FREE EVALUATION OF EVIDENCE

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THE decision rendered by the court in a lawsuit must always be based upon a rule of law, and that rule must be, as it were, an order directed *to the court.* Ordinary rules of civil law which, according to their tenor, are directed *to private parties,* can be translated into such rules. An example is the rule that, if a promise of payment has been made and the day of maturity has arrived, the debtor shall be *pronounced* obliged to pay. It is obvious, however, that in order to enable the court applying this rule to conclude that the action shall be sustained, two further premises are necessary: the existence of the alleged promise of payment and the maturity of the debt. Thus we could lay down the following pattern for the reasoning of the court:

> If a promise of payment has been made and the day of maturity has arrived, the debtor shall be pronounced obliged to pay.
>
> In this case a promise of payment has been made and the day of maturity has arrived.
>
> Consequently, the debtor shall be pronounced obliged to pay the debt.[1]

In this syllogism, the minor premise consists of an assertion of the *existence* of certain facts. But in what cases shall the court assume that a promise of payment has been made? This question may seem purely *theoretical* in character. On the basis of the evidence produced in the action, the court has to decide whether the minor premise of the syllogism is true or not.

However, the court must also make up its mind as to the question what amount of evidence is required for the assumption that a promise of payment has been made. The action is sustained

[1] A syllogism of this kind may be called *practical,* since the major premise and the conclusion have not a descriptive character (are not theoretical propositions) but are exhortations (practical propositions). Unlike theoretical propositions, these contain no element of truth, and the question whether they are true or false has no reasonable sense. It follows that in a practical syllogism the conclusion is not related to the premises as a consequence of these in the sense that, if they are true, this is also the case with the conclusion.

only if the evidence produced in the case is *sufficiently* strong. What measure is required is a *juridical question* which is not accounted for in the syllogism set out above.

In this paper, we shall not give any attention to the last-mentioned problem, which falls within the so-called doctrine of the burden of proof. What will be treated is only the question in what way the court obtains a knowledge of relevant facts. The scope of the paper is further restricted to the methods of evaluating evidence and assessing its convincing force. The technical methods of producing evidence fall wholly outside the discussion. The author starts from the assumption that evaluation of evidence as in Sweden is exclusively the task of the court and not a matter decided by a jury of laymen.

The view which earlier prevailed in Sweden (the so-called doctrine of legal evidence) was that the convincing force of each particular kind of evidence should be determined by statute. The statement that nowadays the evaluation of evidence is "free" means that legal rules of this kind are no longer in force. On the other hand, it is obvious that evidence must not be evaluated arbitrarily. Writers on evidence usually stress that this evaluation is not a matter of discretion but must be based upon *objective* considerations.[2] This view seems to presuppose that "free" evaluation of evidence is also subject to legal rules, though not in the same manner as under the "doctrine of legal evidence". Precisely in what way, then, is the evaluation of evidence bound by fixed standards?[3]

The evaluation of evidence, it is usually stated, implies that the judge concludes, on the strength of the existence of a *factum probans* (evidentiary fact), that a *factum probandum* (theme of proof) equally exists.[4] This, however, is an elliptical way of ex-

[2] See, e.g., Kallenberg, *Svensk civilprocessrätt,* vol. II, Lund 1931, p. 532.

[3] In Swedish legal writing, this problem has been most fully discussed by Bolding in his treatise *Bevisbördan och den juridiska tekniken,* Uppsala 1951, chap. II. American writers seem to have given most attention to the question. See Ball, "Probability Theory and Standards of Proof", in *Essays on Procedure and Evidence,* publ. by T. G. Roady *et al.,* 1961, p. 84, and works referred to there.

[4] In the present paper, "*evidentiary fact*" ("fact relevant to the issue") means a fact which is of importance for the outcome of the action through its *convincing force.* The fact which is to be proved is called *theme of proof* and may be either an *ultimate fact,* i.e. a fact which is of importance because of its *legal consequences,* or a fact which constitutes such *circumstantial evidence* (*indicium*) from which the existence of an ultimate fact is conclusively assumed

pressing the matter, for as far as syllogisms are concerned, we are dealing with relations between *statements* and not between *facts*. On the other hand, it is justifiable to disregard this distinction for present purposes, for the truth of a proposition obviously presupposes the existence of the alleged fact. A more serious objection is that something must have been omitted when it is stated that the existence of one fact may be concluded from that of another fact.[5] Let us choose as an example the proving of identity through *fingerprints*. Suppose that such a print found upon a safe which has been forced with explosives presents nine features identical with corresponding elements in the accused's fingerprint. On the strength of this evidentiary fact it is concluded that, in one way or another, the first print also comes from the accused. This conclusion would obviously be arbitrary unless it were known that two fingerprints with nine identical features have never been found to have been made by different persons.

The lesson given by this case would obviously be that the evaluation of evidence is also based upon a proposition consisting of a piece of *general experience* (hereinafter called *laws of general experience*) according to which the existence of the evidentiary fact is a sufficient condition for assuming the existence of the theme of proof. If the former circumstance is denoted B and the theme of proof T, the evaluation of the convincing force of B should follow the pattern of this syllogism:

> If B exists, T also exists.
> In this case, B exists.
> It follows that T also exists in this case.

It may be of some interest to compare this syllogism with one of the kind which may be used where the doctrine of legal evidence is adopted.

in its turn. Where conclusions are thus made from one proof to another, we use the term *"chain of evidence"*. It should be observed, finally, that strictly speaking, the observation of the *factum probandum* made by a witness is in fact circumstantial evidence. For on the basis of the statement made by the witness in court, conclusions are made about the observation of the witness; on the strength of that observation, in its turn, the existence of the fact observed in concluded. Granted that the witness has described his observation correctly in court, this is no guarantee of the correctness of the observation as such, i.e. of its corresponding to actual facts. Indeed, the convincing force of the statement and that of the observation are dependent upon wholly different *"auxiliary facts"*. For with regard to the first, e.g., the memory of the witness may be decisive; in the case of the second, it may be his eyesight.

[5] Gulson, *The Philosophy of Proof*, 2nd ed. London 1923, p. 180.

The court shall base its decision upon what is testified by two witnesses who cannot be challenged.

In this case, two witnesses who cannot be challenged testify T.

It follows that the court must base its decision upon the existence of T.

Thus under the doctrine of legal evidence also, the evaluation of proof takes place by subsuming concrete cases under general rules. It is true that when these rules are found in a statute, the evaluation of evidence assumes the character of an ordinary application of legal rules. However, the major premise of the last syllogism is also to some extent based upon experience. What characterizes the "free" evaluation of evidence, then, would be the fact that the laws of general experience by which the judge is bound have not been laid down as legal rules but consist of *our knowledge of factual relations.*

Would this statement be true without any exceptions? Is *all* "free" evaluation of evidence based upon laws of general experience?[6] It would seem, at least on a first view, that the evaluation of, e.g., the statement of a witness does not proceed along the same lines as the evaluation of a fingerprint.

Before discussing this problem, however, there is another question which must be elucidated first. In legal writing it is usually asserted that evidence in court does not admit the ascertainment of actual truth but at most attains a high degree of probability. The meaning of this assertion is not unambiguous.

"I admit that there is a considerable difference between *probatio juridica* and *logica,* and that *certitudo juridica,* in the *probatio facti,* cannot be held, without further ado, as a *philosophica certitudo* but rather constitutes, in relation to such certitude, a *probabilitas*": so wrote the Swedish writer Nehrman in his textbook on civil procedure from the middle of the 18th century. Statements to the same effect are found in modern writing also.[7] In the present writer's view, however, they tend to create a false idea. The statements of logic and mathematics are true only in the sense that their premises can be derived from certain axioms.

[6] It was in the first place Friedrich Stein, in his work *Das private Wissen des Richters,* 1893, who attracted the attention of lawyers to the importance of such laws (*"Erfahrungssätze"*).

[7] As an example may be quoted the following statement by Kern (*Strafverfahrensrecht,* 1951, p. 50): "Zur Verurteilung ist nicht mathematische Gewissheit notwendig, sondern nur eine hohe Wahrscheinlichkeit." See also Leo Rosenberg, *Lehrbuch des deutschen Zivilprozessrechts,* 1961, § 111 I 2 a.

When evaluating evidence, on the other hand, it is not enough that the conclusion is a *consequence* of its premises: the premises must also be true in the sense that they *correspond to actual facts.* For what the evidence is intended to prove is the *existence* of the facts with which the conclusion deals.

But how can we know that the premises are true, e.g. in the example concerning fingerprints mentioned above? Let us assume that there is no reason to doubt the truth of the minor premise: any person can ascertain the identity between the two fingerprints as regards nine details.[8] What remains to be established, then, is the truth of the major premise. It is stated that it is founded upon experience. As we have already pointed out, all cases observed so far have confirmed that experience. The truth of the major premise would thus be based upon an *induction.*[9] It is concluded, from the fact that T follows upon B in all cases *observed,* that T *always* follows upon B. In such an "inductive syllogism", however, the truth of the conclusion does not constitute a necessary consequence of the truth of the premises. The generalization is founded upon limited material, and there is no certainty with regard to all the cases which have not been observed.[1] The history of science furnishes numerous illustrations of the necessity of revising traditional truth in accordance with new observations.

Thus it would be true that by evidence in court we can never obtain wholly reliable knowledge about relevant facts. On the other hand, it is evident that in actual practice we make a distinction between statements which are *certain* and statements which are only *probable.* It would be ridiculous to state that the mortality of man is only a probability! It may well be that the truth founded upon induction is no more than a marginal value, and that strictly speaking truth, in this connection, means only the highest degree of probability.[2] This distinction, however, is a subtlety which we may disregard. The relativity to which all human

[8] In this connection, we disregard the question of the criterion of identity of each detail, in other words the problem under what conditions the "same" detail shall be held to exist in two different fingerprints.

[9] On induction and probability, see A. Bennett and Ch. Baylis, *Formal Logic,* 1939, pp. 341 f.; Rudolf Carnap, *Logical Foundations of Probability,* 1951, and *Induktive Logik und Wahrscheinlichkeit,* 1959; S. R. Toulmin, *The Uses of Argument,* 1958, G. Polya, *Patterns of Plausible Inference* II, 1954, and John P. Day, *Inductive Probability,* 1961.

[1] Bennett, *op. cit.,* pp. 362 f., and Day, *op. cit.,* pp. 22 f. See also Gulson, *op. cit.,* p. 86.

[2] Day, *op. cit.,* p. 34.

knowledge is subject need not be taken into consideration in court.[3] Thus there are no reasons for denying that in certain cases the court is able to ascertain the "truth", provided that term is taken in the sense set out above.

However, in those cases where the "truth" may be found, the facts concerned are usually not disputed between the parties. If confronted by two incompatible assertions, the court will often be unable to decide which of them is true; it has to choose the more *probable* one. What does this mean, then, and how does the court proceed to determine which statement has the greater probability? Suppose that the court has to decide who is the father of a child. To simplify our example, we will make the unrealistic assumption that it has been made clear in the action that during the period of conception, the child's mother has had intercourse only with the defendant and another man, about whom there is no information, and that there is *no other evidence* about the former man's paternity than a genetic paternity test, which is based upon the fact that the child must have received from his father a feature found in only 5 per cent of the population and that the defendant also possesses this feature. The probability that this is also the case with the unknown man obviously amounts to no more than 5 per cent. We assume that this admits the conclusion that there is a probability amounting to 95 per cent for the paternity of the defendant.[4]

In this case, the piece of experience in question concerns the *frequency* of a certain event; this means that the conclusion must be subject to a corresponding uncertainty. If the constellation of hereditary features found in the child and the two parties is called K and the alleged paternity is indicated by an F, the evaluation of evidence may be performed according to the following pattern:

> In 95 per cent of all those cases where K is found to exist, this is the case also with F.
> In this case, K has been found.

[3] Cf. Toulmin, *op. cit.*, p. 235.

[4] $\frac{1}{1+0{,}05} = 95{,}24$ %. See Eric Essen-Möller, *Die Beweiskraft der Ähnlichkeit im Vaterschaftsnachweis*, 1938, pp. 11 f., and I. J. Good, "Kinds of Probability" in *Science* 1959 (129), pp. 444 f. The course of reasoning above presupposes that the probability of the paternity of the defendant and the unknown man respectively, if the latter also possesses the feature concerned, cannot be calculated on the evidence before the court.

It follows that the probability for F in the case amounts to 95 per cent.

The paternity of another person is not incompatible with this conclusion. This may be the case even if both the premises are true. In fact the conclusion should not be understood as a statement about the actual paternity but about our *knowledge* with regard to that relation.[5] Strictly speaking, all that this statement tells us is the convincing force of the constellation of hereditary features, considered as evidence.[6] This, however, is quite sufficient to enable the court to render a decision on the action, provided it knows what measure of convincing force the law requires from the evidence.

It is most unusual that in the evaluation of evidence the court can base its reasoning upon a law of general experience, the frequency of which may be expressed in figures. Normally, the degree of probability can only be expressed by a *vague* term, like *plausible, probable, certain* or *obvious;* in this connection, *probable* and *certain* also refer to different degrees of probability. This vagueness is due to the fact that no scientific inductions have been made which could give a more precise answer about the convincing force which may be claimed by various evidentiary facts.

As an example, we may quote *the observations of a witness* regarding the speed of a motorcar. If the circumstances are otherwise identical, it is more probable that the observation is correct if made by an experienced driver than if the witness is a person who has never been at the wheel of a car. And the degree of probability increases further if the observation is made by a policeman who has served in the traffic police and has often had occasion to notice and estimate the speed of passing vehicles. However, we possess no precise knowledge about these frequency relations, and consequently the same lack of precision is found in the conclusion which has to be drawn by the court about the probability that the car has been driven at the speed alleged by

[5] This also appears from the fact that the reality cannot be graduated: either the defendant is the child's father or he is not. Only our knowledge of that relation may be more or less certain. On the other hand, it is worth noticing that the major premise of the syllogism about fingerprints may be formulated as follows: If B exists, the probability of the existence of T amounts to 100 per cent; cf. Toulmin, *op. cit.*, p. 110.

[6] Carnap, *Logical Foundations of Probability*, p. 168, states that the conclusion implies "an estimate of relative frequency".

the witness. On the other hand, the actual *procedure* of evaluatin evidence seems to be the same as in the paternity suit.[7] What w call our "experience of life" is ultimately based upon induction undertaken without scientific precision. And an objective gradua tion of the force of evidence does not seem possible by any othe method than a calculation of frequency.[7a] Moreover, the existenc of a degree of probability is obviously independent of the questior whether it can be expressed in figures or not.[8] Thus, to take ar example, if the strength of the evidence is held to be *obvious,* i must be greater than if the theme of proof has been proved with a probability of 60 per cent.

In fact, any evaluation of evidence is likely to be based, to a greater or smaller extent, upon the kind of *vague statements about frequency relations* now referred to. In those few cases where the strength of a proof can be expressed as a fixed percentage, there will always be other evidence in the action, and if there are two evidentiary facts and the convincing force of only one of them can be expressed by a percentage figure, it is nevertheless impossible to indicate their accumulated value as evidence in this exact way. *If the degree of probability is expressed, in some examples in the present paper, as a percentage or a fraction, this is solely because it is easier to make the reasoning comprehensible in this way.*

What makes the evaluation of evidence in courts of justice particularly difficult is the circumstance that the facts at issue usually belong to *the past.*[9] This is true especially of the most important group of ultimate facts: juristic acts and unlawful acts. When actually happening, they were not often observed with any particular care and at the time of the action they are no longer capable of being observed. What remains available for actual perception at that time does not often permit any safe conclusions about the theme of proof. Crimes are usually committed in secret, and the perpetrator tries to remove any traces if his doings.

[7] Bolding, *op. cit.,* chap. II, particularly at p. 75, and P. L. Kirk, *Crime Investigation,* 1953, pp. 22 and 24 f. See, on the other hand, W. Wundt, *Logik* II, 1920, p. 66.

[7a] Cf. F. P. Ramsay, *The Foundations of Mathematics,* 1954, pp. 187–198.

[8] Bolding in *Svensk juristtidning* 1953, p. 332.

[9] Hellwig in *Gerichtssaal* 1922, p. 430. In such cases it is customary to use the term "historical evidence". In the critical evaluation of sources made by the historian and in the evaluation of evidence which a court has to undertake the same methods are applied. (Cf. Gross in *Archiv für Kriminalanthropologie und Kriminalistik,* vol. 8, p. 84.)

Similarly, although it is true that evidence concerning, e.g., a contract may be secured by the drafting of a document, it is possible that the parties have forgotten to include some detail about which an action will later be brought;[1] moreover, it is a well-known fact that a great number of contracts are concluded by telephone. Thus courts are very largely obliged to rely on all kinds of hints and to people's memories of past events; the latter source of information is no less uncertain than the former.

In these circumstances, it is only natural that what the court has to evaluate is a *chain of evidence,* in which each link has a limited evidentiary value.[2] An example is furnished by evidence through witness, where the court infers from the statement of a witness to his observations of the fact observed and thereupon proceeds to this fact. The statement is indicated by A, the observation by B and the *factum probandum* by C, and we further make the unrealistic assumption that it has been possible to assess the convincing force of A and B at 75 per cent, each for *its own* theme of proof. This would imply that if the statement A is made in 16 similar cases, B exists in 12 of these, and C in 9 of the 12 cases. C has consequently been proved with a probability of not more than about 60 per cent. *Thus the convincing force of a certain circumstance depends also upon the degree of probability with which that circumstance has been proved.*[3] *The more links there are in a chain of evidence, the weaker is the evidence for the final link of the chain.*[4] If the court was in a position to observe a later link in the chain and thus make the chain shorter, this means that stronger evidence has been attained, unless the link concerned was proved with full certainty by the link preceding it. This fact has been held a sufficient reason for the inadmissibility of certain kinds of evidence; this, however, is a problem which cannot be discussed in the present paper.

In spite of the difficulties referred to above, courts often succeed in arriving at a fairly reliable idea of what has happened even in cases where the evidence at first appears to be meagre. The following pages are intended to show, at least in some respects, the course of reasoning followed in such cases. We shall discuss the

[1] It should be mentioned that the parol evidence rule is not part of Swedish law.

[2] On the meaning of chain of evidence, see p. 48 note 4.

[3] Ball, *op. cit.,* pp. 97 f.

[4] Day, *op. cit.,* p. 108.

question in relation first to cases where only one evidentiary fact is concerned and then to situations with several concurring facts.

It is generally admitted that if *the accused confesses,* this is an important evidentiary fact in criminal actions. Let us make the unrealistic assumption that in a case of this kind there was no other sign of the accused's guilt. The fact that the confession is to his prejudice obviously invests this proof with considerable value. But, at least if the action concerns a serious crime, a verdict against the accused presupposes very strong evidence of his guilt. At the same time, experience shows that, for various reasons, confessions may be more or less incorrect.[5] Let me give a few examples. The accused may have wanted to protect the actual perpetrator of the crime, he may have misunderstood the prosecution's statement of facts in some important respect, or he may find it advisable to stick to an incorrect statement which, for one reason or another, he has already made to the police. The purpose of a false confession may also be to bring an unpleasant action quickly to an end or to secure a reduction of a punishment which seems inevitable. Finally, there are persons suffering from a guilt complex of such strength that they have a tendency to admit the truth of accusations against them without giving much thought to the question whether these are true or not.

Suppose, now, that the act for which the defendant was prosecuted is a crime of such seriousness that the court does not consider itself entitled to condemn the accused upon his confession alone, without having established its truth scrupulously. In our example, this cannot be done in any other way than by examining possible reasons why the confession should be false and verifying that none of these can be found in the case at bar.[6] In this way, the degree of probability is increased, although full certainty cannot be obtained. Suppose that a thorough study of a great number of confessions in serious criminal actions would show that 1 per cent of these were incorrect, wholly or in some important respect. By means of the procedure described above, it seems possible to reduce the margin of error considerably.[7]

[5] von Hentig in *Schweizerische Zeitschrift für Strafprozess* 1929, pp. 23 f., and Hirschberg, *Das Fehlurteil im Strafprozess,* 1960, pp. 17 f.

[6] K. Hasler, *Die Feststellung des Tatbestandes im Zivilprozess,* Wädenswil 1926, pp. 38 f.

[7] This demonstrates an important difference between propositions about frequency relations of the kind now referred to and such where mere *chance* is decisive. The probability that the six will appear upon one particular throwing

The method now discussed may also be said to imply that the convincing force of a confession is strengthened by demonstrating that it has not been possible to produce counter-evidence based upon *auxiliary facts,*[8] which reduce or diminish the convincing force of the confession. Sometimes, however, it seems more natural to speak of auxiliary facts which are such as to increase the convincing force of the confession. Suppose for instance that, from what is known about the accused's character, the conclusion is drawn that certain reasons for the incorrectness of the confession must be wholly excluded. On the other hand, it can also be said that this implies making use of a law of general experience, which states how often confessions by persons with certain characteristic psychological features are correct. *To make use of auxiliary facts means the same as to apply a more specialized law of experience than would otherwise have been the case.*[9]

We now turn to the question how the degree of probability is increased by *several concurring evidentiary facts,* each of which is

of a dice can never amount to more than one out of six. This is due to the fact that the game of dice is constructed in such a manner that one cannot determine why this or that side is turned upwards. Moreover, the same percentage of probability will be obtained irrespective of the group of games examined, provided the number of games is great. Unlike this case, the degree of probability for the correctness of the confession depends upon the way in which the examined group is delimited. (See, on another case, *Svensk Juristtidning* 1961, p. 465.) If all cases concerning the same crime as the one in question are included, the percentage will be different from that obtained, if the material is limited to include only crimes committed by professional criminals. This, however, does not imply any objection against the use of statements on frequency for the purpose of evaluating evidence. For the choice of the group which is to be examined exercises an influence upon the question what *auxiliary facts* are of importance when applying the frequency proposition to actual cases, and what convincing force is to be ascribed to these facts. If the group examined consisted only of professional criminals, certain reasons for the incorrectness of confessions may be disregarded, whereas others are more frequent than in the population as a whole.

[8] As for the meaning of the term "auxiliary facts", see p. 48 note 4 *in fine.*

[9] This is also the case where the degree of probability of the more general law of experience could have been expressed by means of a percentage. Suppose that a blood test of all parents and children in the whole country shows that a certain constellation of blood groups exists only in one case out of 1000. As pointed out by the Danish scholar Professor Alf Ross in *Ugeskrift for Retsvæsen* 1955, p. 79, decisions in paternity suits cannot be based upon this experience without any modifications. For it is likely that a relatively considerable proportion of the cases deviating from the majority consists of those where *the mother claims* that a certain man is the child's father although the constellation of blood groups is that referred to above. At least in those cases where the mother gives an impression of reliability, the defendant must be the child's father much more often than in one case out of 1000. See also *California Law Review* 1941, p. 697.

in itself insufficient to prove the *factum probandum* concerned.[1] Let us suppose that in an action concerning a highway accident there are two facts tending to prove that one of the cars concerned had a speed exceeding 60 miles per hour: the length of the braking marks, and a witness who observed the collision. We further make the unrealistic assumption that by examining a great number of similar situations it has been possible to ascertain that each of these evidentiary facts implies, in three cases out of four, a faithful description of reality, whereas in the fourth case it has no value whatever as evidence of the speed of the car.[2] At least if the value of each evidentiary fact is independent of that of the other, their combined value must be greater than $^3/_4$. But how much greater? The length of the braking marks proves that the speed exceeded 60 miles per hour in 12 out of 16 similar cases; at the same time, this is proved by the witness's statement in 3 of the 4 remaining cases. The convincing force of the combined evidentiary facts would thus be $^{15}/_{16}$.[3]

If the convincing force of the tracks and of the statement of the witness had been only 1 out of 10, the same method of calculation would result in a combined force amounting to no more than 19 out of 100. And where there are 10 different facts, each with the same small convincing force, the combined force only amounts to $^{55}/_{100}$. *Thus the total value of several concurring proofs depends, to a very great extent, upon the convincing force of each proof in itself.*[4]

However, these arguments are not only unrealistic because they express the convincing force of evidence in terms of percentages. As has already been pointed out, they are based on the premise that the force of one proof is entirely independent of that of the other.[5] In actual practice it is frequent that one or several possible sources of error are common to both proofs. Let us vary our first example by assuming that the evidence consists of two witnesses who have seen the collision. There may be several *unknown* rea-

[1] Gulson, *op. cit.*, pp. 104 f.; cf. Best on *Evidence*, London 1902, p. 77.

[2] Where the impression of the witness was not caused by what he observed but is the result of, e.g., suggestion, his statement has no convincing force whatever, even if it happens to be true.

[3] Cf. Ch. O'Hara and J. W. Osterburg, *Criminalistics*, 1949, p. 671.

[4] Cf. Cohn in *Juridisk Tidsskrift* 1922, pp. 168 f.

[5] Cf. E. R. Bierling, *Juristische Prinzipienlehre* IV, 1911, pp. 120 f., and Gulson, *op. cit.*, pp. 115 f. Day, *op. cit.*, p. 56, makes use of the same expression in a different, more restricted sense.

sons for error common to both witnesses. Both may have suffered a shock from the violent crash produced by the collision or from the sight of the seriously injured passengers and the wrecked cars. Or both have been influenced by a person who claimed that the speed of the car concerned was at least 60 miles an hour. The possibility of some such common influence implies that the combined value of the evidence is lower than would otherwise have been the case.

Finally, a few words will be devoted to what could be called "proving by elimination".[6] Suppose that the accused in an action concerning homicide denies that he has had anything to do with the crime. Certain facts seem to indicate that he has committed it, but their convincing force is not such as to admit a verdict against the accused. On the other hand, there is no other person who can be suspected, and any other hypothesis about the way in which the deceased person died seems highly improbable. These circumstances obviously strengthen the evidence against the accused. It is not permissible, however, to base one's conclusions only upon the absence of counter-evidence, for *the mere absence of knowledge has no value as evidence.*[7] Only an *investigation* which shows that other hypotheses are incorrect can furnish any support for the assumption that the accused is guilty. And if any of these hypotheses is strengthened by some evidence, this will reduce the degree of reliability which may be assigned to the hypothesis of the prosecution even if it still appears most probable.[8] However, it is difficult to know whether all possibilities have been taken into consideration. It appears from the history of those cases of miscarriages of justice that have later been unravelled that the true perpetrator of the crime may be a person against whom there was not even the faintest suspicion at the time of the action. Such cases

[6] Cf. Bierling, *op. cit.*, p. 122, note 38, and Wundt, *op. cit.*, II, p. 79; *vide* also p. 56 above.

[7] "If a hypothesis is initially very improbable but is the only one that explains the facts. then it must be accepted", says Sherlock Holmes. Expressed in this manner, the principle seems misleading.

[8] In scientific investigations it happens that less probable hypotheses are wholly disregarded, at least temporarily. Thus a historian may develop the most probable hypothesis as the final result of his study. And in the natural sciences, it may be used as a working hypothesis which the scientist tries to ascertain by further experiments. When evaluating evidence in courts of justice, on the other hand, the less probable hypotheses are used to determine the degree of probability with which the most probable one has been proved. Cf. above, the text at note 4, p. 52, and the Swedish case 1956 N.J.A. 713.

are instructive also from another point of view. The incorrectness of a verdict in a criminal action does not necessarily mean that the court has misinterpreted the evidence in the action. There may be "sufficient evidence", although it would not have been considered sufficient if the court had known some other fact which indicated that another version of the events was true.[9]

It follows from what has now been said that all evaluation of evidence takes place by the subsuming of actual facts under laws of general experience. Let us now return to the question why, at least on a first view, this does not seem to be the case, when, e.g., oral evidence is evaluated. As we have found, the court has to base its reasoning in these cases upon frequency relations which have a very indefinite degree of probability. It is true that in some cases it is possible to obtain greater certainty by having recourse to experts in *witness psychology,* but this is so expensive and demands so much time and labour that it is out of the question except in actions concerning great economic values or very serious crimes. As a rule, the court must try for itself to arrive at an opinion based on greater certainty by using available *auxiliary facts.* These, however, vary from one case to another, and their convincing force is equally difficult to ascertain. Where there are a great number of statements by witnesses and of other facts constituting evidence, the difficulties are increased. Under the principle of free evaluation of evidence, the force of the evidence as to each particular theme of proof must be assessed on the basis of the available material *as a whole.* But in a case of the kind now discussed this material appears to be "unique" in the sense that we possess no knowledge of any law of general experience concerning a complex of evidentiary facts of exactly that kind.

In these circumstances it appears inevitable that the judge will make up his mind on the question of the force of evidence *intuitively.*[1] This implies a rapid survey of the whole complex of evidentiary facts and of the general experience applicable to them; the judge, arriving at his conclusion on the basis of this survey,

[9] "Probability is relative to evidence" (Bennett, *op. cit.,* p. 353, and Day, *op. cit.,* pp. 41 and 171). In the present writer's view, however, it seems to be the *degree* of probability which is relative to the available evidence. Cf. Toulmin, *op. cit.,* p. 79.

[1] The word "intuitive" is used, in this connection, to denote the contrary of "discursive". It is neither necessary nor permissible to resort to reflexion governed by "sentiment".

will be unable to describe exactly how he so reached it.[2] On the other hand, intuition is influenced by our earlier experience, although our attention is not focused upon it at the moment of the intuitive judgment.[3] Therefore, there are good reasons for assuming that the result will be more reliable if the judge has previously undertaken a careful *discursive* analysis of the material available as evidence. In the present writer's view, such an analysis can only be performed in the manner discussed above. First, it is necessary to try to arrive at an evaluation of the convincing force of *each particular* evidentiary fact against the background of the general experience and of available auxiliary facts. In this process, the different links in the chains of evidence must be examined separately.[4] Thereafter, one proceeds to assess the *combined* convincing force of those facts which support the allegation that a certain ultimate fact exists. From the sum thus obtained, finally, one must subtract the combined force of such counter-evidence as supports the existence of facts incompatible with the allegation.[5] It is true that the evaluations obtained in this manner are usually quite vague, and sometimes the operation can be performed only partially. Nevertheless, the process may be of some use. A situation in which this is obviously the case is one where the judge in a criminal action in which the accused has pleaded not guilty arrives at the conclusion that among the numerous proofs invoked by the prosecution there is not one which has any particular force.[6]

It is also possible, however, that the order in which the judge proceeds to a discursive analysis of various elements of evidence and to an intuitive evaluation of the whole is reversed. The former part of the process then has the function of *checking* the results obtained through the latter. Further, the two methods may

[2] Nyman in *Theoria,* 1953, pp. 24 and 29 f., and Berne in *The Psychiatric Quarterly* 1949, p. 205.

[3] Cf. M. Bunge, *Intuition and Science,* 1962, pp. 84 and 98.

[4] See J. H. Wigmore, *The Principles of Judicial Proof,* Boston 1913, pp. 27 f.

[5] Day, *op. cit.,* pp. 57 f.—The subtraction of counterevidence which must be performed, where such evidence has been produced, seems to have been given little attention in writing on evidence. Let us vary the example on p. 58 and assume that whereas the braking marks retain their value as evidence for a higher speed than 60 miles an hour, the witness has stated that the speed of the car was *less* than 60 m.p.h., and further that the convincing force of this statement is only $^1/_4$. I venture to submit that under these premises the higher speed has been proved, but only with a force of $\frac{9}{16}\left[\frac{12}{16}-\left(\frac{1}{4}\times\frac{12}{16}\right)\right]$.

[6] Cf. above, the text at note 4, p. 58.

alternate several times. The final result, however, should always be based, in the present writer's view, upon an intuitive evaluation of the whole evidence.[7]

In treatises and papers on evidence there are many expressions of opinions which are in harmony with the views set out above. It seldom occurs, however, that the chosen method is maintained with any consistency. As an example of deviations, we may mention the fairly generally accepted distinction between *direct* and *indirect evidence*. Some writers use the term "indirect" to denote all evidence which does not put the court in a position to observe the fact at issue.[8] No objections can be raised against this terminology; but it is not very useful, for it is rare that the court is in a position to observe any ultimate facts. It is quite understandable, however, that as a rule the line between direct and indirect evidence is drawn according to other principles. The statement of a witness about his observation of an ultimate fact is considered to be direct evidence.[9] The course of reasoning which is at the bottom of this terminology appears from the statement of the Swedish scholar Kallenberg that "where a witness tells what he has observed of the *factum probandum,* the judge makes a conclusion which goes *immediately from the statement to this fact*".[1]

Thus it would be possible to disregard the fact that in all evalution of oral evidence there is a chain of evidentiary facts.[2] If so, the discursive method recommended here cannot be applied, for the statement of the witness, on the one hand, and his observations, on the other, can be tested only against the background of quite different laws of general experience, and more-

[7] If this is correct, the part played by intuition in the evaluation of evidence would differ from its function in mathematics. A mathematician who has intuitively foreseen the solution of a complicated problem can subsequently verify the result by means of calculation. The evaluation of evidence cannot be subjected to any such reliable control. Besides the judge's intuitive gifts and his habit in evaluating evidence, there is no other check on the reliability of intuition than a discursive evaluation of the material as described in the text. On various kinds of intuitive judgments, see J. P. Guilford, *Personality,* 1959, pp. 25 f., and Pokorny in *Acta psychologica,* 1954, p. 251.

[8] See, e.g., E. Siegrist, *Grundfragen aus dem Beweisrecht des Zivilprozesses,* Bern 1938, p. 203, and G. Bohne, *Zur Psychologie der richterlichen Überzeugungsbildung,* Cologne 1948, p. 9.

[9] See, e.g., Gulson, *op. cit.,* pp. 123, 143 and 217.

[1] Kallenberg, *op. cit.* II, p. 569, note 29; see also p. 542.

[2] Cf. above, p. 55.

over different auxiliary facts must be used.[3] Consequently, the convincing force of the statement by the witness and of his observation of facts must be evaluated separately.[4]

The sense in which writers on evidence use the term *"ground of evidence"* is also significant.[5] Sometimes, it is taken to mean any circumstance with a value as a proof, i.e. what has been called in this paper "evidentiary fact".[6] As a rule, however, the term is used in a more specialized sense. When a place or an object is inspected by the court, it is said that the "ground of evidence" is the judge's perception of the theme of proof; where evidence consists of a statement by a witness, it is that person's observations which are the "ground of evidence".[7] Thus human observation is exalted as an evidentiary fact of particular importance for the evaluation of evidence. But whereas there is not often any ground to question the correctness of the judge's observation of what occurs in the course of the hearing, psychological investigations of statements by witnesses have shown that the contrary must be affirmed about the observations reported in such statements. The fact that the witness himself is convinced of the correctness of his observations cannot claim any decisive importance. What the decision must be based upon is the evaluation of the court, not of the witness, regarding the evidence produced.

One inconvenience attending the opinion now referred to is that it may create a temptation to overestimate the value of oral evidence in relation to proof by conclusive facts (indicia). In Sweden, there are probably still lawyers who consider that if evidence of the first kind is available, the decision should not be based upon such facts.[8] This view is wholly unfounded. In a criminal action for burglary, should a testimony to the effect that the accused and not another person who has also been suspected is the per-

[3] Wundt (*op. cit.*, pp. 65 f.) holds that laws of general experience cannot be used in the evaluation of evidence.

[4] See Siegrist, *op. cit.*, pp. 196 f., and Johs. Andenaes, *Straffeprosessen*, Oslo 1962, p. 164.

[5] German: *"Beweisgrund."*

[6] R. Wrede, *Finlands gällande civilprocessrätt* II, Helsinki 1923, pp. 81 and 85; see, however, p. 90. This author uses the term "evidentiary fact" to denote the fact in issue. Cf. Rosenberg, *op. cit.*, § 111 II 1 b.

[7] See, e.g., H. Munch-Petersen, *Den danske Retspleje*, Copenhagen 1923, p. 193, and Hasler, *op. cit.*, pp. 42 f. Certain writers do not call the observation of the witness, but his statement, the "ground of evidence". Cf. the pertinent analysis of Siegrist, *op. cit.*, p. 24 note 1.

[8] Cf. Kallenberg, *op. cit.* II, p. 1019 note 36.

petrator always be considered more reliable than the observation on the safe of fingerprints belonging to the latter?[9] On the other hand, it is equally incorrect to consider circumstantial evidence preferable in principle to oral evidence ("facts cannot lie"). Generally speaking, it is impossible to make sweeping judgments about the relation between oral and circumstantial evidence with regard to their convincing force.[1] What is decisive are the qualities of the witness, the conditions under which he made his observations, and, on the other hand, the kind of conclusive facts concerned and what they are intended to prove.

That one sometimes meets criticism of the ideas set forth above may be explained, at least partly, by the fact that people have not wholly got rid of a way of thinking which was natural at a time when the law of evidence was characterized by the doctrine of legal evidence. Under that doctrine, the court only had to ascertain whether two witnesses, who could not be challenged, made substantially identical statements about the theme of proof. Under those circumstances, there was no reason to make any distinction between the statements of the witnesses and their observations. And as for circumstantial evidence, it was considered with obvious distrust by the doctrine of legal evidence. It was not permitted to condemn the accused upon the strength of such evidence alone. This situation was partly due to the difficulty of defining its convincing force by statute. As for oral evidence, it was enough that the legislators made up their minds on the question how many witnesses would be required for *plena probatio*. When in Continental law, in the Middle Ages, similar rules were laid down for the different kinds of circumstantial evidence, the rules proved to be too complicated.[2]

The excessive belief in the convincing force of oral evidence possibly also has some connection with the fact that human observation is an evidentiary fact of a very particular kind.[3] Where the observation is in harmony with reality, there is no problem about ascertaining what it actually proves. It is a different matter in the case of circumstantial evidence, i.e. conclusive facts. These

[9] Illum, in *Ugeskrift for Retsvæsen* 1954, p. 143, contends that where oral evidence is produced, courts often accept as sufficient proof evidence of less convincing force than is obtained by blood tests in filiation actions.

[1] Day, *op. cit.*, p. 304, and Kenny's *Outlines of Criminal Law*, Cambridge 1952, pp. 374 f.

[2] J. W. Hedemann, *Die Vermutung*, 1904, pp. 64 f.

[3] Cf. Sebba in *Zeitschrift für deutschen Zivilprozess* 1908, pp. 86 f.

facts are seldom "photographs" which give clear information about the theme of proof. Once a fact of this kind has been verified, it is usually necessary to proceed to a laborious investigation of the question *what* can be proved by this fact. However, this is a fallacious habit of thought to indulge in, for the difficulty caused by circumstantial evidence in the respect now referred to has its counterpart when evaluating the convincing force of an observation by a witness. This is the question *whether the witness really registered the facts faithfully.*

It is frequently stated, particularly in German legal writing, that the decisive element in the evaluation of evidence should be the judge's *conviction.*[4] If the judge is convinced of the accused's guilt, he must condemn him. If, on the other hand, any doubt remains on this point after the evaluation of evidence, the action cannot be sustained.

It must be asked, however, what is the meaning of this statement. Obviously, the verdict must go against the prosecution if the judge is not convinced that the evidence has *sufficient convincing force.* What is meant, however, is that it is not enough that the judge finds it highly probable that the accused is guilty: he must have the personal conviction that this is the case.[5] What these German writers are really dealing with is in fact the *strength which must be required of the evidence* to justify a condemnation in a criminal action.[6] However, the requirement of conviction also seems to refer to the evaluation of evidence. It is stressed that the idea of the judge being convinced of the accused's guilt is compatible with the *theoretical possibility* that another version of the actual events is the true one, but is, nevertheless, incompatible with the existence of *actual facts* indicating that the latter version is correct.[7] The sense of these words is not altogether clear to me,

[4] The "Strafprozessordnung", sec. 261, has the following tenor: "Über das Ergebnis der Beweisaufnahme entscheidet das Gericht nach seiner freien, aus dem Inbegriff der Verhandlung geschöpften *Überzeugung*" (italics supplied); see also "Zivilprozessordnung", sec. 286.

[5] R. v. Hippel, *Der deutsche Strafprozess,* Marburg 1941, p. 388; H. Wassermeyer, *Der prima facie Beweis,* 1954, pp. 68 f.; Scanzoni in *Neue Juristische Wochenschrift* 1951, p. 222, and Mattill in *Goltdammers Archiv für Strafrecht* 1954, p. 338.

[6] Eb. Schmidt, *Lehrkommentar zur Strafprozessordnung* I, Göttingen 1952, p. 158.

[7] See Hartung in *Süddeutsche Juristenzeitung* 1948, pp. 582 f., Niese in *Goltdammers Archiv* 1954, p. 149, and Mattill in *Goltdammers Archiv* 1954, p. 340; see, *contra,* Hellwig in *Gerichtssaal,* 1922, p. 417.

but I would insist upon the conclusion that the accused must be acquitted where the evidence produced by the prosecution is weak, even if there is no counter-evidence in favour of his innocence, whereas the verdict demanded by the prosecution should be given where the evidence against the accused is strong, even if there are one or two weak pieces of counter-evidence. *For what is essential is the strength of the evidence after the substraction of the convincing force of such counter-evidence as there may be in the action.*[8]

Generally speaking, it does not seem wholly safe to state that the judge must base his decision on the points of fact upon his conviction. Suppose that a judge follows this course of reasoning: "It is true that the evidence produced in the action is not of sufficient strength, but nevertheless I am perfectly convinced of the accused's guilt, and consequently I vote for condemnation." What, really, is the content of this judge's conviction? Obviously, it is not that the evidence has the required strength. But in that case he ought to have thought: "Personally, I am convinced of the accused's guilt, but since the evidence is not sufficient he must be acquitted."[9]

[8] See above, p. 61.

[9] Cf. Bolding, *op. cit.*, pp. 67 f., and in *Sv.J.T.* 1953, pp. 311 f. Bohne in *op. cit.*, pp. 51 and 76, emphasizes that conviction is connected with a feeling that the chosen solution is obvious ("Evidenzgefühl") and further that conviction presupposes a volition by the judge. See also Wimmer in *Deutsche Rechtszeitschrift* 1950, p. 392, and Hirschberg, *op. cit.*, pp. 93 f.