 427 (5th Cir. 1958); *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 162 USPQ 114 (W.D. Mich. 1969); *Ransburg Electro-Coating Corp. v. Standard Container Co.*, 167 USPQ 426 (M.D. Geo. 1970); cf. also KINGSLAND, 34 JPOS 473, 475 (1952). *Kress & Co. v. Aghnides*, 246 F.2d 718, 721 (4th Cir. 1957).

140) *Diamond Rubber Co. v. Consolidated Tire Co.*, 220 U.S. 428, 435 (1911); with some hesitation BLUM & PEDRAZZINI, supra note 57, at 126 and 195/15 with reference to Swiss case law.

141) See Tribunal de grande instance de Paris of March 26, 1975, 1976 PIBD III, at 5; *Octrooiraad of December 17, 1960, 1961 B.I.E. 117*, in which decision, however, non-obviousness was correctly denied; German Federal Supreme Court of March 22, 1977, XZR 32/74 at 37; for Great Britain see TERRELL, "On the Law of Patents", 121 (12th ed., London, 1971). A very interesting case in this respect is also *Imperial Industries Appl.* [1975] R.P.C. 403, 413; for Switzerland, BLUM & PEDRAZZINI, supra note 57, at 125 et seq. who treat this circumstance together with number 3; rejected by Austrian Patent Office Board of Appeals 1971, 1972 ÖPatBl. 82, which, however, lacks convincing reasoning; accord with the view taken here, MATHÉLY, supra note 31, at 161; PHELIP, supra note 47, at C 23.

142) This view was approved by VAN BENTHEM on the Workshop of the Union on January 20, 1978, referred to supra note 13 a. See for the U.S.A., *Palmer v. U.S.*, 155 USPQ 524, 528 (Ct. Cl. 1967): 27 years; *In re Adams*, 148 USPQ 724 (CCPA 1966): 15 years; for Germany: Federal Supreme Court, GRUR 1954 107, 110 Mehrfachschelle (patent of plaintiff with priority date of 1935, references dating from 1886, 1900 and 1922); Federal Supreme Court of June 27, 1968, XZR 18/65: 15 years; Federal Patent Court, 1963 Bl.f. PMZ 200: 40 years; see also PHELIP, supra note 47, C 23.

143) See *Loom v. Higgins*, 105 U.S. 580, 581 (1882).

144) Already in *Potts v. Creager*, 155 U.S. 597 (1894); *In re Leshin*, 125 USPQ 416 (CCPA 1960); German Federal Supreme Court of November 22, 1964, GRUR 1965 473, 478 Dauerwellen; Federal Supreme Court of April 29, 1969 (XZR 24/66); German Federal Patent Court, GRUR 1977 248 Hochspannungsschalter; for further references see PAGENBERG, supra note 43, at 251, n. 434.

145) See *Anderson's Black-Rock, Inc. v. Pavement Salvage Co., Inc.*, 163 USPQ 673 (Sup. Ct. 1969); *Sakraida v. Ag Pro. Inc.*, 189 USPQ 449 (Sup. Ct. 1976) with critical comments by PAGENBERG in GRUR Int. 1971 480 and GRUR Int. 1976

421 respectively; similarly in French law: see Cour d'Appel de Toulouse of April 30, 1974, 1974 PIBD III, at 273; Cour de Cassation of February 25, 1974, 1974 PIBD III, at 363.

146) This means that it must be determined whether the prior art contained an indication that the combining of the elements would lead to a successful result, see *In re Regel*, 188 USPQ 136, 139 (CCPA 1975); similarly *In re Donovan*, 184 USPQ 414, 421 (CCPA 1975); *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 162 USPQ 114, 121 (W.D.Mich. 1969); see also TERRELL, supra note 141, at 136.

147) Cf. JUDGE LEARNED HAND, who calls the negative "indicia" a "mirage" (*Van Heusen Products, Inc., v. Earl & Wilson*, 300 F. 922, 929 (S.D.N.Y. 1924) and who rejects the use of the concept of "aggregation" in *B.G. Corp. v. Walter Kidde & Co.*, 79 F.2d 20 (2d Cir. 1935); see also TROLLER, supra note 64, at 213 with further references; ULLRICH, supra note 75, at 40 et seq., n. 167 who questions whether negative subtests are indicia at all or different negative definitions of non-obviousness; see also Austrian Patent Office Board of Appeals. 1968 ÖPatBl. 124, on the one hand, and Austrian Patent Office Board of Appeals, 1974 ÖPatBl. 136 on the other hand; for further references see PAGENBERG, supra note 43, at 242 et seq., opposed PANEL, supra note 94, at 53.

148) See supra note 88.

149) Guidelines E, ch. IV 1.6 et seq., 4.4.

150) Part E, ch. X 5 b.

151) Supraat p. 129 et seq. cf. also PAGENBERG, supra note 43, at 262 et seq., 203, 205, 227, with further references, as well as ULLRICH, supra note 75, at 41.

152) As to disproving objective indicia, see SCHULZE, 1976 Mitt. 132, 137; correct also *In re Noznick*, 178 USPQ 43 (CCPA 1973).

153) For a careful factual analysis see the decision of the CCPA *In re Tiffin*, 170 USPQ 88, and 171 USPQ 294; very accurate also, the German Federal Supreme Court of July 11, 1974, X ZB 24/71 - Aufladeverfahren; an unconvincing subjective reasoning of the U.S. Supreme Court can be found, however, in *Altoona Publix Theaters, Inc. v. American Tr-Ergon Corp.*, 284 U.S. 477 (1935).

154) See *In re Freed*, 165 USPQ 570, 571 (CCPA 1970).

155) *In re Cofer*, 148 USPQ 268, 271 (CCPA, 1966).

156) Federal Patent Court, September 18, 1974, 1975 Mitt. 87, 88; opposed to an ex post analysis of patentability also German Federal Supreme Court of March 22, 1977, X ZR 32/74, at 37.

157) This was already the proposal made by BEIER, Strasbourg 1974, supra note 7, at 62; the "Guidelines" also warn against an ex post facto analysis and require instead a "real life," assessment of all relevant factors, taking into account all that is known concerning the background of the invention; see also PHELIP, supra note 47, C 23; also WESTON, Strasbourg 1974, supra note 7, at 38, who does not want to accept the examiner as an average expert; similarly SAVIDGE, 1976 CIPA 108.

158) SAVIDGE, 1976 CIPA 108, calls the present practice in the examining countries an "un-realistic juxtaposition of disparate publications,... a lofty academic retrospect, beloved by patent examiners..."; see as to requirements of substantiating an examiner's objection, German Federal Patent Court, 1977 Bl.f.PMZ 234; very clear also the decision of the same court of January 23, 1962, GRUR 1965 82 which rejects "general formulas" by which non-obviousness is denied.

159) Statements, such as Judge Lord's which is often quoted: "The Patent Office is the sickest institution in our society," are not really evidence of an unbiased and objective approach of patent examination; see also for the new "synergism"-trend in the courts Judge CONNORS, quoted in 354 PTCS A-7 et seq.

160) See Savidge, 1976 CIPA 108.

161) This is also deplored by WESTON, Strasbourg 1974, supra note 7, at 38 et seq, who asks for a "little sympathy for the inventor." In the same sense FEYEREISEN, Strasbourg 1974, supra note 7, at 42.

162) *Buzzelli v. Minnesota Mining and Mfg. Co.*, 178 USPQ 260 (6th Cir. 1973); see also the illustrative example of SCHULZE in 1976 Mitt. 132, 137; in favor of a substitution of the technical evaluation by objective references also PHELIP, supra note 47, at C 23; NETTER, 1976 CIPA 351, even suggests the introduction of incontestability of the European Patent after a predetermined period.

163) See also MATHÉLY, Strasbourg 1972, at 68, who criticizes the decision based on a "conviction intime" of judges; cf. also the examples given by LIEDEL, supra note 64, Part 2, IV. Sec. 14, No. 3 b; and the British case law cited by TERRELL, supra note 141, at 126 et seq.: it must merely be shown that the subtests are due to the precise improvement brought about by the invention.

164) Guidelines Part C, ch. IV 9.9.

165) For the British practice, see BLANCO WHITE, supra note 16, at 140, who quotes the "why not sooner?" approach of *Technograf v. Mills & Rockley* [1969] R.P.C. 395 (C.P.A.). Similarly WESTON, Strasbourg 1974, supra note 7, at 63 who advocates in cases of doubt a "generous attitude" towards the invention in view of the fact that the public has the possibility of legal remedies against the patent; accord PAGENBERG, Strasbourg 1974, supra note 7, at 41.

166) This author welcomes, however, the positive attitude of the President of the EPO, Mr. van Benthem, towards an objective examination which he expressed in a speech before the German Association for the Protection of Industrial Property in Munich on March 16, 1978. His address will be published in one of the next issues of this journal.