

Winter 1935

Proof of Finger-Prints

Albert S. Osborn

Follow this and additional works at: <https://scholarlycommons.law.northwestern.edu/jclc>

 Part of the [Criminal Law Commons](#), [Criminology Commons](#), and the [Criminology and Criminal Justice Commons](#)

Recommended Citation

Albert S. Osborn, Proof of Finger-Prints, 26 *Am. Inst. Crim. L. & Criminology* 587 (1935-1936)

This Criminology is brought to you for free and open access by Northwestern University School of Law Scholarly Commons. It has been accepted for inclusion in Journal of Criminal Law and Criminology by an authorized editor of Northwestern University School of Law Scholarly Commons.

POLICE SCIENCE



FRED E. INBAU [Ed.]

PROOF OF FINGER-PRINTS

ALBERT S. OSBORN†

More and more the finger-print is the criminal's greatest terror. It is a fortunate provision of nature that in his own hands the criminal thus carries the means of his own identification. If he has before been arrested and convicted, and his finger-prints are on file, the unchangeable ten rubber-stamps carried by him infallibly give him his true name and lead to a knowledge of the embarrassing incidents of his history. There are now filed away in many cities millions of these tell-tale impressions and every day new ones are added. With prints on file and a suspected person arrested, from whose hands new prints can be made, an identification follows with absolute certainty if it was from his hands that the filed prints were made.

With complete prints of the two hands proof of identity is incontrovertible, but, unfortunately, proof sometimes must be made from only one print, and that print may not be clear and complete. Under this condition proof may fail or serious error may arise. Every helpful provision should be made, of course, so that the fact is proved, whatever the fact may be. Error in proof, as well as failure of proof, may arise from incomplete data or unscientific methods.

The usual method of marking photographic illustrations of finger-print impressions for use in court is to draw freehand or ruled lines

†Author of *Questioned Documents* (First edition, 1910; Second edition, 1929), and *The Problem of Proof* (1922).

from the specific points of identity into the margin and give each line and point a number. The number of points thus illustrated and depended upon by careful operators is at least twelve.¹ In some instances a smaller number are marked and an arbitrary number necessary for positive identification cannot be named.

With all due respect to a time honored practice, it must be said that this method of marking for identification is not so complete and effective as it might be, and may easily lead to error. It is especially undesirable when it becomes necessary to make proof to a jury of only one or two finger-prints, or of incomplete or blurred prints. With clear, complete prints hardly anything is necessary to insure proof further than good enlarged photographs.

The first objection to the accepted method of illustrating identity is that the drawn lines, especially if heavily made, disfigure the print and tend to cover up the physical evidence, and if the lines are very fine their significance may not be understood. Where numerous lines are drawn the print is in effect obscured and partially obliterated. Another objection to this accepted method is that the apparent danger of covering the print with the identification lines tends to reduce the points of identification depended upon to such a limited number that the illustration may not furnish adequate proof. A further objection is that this method does not show the relation of one characteristic to any other characteristic. Forks and hooks and abrupt endings and beginnings are on all prints, and if only a few of them are depended upon, especially if their location and relation to other parts is not given proper consideration, error may result. In the interests of justice, it should be known that errors in identification are not only possible but have been made.

Finger-print identification is universally recognized as highly important in promoting justice and reducing crime but unfortunately a tendency to exaggeration has grown up around the subject. Detective stories are mainly to blame, and it also must be said that certain specialists have been partly, responsible for the idea that from

¹"It has been a long standing rule that a minimum of twelve identical and characteristic details must be found. One should not, however, adhere too closely to this rule." Söderman, H., and O'Connell, J., *Modern Criminal Investigation* (1935) 116.

"It is commonly accepted that an accidental print must be of sufficient extent to show at least twelve points of agreement between its ridges and those of another print before it is safe to regard the proof of identity as conclusive. This rule is a somewhat arbitrary one, for it is obvious that agreement in a smaller number of lines in the core of a rare pattern might be more conclusive than the coincidence of a much larger number of ridges from the less distinctive area of a pattern." Mitchell, C. A., *The Scientific Detective and the Expert Witness* (1931) 67-68.

the time a person arises until he goes to bed he is leaving recognizable finger-prints, latent or actual, on everything he touches. This statement is, of course, not true. Most of the things he touches do not register finger-prints by which a person can be identified.

Even if under the most favorable conditions as to surface, color, and location of object, a latent print is left, its outline often is so dim, incomplete, and distorted that it is dangerous to identify a person from it, especially by the usual method employed. It is true that it is sometimes very desirable, if possible, to identify these imperfect prints, but a few dim and uncertain points of identity should never be accepted as the basis for positive identification.²

This exaggeration of the application of the subject is now even used by resourceful defense attorneys. They say, "Our client, the defendant, was not there because he left no finger-prints." In the world-famous Lindbergh-Hauptmann trial the defense actually presented testimony aiming to show that the defendant was not guilty because none of his finger-prints were found. Except in detective stories, there does not yet appear to be one recorded instance of the identification of a writer of extortion or kidnapping letters from finger-prints on envelopes or letter paper. Mere shadowy outlines of incomplete and overlapping prints are sometimes found, but it would be dangerous, in most cases at least, to identify a writer from them.

It is true that prints that can be identified are sometimes left on glass, metals, painted and polished surfaces, and it then becomes highly desirable to identify what may be an incomplete or somewhat blurred print. The usual line and number method, described above, is particularly inappropriate under these conditions for the reason that the identification does not cover enough points and, as stated, the method tends to still further deface an already incomplete print.

Unfortunately, there are those who testify as experts on numerous subjects in American courts who know but little, if anything, of the principles of proof; they are not able to analyze proof and give it its proper value. The required qualifications of experts in this country are very limited and practically any one is accepted as an expert

²"It cannot be too often reiterated that in comparing impressions the examiner must rely upon similarity or dissimilarity in the type and in the details of the ridges of the patterns: if his conclusions deduced therefrom are further corroborated by coinciding creases, so much the easier his task." Henry, E. R., *Classification and Uses of Finger Prints* (1900) 12.

"These references referred to inked imprints, and if such careful examination is required as suggested by them for the inked imprints, we should be all the more careful in deciding on the identity of two imprints, one being that of an accused person, and the other an accidental impression found at the scene of a crime." Wilder, H. H., and Wentworth, B., *Personal Identification* (1918) 266.

who claims to be an expert or whose lawyer claims he is an expert. No doubt justice would be promoted if at least half of proposed experts were not allowed to testify.³

This matter of the acceptance or rejection of proposed expert testimony should be entirely in the hands of the fair, able, and long term judge, but in many American courts his hands are tied. Much of the abuse of expert testimony grows out of this powerless condition, of the American judge. In many courts he has about the same amount of power to control the proceedings as the official reporter. The trial attorneys are masters of the situation and they resent any interference by the judge, and their programs of reform of expert testimony do not ask the aid of the judge. The power of the judge as exemplified in New Jersey, Canada, and England shows how this phase of a trial should be and can be controlled.

On account of the low quality of much expert testimony it is all the more important that the specific methods employed and procedure followed should permit the closest scrutiny of it. Mere opinions of alleged experts, on any technical subject, with no clear and understandable reasons and no demonstration, should be received with the utmost caution and juries should be so instructed.

The main purpose of the discussion in this paper is to describe a method of illustration which was developed for use in questioned document cases, especially in connection with traced forgeries. This is the lettered and numbered ruled square method and it is illustrated herewith. With fine lines making the squares the print design is not hidden and scores instead of only twelve or fifteen points of identity can be clearly shown. The illustrations printed herewith demonstrate that nearly every dot, curve or dash has identifying significance when shown under the squares. With the questioned and standard prints accurately arranged under the squares, and an enlarged photograph made, an intelligent observer can then, even without testimony, see the physical evidence upon which an opinion of identity is based. A three to four diameter enlargement (one inch to three or four inches)

³"If an expert witness has come to the conclusion that the original of X is identical with that of A he must be prepared to satisfy a magistrate or the jury that he has sufficient reasons for saying so. If this conclusion is negative or adverse his grounds for that belief must be clearly stated in simple language. In any case the prisoner or his counsel ought to be enabled to criticize intelligently the points of the evidence adduced against him." Faulds, H., *Guide to Finger-Print Identification* (1905) 74.

"When the core of the pattern is missing, the appearance of the details must be examined with the utmost care. In such a case only one difference (not originating in the above described natural alteration of details) is sufficient to declare that the impressions are not of identical origin." Söderman, H., and O'Connell, J., *op. cit. supra* note 1 at p. 116.

is sufficient to show the facts unmistakably. Photographs should be clear and distinct and the photostatic (black and white) method should not be used.

This ruled square method can, of course, be very effectively used to illustrate ordinary, complete finger-prints but is especially desirable for the illustration of difficult problems. It is preferable for any kind of a comparison and apparently is the only method by which certain comparisons can be convincingly presented. These special ruled square plates are designed to be photographed over prints to be proved but they are also useful in a preliminary examination to test apparent similarity to see if it is actual similarity or only limited coincidence.

As is well known, the identification of a finger-print depends upon the pattern or design by which it is classified and by its delicate as well as its more prominent details.⁴ If a finger-tip is purposely mutilated, the mutilation naturally covers the core and the delta of the pattern. In such a case it may be impossible to determine the classification from the mutilated design, but if it becomes desirable to compare suspected impressions from a mutilated finger-tip with a complete impression that is already on file, this can be done most effectively by the method employing the uniform squares.

The superiority of this method is due to the fact that not only the design, but the *location* and interrelations of the many characteristics and details of the two impressions can be critically compared, as is illustrated herewith, especially in B-2 in Figure 1. In this print the whole upper part and most significant part of the impression is missing, but the illustration under the squares shows clearly that this incomplete impression was unmistakably made from the same finger that made the perfect impression.⁵ It is not likely that an intended mutilation will cover completely all the printing surfaces of all the ten fingers.

This ruled square method puts a finger-print in geographical form

⁴"Should the general patterns correspond, a closer examination may, if thought necessary, be made (either with or without a magnifying glass) in order to ascertain whether each line in a particular impression coincides in appearance with the corresponding line in the finger-print forming the permanent record." Gross, H., *Criminal Investigation* (Adam's transl., 1906) 280.

⁵"The microscopic agreement of the ridge details is what furnishes proof of identity, or of non-identity, rather than a general similarity of patterns, and for this time and patience are required." Wilder, H. H., and Wentworth, B., *op. cit. supra* note 2 at p. 291.

⁶"A rare detail is an identification sign one hundred times more important than a whole series of forks; four or five details in the core of an unusual pattern have more value as evidence than twelve or fifteen forks in the periphery." Söderman, H., and O'Connell, J., *op. cit. supra* note 1 at p. 116.

and its characteristics in the squares can be described as land is described in deeds in the states of the West. For example, "In the upper half of the North-west quarter of Square C-2 there appears," etc., and in this manner every detail of the evidence of identity can be pointed-out and definitely described. This method, with its wealth of detail, also avoids the possibility of error due to reliance on a few general features that are not definitely and accurately located as compared with other parts. If the ruled squares are put over two similar prints from different fingers the significant differences are at once unmistakable.

The desirability of this ruled square method is illustrated in Square C-2 in Figure 4 which shows many distinctive characteristics that are identical in both impressions that could not be shown by the drawn line and number method.

It is a fact that two impressions from the same finger may differ slightly in size, slant of parts and direction of lines, due to *varying* pressure and *direction* of pressure. This divergence mainly appears in the outer parts of impressions and only slightly if any in the important central portion. Any misunderstanding due to this natural and somewhat inevitable divergence is avoided by using ruled square glasses of different sizes and with varying numbers of squares. The appropriate size and number of squares should be adapted to each problem and as a rule the squares should not cover all the margins that are bound to differ slightly.

The following battery of ruled square glasses would answer all but very unusual cases: (1) Two groups of four squares, one-fifth inch size and placed one-fourth inch apart from right to left and each group lettered "A," "B," and numbered "1," "2,"; (2) A similar glass plate with one-fourth inch squares; (3) Three other sets of glasses of the two sizes of squares as described above but three squares each way, lettered "A," "B," "C," and numbered "1," "2," "3"; (4) Two sets of glasses, the same as above, with five squares vertically, lettered "A," "B," "C," "D," "E" and four squares horizontally numbered "1," "2," "3," "4." These test glasses are easily made from accurate drawings of one-half inch squares, lettered and numbered.

An accurate, natural size negative of the drawing should be made, and several contrasty prints. These prints can then be cut down to the proper number of squares and mounted the proper distance apart, from right to left, and then photographed, reducing them to the sizes one-fifth and one-fourth of an inch.

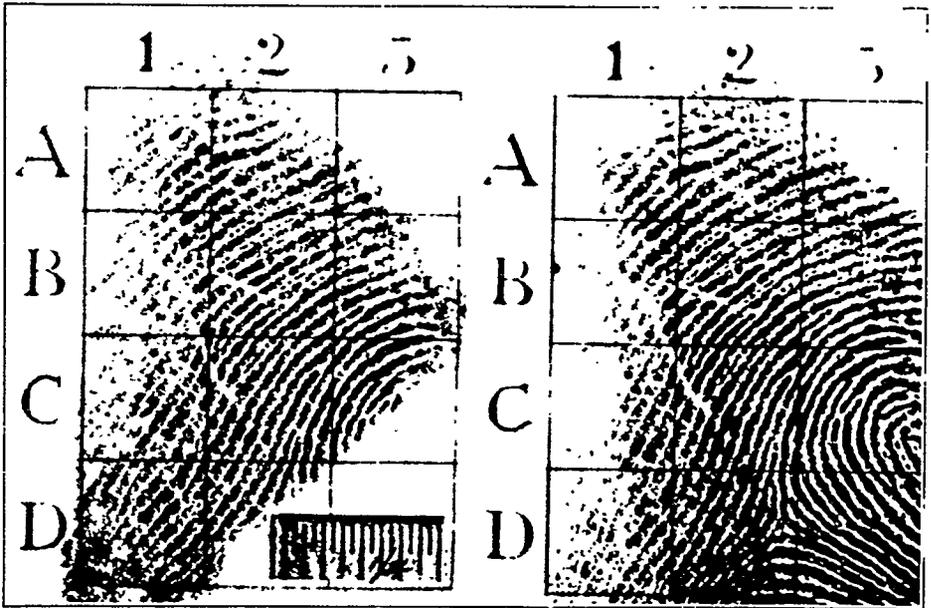


FIGURE 1.

Fragment of finger-print on left compared with upper left of standard print. The fragment does not contain either core or delta. The square B2 is alone sufficient to identify the print although there are scores of other characteristics.

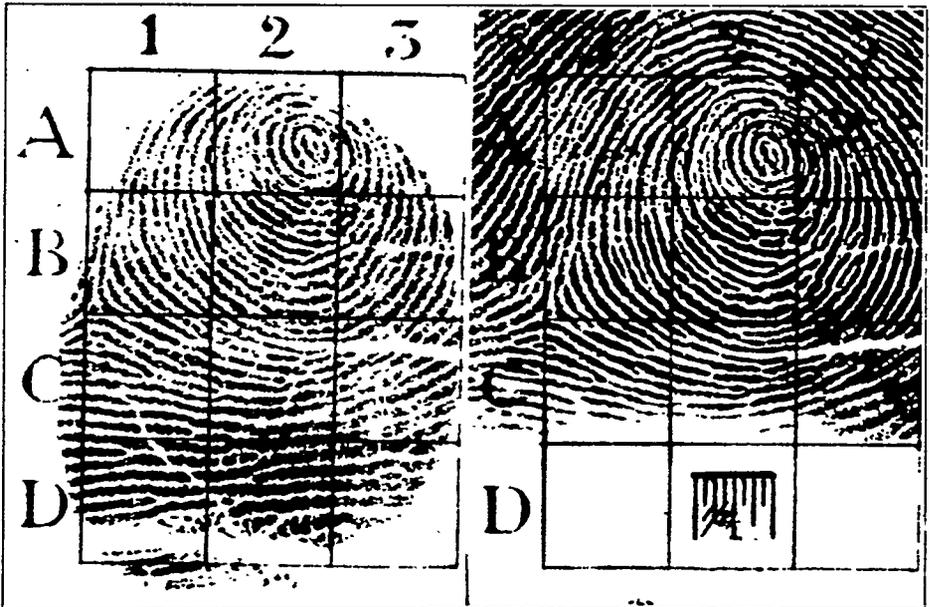


FIGURE 2.

Light imperfect print of lower portion of finger-print on left compared with a heavy print from the same finger on right. At least a hundred identical characteristics are shown.

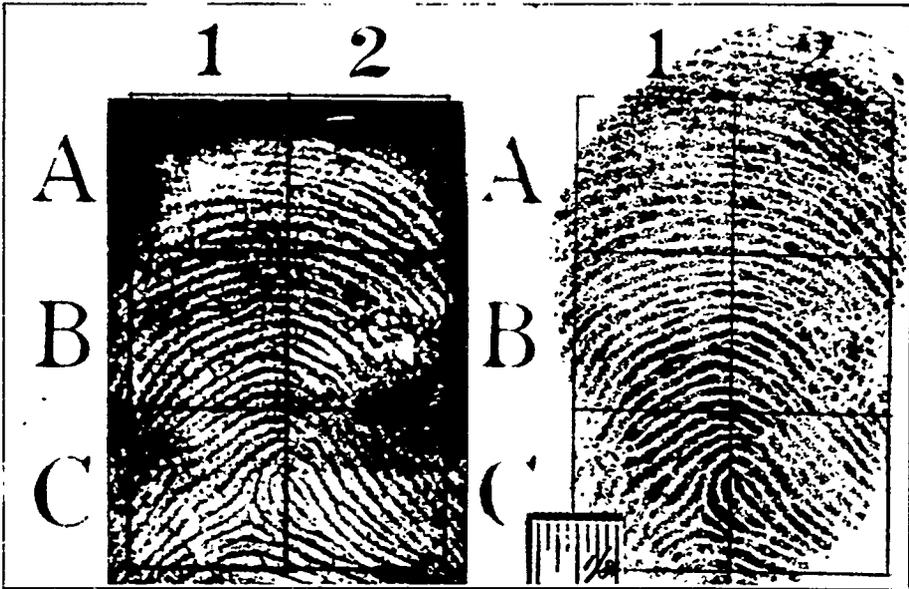


FIGURE 3.

Developed white finger-print, on glass compared with standard print. B2 alone shows sufficient characteristics to identify print.

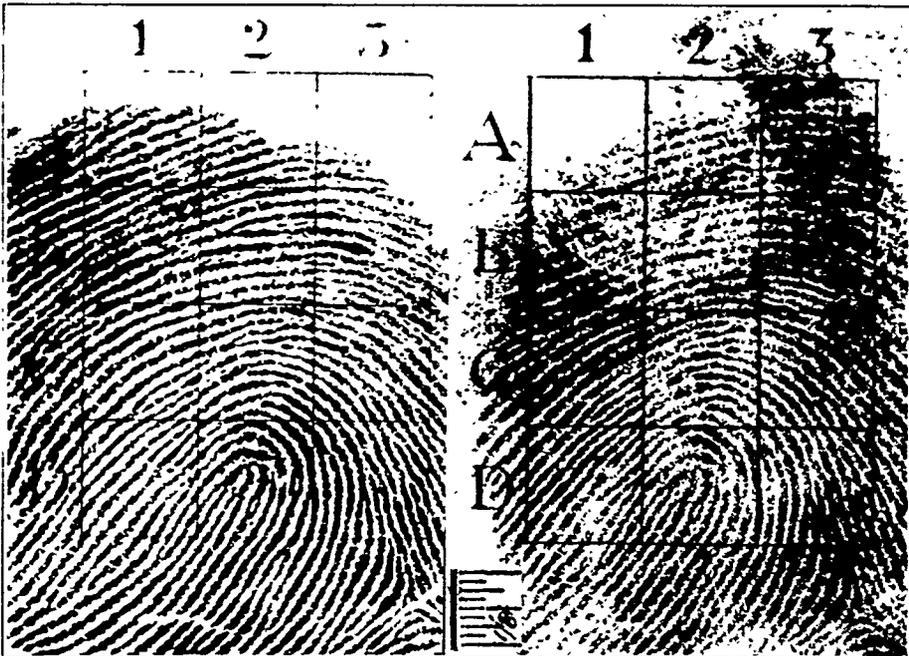


FIGURE 4.

Print on right on paper developed by black powder. Original print wholly invisible but development was made not long after impression. Identity of two prints unmistakable.

It may be advisable to make one set of glasses with squares a little larger, or about $7/24$ of an inch in size. These final negatives should all be made with the film reversed so that positives can be made on glass plates by contact with the film on the lower side of the glass plate so that the resulting positive can be placed in contact with the print.

The two prints to be compared are arranged under the ruled squares. This is an operation that requires extreme care. A misplacement of one one-hundredth ($1/100$) of an inch may tend to show that two identical prints are unlike. A small hand magnifier should be used. A narrow strip from a filed set of prints, containing one complete finger-print, can be cut with the print for comparison on the slip and the slip after being photographed can be reattached to the filed card. If the impression under investigation is on a small piece of paper a narrow paper strip can be attached with mucilage at one side so the impression can be moved into proper place under the squares.

The lines of the original drawing should be made so that when reduced they are not too coarse or too fine. The proper width of the lines can be determined by experiment. These positives are uncovered films on glass plates so they can be pressed into actual contact with the prints to be compared. Two and one-half by four glass "process" plates (one-half of 4 by 5) are suitable for the final positives. Plates should be developed for contrast and glass can be made perfectly clear by putting the positive in a Farmer's Solution reducer for a few seconds. The lines of the original drawing should be made with India ink and should be distinct in the final form but quite fine.⁶

⁶Editor's note: All matter in this Journal is copyrighted, and illustrations or parts of this article must not be reprinted without written permission.