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Ancient Finger Prints in Clay

Harold Cummins

ANCIENT FINGER PRINTS IN CLAY*

Harold Cummins†

Where men are and where men have been there occur various traces, or tracks. The traces to be considered here are of a single kind, impressions of the fingers[1] on things which have been handled or touched. A finger may leave its imprint as a transferred film of natural skin secretions or of some other medium with which the finger has been smeared, and if the digit is pressed into a plastic substance such as clay its impression is then in the form of a mould, shallow or deep in accord with variable conditions of imprinting. These moulds of human fingers are of special interest as traces, since in clay they may be preserved through the centuries. A few examples of ancient prints are presented, not only for their intrinsic interest but to provide the setting for discussion of a moot question in finger-print history, as to whether such prints in clay ever were made with an aim comparable to that of present-day identification.

Certain principles of identification method must be first introduced. For the registration of individuals, whether in criminal or non-criminal files, impressions of the digits are printed on cards, usually in ink. All ten digits are recorded in orderly series and with care to ensure that the details of the ridged skin are clearly and fully imprinted. Filed according to a classification of the finger-print patterns which admits ready reference, the card serves thereafter as a means of proving the identity of the individual, since the making and classifying of his prints at any future date will serve to locate that record for comparison. It is possible also to classify and file separately the prints of single digits, to facilitate identification of finger prints found at the scene of crime. All original record prints and all prints taken from the person for later comparison naturally are made purposefully, for identification.

The second technical variety of finger prints embraces those imprinted without intention, termed chance or accidental impressions. These may be either latent, formed of the skin secretions alone, invisible without special preparation or at best faintly visible, or they may be of ink, paint, blood and like materials clinging to the skin. Only infrequently does the identification worker have occasion to deal with chance impressions in plastic substances. It is important to emphasize that chance prints are made, as their name indicates, in the course of ordinary contacts with objects. The reader holds the book open that he may read, the murderer grasps the gun with evil purpose, the glazier presses putty around the window glass to obtain a

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[1] The word "finger" is used throughout in the generic sense which embraces thumbs as well as the fingers proper.

Figure 1.

LATENT PRINTS ON THE BACK OF A SHEET OF CHECKS

Developed with silver nitrate. The sheet, from a check book used in executing several forgeries, had been carelessly handled by the investigators. Such chance impressions on paper may be likened to impressions produced in the handling of soft clay.

firm and neat seal— but no one of these intends to be making the finger prints which he leaves in the act. Chance prints are all about us in myriads, though most of them are inconspicuous or invisible. If subjected to proper treatment, this page would reveal impressions, just as prints were developed on the sheet of checks illustrated in Fig. 1—an example which is not only a telling illustration of latent prints but a practical warning, in that investigators of a case of forgery carelessly handled these checks, obscuring a source of evidence with their own prints!

Having distinguished chance prints and those made intentionally for identification, it is to be emphasized that some impressions are identifiable, while some are not. To say that a print is identifiable does not mean necessarily that the identity of the maker can be disclosed, this being obviously impossible in the absence of some form of registration for reference; the point is simply that the print is technically adequate for comparison with another, to determine whether it is from the same digit or a different one. When prints are recorded for identification it is to be expected that they satisfy that purpose, but chance prints are often useless for comparison, since the markings of the skin ridges may be indecipherable or the available area lacking in sufficient details to establish identification. Ink prints, or developed latent prints, may be mere smudges or blobs, and prints in clay may be similarly devoid of ridge details, thus not being identifiable. We are to be concerned with both classes. In Fig. 2 there will be seen a complete and clear impression printed in ink, typical of the technique of identification records. The im-

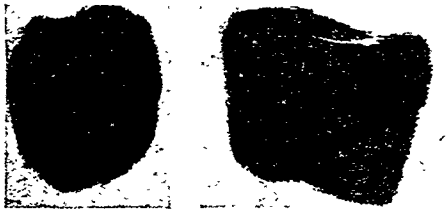

Figure 2.
FINGER PRINT COMPARISON
A clear print, made in ink, showing ridge details, and an unidentifiable blob.

printed lines, which represent the summits of the delicate skin ridges, exhibit numerous "minutiae"—forkings, endings and abbreviations in length. Even a portion of such a print is identifiable when it contains a sufficient number of ridge details, individually distinctive as they are. The companion illustration is a blob, utterly useless for identification. With regard to prints in clay, it may be noted that occasionally (as in Figs. 3, 4, 5) they are identifiable, while others (Fig. 6) are featureless excavations in the clay, corresponding in their lack of individual markings to the blob made with ink.

Its documented history dating only from the latter part of the nineteenth century, the present finger-print system may have originated quite independently of finger-print practices followed long ago in the East. The history of these practices has been pieced through the efforts, among others, of the late Berthold Laufer, in his "History of the Finger-print System,"[2] of Robert Heindl, in the historical sections of "System und Praxis der Daktyloskopie,"[3] the most comprehensive handbook in its field, and of George Wilton,

Figure 3.
ON PALESTINIAN LAMP*
A clear identifiable print on a fragment of a moulded Palestinian lamp (Byzantine Period, the Fourth or Fifth Century A.D.).

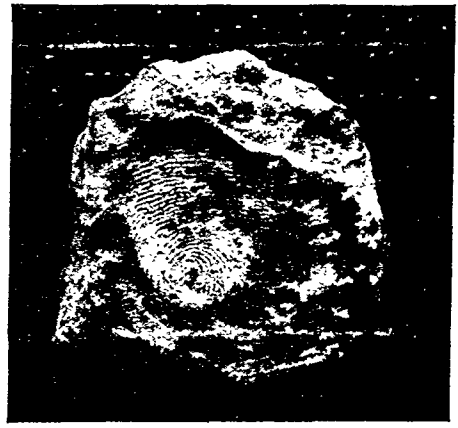

Figure 4.
A CHINESE SEAL OF CLAY
Made not later than the Third Century B.C. The obverse side of this clay pat bears a seal-impressed name, presumably that of the maker. Was the thumb print applied as an identifying mark in the current sense of finger-print identification?

[2] Smithsonian Inst., Annual Report (1912), 631-652. This was followed up in a brief note by Laufer, Science, n.s., *45:* 504-505 (May 25, 1917).

[3] Berlin and Leipzig: Walter de Gruyter and Company, 3rd ed. (1927).

* Figure 3 is from Badè, by courtesy of the Palestine Institute of the Pacific School of Religion. Fig. 4 is from Laufer, by courtesy of the Field Museum of Natural History. Fig. 5 is by courtesy of Professor A. D. Fraser. Fig. 6 is from B. C. Bridges and Fig. 7 from Earl H. Morris. Fig. 8 is by courtesy of the Middle American Research Institute, Tulane University. Photograph by Roy Trahan.

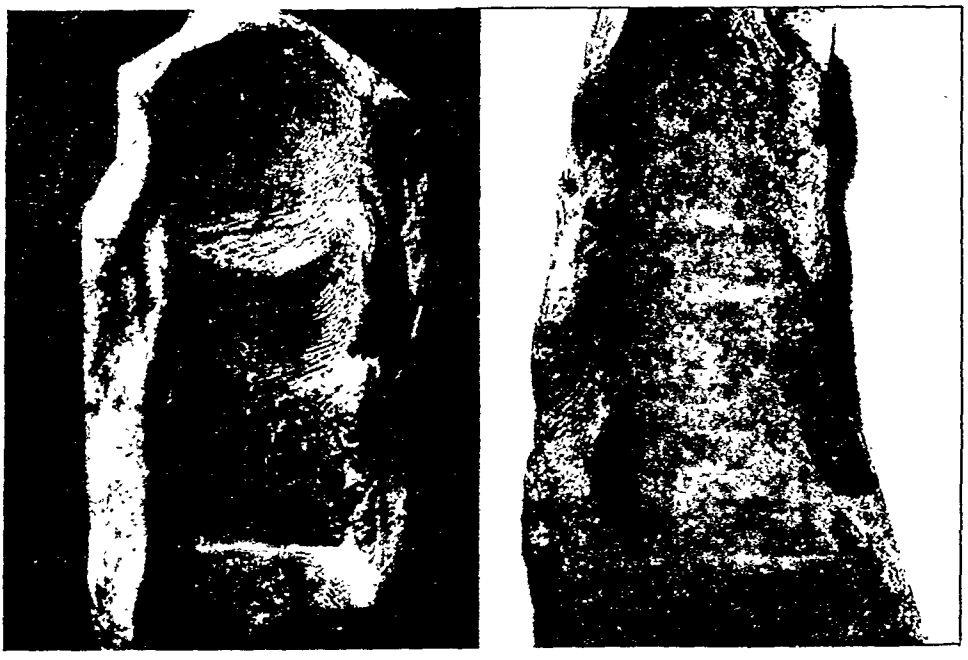

Figure 5.

FRAGMENTS OF TWO FIGURINES FROM SELEUCIA, MESOPOTAMIA

The impressions are on the inner faces of the figurines, their successions suggesting the most natural and effective way of applying the soft clay within a mould of irregular form. Enlarged one and two-thirds times.

in the recent work, "Fingerprints: History, Law and Romance."[4] Their accounts contain descriptions of numerous instances of finger marks applied to deeds, contracts of loan and other documents; one example will suffice to illustrate the characteristic employment of these marks.

Wilton cites a Chinese contract of loan executed nearly twelve hundred years ago, bearing the prints of witnesses as well as those of the parties to the contract. Appended to the contract there is the formula: "The two parties have found this just and clear, and have affixed the impressions of their fingers . . ."; it concludes, still according to the Chavannes translation of the Chinese, "pour servir de marque." Assuming that Chavannes is correct in his translation, it appears that "pour servir de marque" must have meant only "to serve as a mark [token, or sign]," and that the sense of distinctiveness in Laufer's (1917) rendering of this phrase from the French ("to serve as a *distinctive* mark") is gratuitously introduced.

Wilton, who examined the document which bears the prints, remarks:

> Dr. Giles states that he is of the opinion that the fingermarks shown upon it are blobs and of no use for identification purposes. . . . To the eye of a layman, the fingermarks . . . do resemble blobs. With the magnifying glass, it is difficult to discern finger-ridge lineations. The marks seem to have been made more by the tips than by the bulbs or pads of the fingers. I do not think, however, that it would be reasonable to infer from the examination of this particular document that all fingermarks upon writings of the period in question were so blobbed as to make identification impossible.

Certainly Wilton is justified in insisting against any inference that prints

[4] London, Edinburgh and Glasgow: William Hodge and Company, Ltd. (1938).

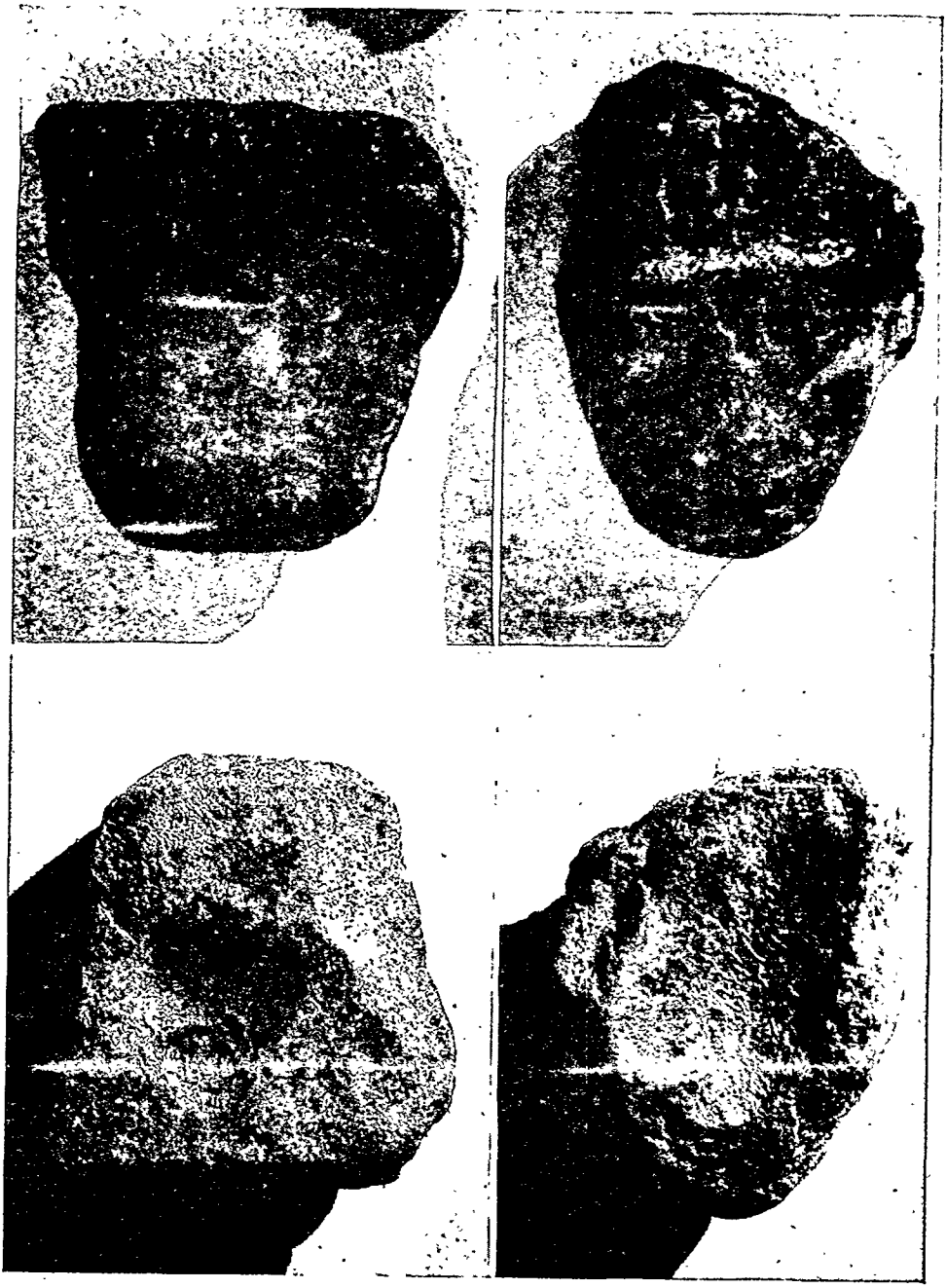

Figure 6.

AZTEC FIGURES, SHOWING DEPRESSIONS IMPRESSED BY DIGITS
On the reverse surface (enlarged one and one-third times).

made at that time were invariably mere blobs. Some examples, indeed, long antedating the inauguration of the finger-print system as we know it, are identifiable prints. It would be fallacious to assert positively that a print was not made for identification because it is a mere blob; while their occurrence

is exceptional, blobs are not unknown even to-day in official files.[5] It must be admitted that even if ancient records do bear an overwhelming majority of blobs, rather than clear prints, the frequency of the fault is not a final argument for lack of intention to make identifiable prints. Borrowers and lenders thus signed their notes, buyers and sellers applied prints to deeds, and in these and other transactions the prints of witnesses sometimes were added. If there were a finger-print science in their times expertness in its methods hardly could have been a qualification of many signers, busily occupied with other affairs! Even now there are persons who have the notion that any finger mark, however blurred, is fit for identification, and the product of their finger-printing might be no better.[5] On the other hand, it does not follow that the presence of clear details such as are found occasionally on other ancient documents, in China and elsewhere, is in itself evidence that the prints were made for true finger-print identification. Both clear prints and blobs alike may have established, in some instances at least, only what may be designated a "token identification."

Prints in old clay ware figured in the history of modern identification methods, to the extent that one of the pioneers of finger-print science was led to his investigations through an interest first stimulated by observing them. In 1880 Henry Faulds (1843-1930), a Scottish medical missionary then stationed in Japan, addressed a letter to the editor of *Nature*.[6] Among other matters of less immediate practical bearing, this letter directed attention to the usefulness of prints for personal identification, and in it Faulds related the genesis of his interest in finger impressions:

> In looking over some specimens of "prehistoric" pottery found in Japan, I was led, about a year ago, to give some attention to the character of certain fingermarks which had been made on them while the clay was still soft. Unfortunately, all of those which happened to come into my possession were too vague and ill-defined to be of much use, but a comparison of such fingertip impressions made in recent pottery led me to observe the characters of the skin-furrows in human fingers generally.

Anticipating the dealing with individual examples of finger prints on ancient clay seals and tablets, pottery, figurines and bricks, a preview of the possible explanations of their occurrence may be helpful. (1) It must be granted, as Laufer has pointed out, that there was recognition of the individual variability of finger-print characteristics before the inception of the modern identification system in the latter part of the nineteenth century. It is possible, therefore, that imprints on plastics may have been applied in some instances to serve for personal identification in the current sense, though definite evidence supporting this possibility would be difficult to produce. For the sake of brevity, the present-day method will be termed *finger-print identification;* finger prints made purposefully for identification according to its conventions will be designated *identifying prints.* (2) The symbolic associations of the fingers (and hands) appear to have been the motivation of at least some of the ancient recordings of finger marks, and some imprints in

[5] For example, M. Edwin O'Neill (Jour. Crim. Law and Criminol., *30:* 929-940) reproduces the thumb prints accompanying the medical examination of a sailor in the Merchant Marine. The prints are solid blobs of ink which, like that shown here in Fig. 2, would be utterly valueless for identification.

[6] Nature, *22:* 605 (October 28, 1880).

clay doubtless were of that import. The sense of "identification" is here quite different from that of finger-print identification. The primary intent of such imprints would be simply to register *marks made by the person,* establishing the "sympathetic relation" as it is termed by Laufer, and if they proved occasionally to be identifiable prints that result was fortuitous. The finger prints, identifiable or blobbed, which served the purpose may be called *token finger marks,* and the "identification" afforded by them a *token identification.* (3) Since fingers are ever-ready tools it would not be surprising if they were used in certain instances for the making of recognition marks on plastic objects. Variable placings and different numbers of fingers plunged into the still soft clay of bricks, pots and other objects would make it possible to identify the makers or to designate other sortings of the products. Such marks will be distinguished as *finger signs.* But it should be apparent that finger signs are by no means comparable to the identifying prints of finger-print identification. Their purpose would have been accomplished as well if sticks instead of fingers had been employed for marking, unless there were involved as well some element of token identification. (4) Finally, considering that plastic clay has been worked into form by the fingers, it must be evident that a share of the prints preserved in the finished objects are chance impressions of these natural tools. Let us call them *chance prints,* signifying that as prints they were not applied purposefully, notwithstanding purpose in the act of grasping or modeling the soft clay.

In connection with finger prints in clay Laufer states:

> Finger marks may naturally arise anywhere where potters handle bricks or jars, but every expert in finger prints will agree with me that these are so superficial as to render them useless for identification. A clear and useful impression in clay presupposes a willful and energetic action, while the potter touches the clay but slightly. However this may be, we are not willing to admit as evidence for a finger-print system any finger marks of whatever kind occurring in pottery of any part of the world, unless strict proof can be furnished that such marks have actually served for the purpose of identification.

Laufer's general position on the evidential status of prints in pottery offers no ground for disagreement, but he is mistaken in the belief that chance prints on pottery are invariably useless for identification, as will be shown by example. And he is mistaken also in his analysis of the mechanical factors involved in the production of clear prints. On the basis of experiments with clay and other plastics, and by observation of imprints in pottery, the writer holds that so long as the imprinting finger is applied without dragging which would blur the print, the important factors determining clearness of the print are the texture and consistency of the clay. A coarse-textured clay will not yield prints which are identifiable, nor can even a fine clay if it is either of very thin consistency or too firm. Attention may be recalled, finally, to the two connotations of the word *identification.* The "strict proof" demanded by Laufer, "that such marks have actually served for the purpose of identification," is not lacking if we broaden the sense of the word to include token identification. Some ancient prints on clay, like those on the Chinese documents and the clay seal mentioned below, are pedigreed associations with particular persons, re-

corded with the object of "identifying" those persons with their contractual obligations. "Identification" of this sort bears a close relationship to the signing of a document by an illiterate. Neither a finger-print blob nor the illiterate's cross mark possesses qualities by which identification can be established objectively, yet each carries weight as a sign of bodily action of the individual. Finger-print identification is entirely objective, quite unrelated to the aims and procedures of the token identification effected by applying any sort of finger mark.

Among the clay objects which are of interest in connection with finger-print history are Chinese seals. Laufer presents an extensive discussion of such seals, and from his account the following information is taken. Prior to about the first century B.C. clay seals were used extensively in sealing documents, written at that period on slips of bamboo or wood, official letters and packages. Some among the several specimens specially described by Laufer were moulded around fingers, and there is one, thought to have been made not later than the third century B.C., bearing a firm, clear thumb print (Fig. 4). Laufer points out that the application of such a print and the manipulations of other examples indicate that "the primary and essential point in these clay seals was a certain sympathetic relation to the fingers of the owner of the seal." He continues:

> Here we must call to mind that the seal in its origin was the outcome of magical ideas, and that, according to Chinese notions, it is the pledge for a person's good faith; indeed, the word *yin*, "seal," is explained by the word *sin*, "faith." The man attesting a document sacrificed figuratively part of his body under his oath that the statements made by him were true, or that the promise of a certain obligation would be kept. The seal assumed the shape of a bodily member; indeed, it was immediately copied from it and imbued with the flesh and blood of the owner.

This thumb-print specimen, of all the imprints in clay known to me, is the only instance which seems entitled to serious consideration as a possible *identifying print.* Its importance is therefore such that Laufer's interpretation should be stated in his own words:

> It is out of the question that this imprint is due to a mere accident caused by the handling of the clay piece, for in that case we should see only faint and imperfect traces of the finger marks, quite insufficient for the purpose of identification. This impression, however, is deep and sunk into the surface of the clay seal and beyond any doubt was effected with intentional energy and determination. Besides this technical proof there is the inward evidence of the presence of a seal bearing the name of the owner in an archaic form of characters on the opposite side. This seal, 1 centimeter wide and 1.2 centimeters long, countersunk 4 millimeters below the surface, is exactly opposite the thumb mark, a fact clearly pointing to the intimate affiliation between the two. In reasoning the case out logically, there is no other significance possible than that the thumb print belongs to the owner of the seal who has his name on the obverse and his identification mark on the reverse, the latter evidently serving for the purpose of establishing the identity of the seal. This case, therefore, is somewhat analogous to the modern practice of affixing on title deeds the thumb print to the signature, the one being verified by the other. This unique specimen is the oldest document so far on record relating to the history of the finger-print system.

Not all these views withstand close examination. It is probable that the maker of the clay tablet was the person whose thumb print and seal it bears, though it is not impossible that two persons executing a contract might have cooperated in making the seal, the one impressing his name and the other his thumb. There is no reason to doubt that the thumb was impressed intentionally. Except in the area of the thumb print, the reverse face is rough, showing no evidence of having been surfaced with fingers or a tool. While this state might be regarded as an indication of purposeful recording of the

print, neither it nor the quality of the print denotes unquestionably the designed recording of an identifiable signature. The possibility exists, of course, but there is nothing to support the interpretation that this particular impression is more meaningful as an evidence of early finger-print identification than are the other seals, and much to say against it, including Laufer's own statements on the symbolic significance of seals generally.

Fingers were sometimes impressed in ancient bricks of various localities, as in those from the storehouse of the first king of the Lagash dynasty in Mesopotamia, dating from about 3000 B.C. These bricks are described by Handcock[7] as being plano-convex in shape, each bearing a digital impression on the convex face. Maspero,[8] in a general characterization of Egyptian bricks, states: "Bricks from the royal brickyards are occasionally stamped with the cartouche of the reigning sovereign, those from private factories are marked with one or more conventional signs in red ink, a print of the moulder's finger or the maker's stamp. The greater number have no mark." Birch[9] describes the unburnt bricks of the Southern pyramid at Dashour as mostly having been made of "rubbish, containing broken red pottery and pieces of stone." He asserts that: "The kinds were distinguished by *various marks made by the finger* [italics mine] on the brick before it was dry. In one instance this seems to have been effected by closing the fingers and dipping their points into the clay." Birch describes also Chaldean bricks, bearing "impressions of the five fingers, or of a circle, probably the brickmaker's private marks." Some writers on the history of finger-print science have cited these marks on bricks as evidence of early employment of finger prints for identification. Aside from the fact that rough materials used in brick-making preclude identifiability of the prints, it is apparent that if the marks served as recognition signs their serviceability must have been on an entirely different basis from that of finger-print identification.

The Assyrian clay tablets on which were recorded in cuneiform symbols the terms of contracts, deeds and similar agreements bear "signatures" both in the form of personal seals and digital impressions (Maspero).[10] The fact that at least some of the impressions are but indents of the finger nails seems to point to their nature as token identifications.

The late William Frederic Badè, as director of the Palestine Institute of Archaeology, conducted at Tell en-Nasbeh excavations which have led to the identification of the area as the site of Benjaminite Mizpah, the capital of Judah after Jerusalem was destroyed by the Babylonians, 586 B.C. The excavations are exemplars of systematic method in the removal and careful indexing of enormous quantities of artifacts, of which pottery fragments represent a large share. Many of these fragments bear identifiable finger prints, on handles at the extremities where they had been attached to ves-

[7] Mesopotamian Archaeology. New York: G. P. Putnam's Sons (1926).

[8] Manual of Egyptian Archaeology. New York: G. P. Putnam's Sons (1926).

[9] History of Ancient Pottery. London: John Murray (1873).

[10] Life in Ancient Egypt and Assyria. New York: D. Appleton and Company (1899).

sels and on the inside surfaces of moulded lamps, the latter being the more nearly perfect impressions. One print, here copied in Fig. 3, has been used by Badè as the frontispiece of his book, " A Manual of Excavation in the Near East,"[11] where its laconic label, "Finger print of a potter," tells all that can be said as to the identity of the man, only that it was he who moulded the ware. But repetitions of the prints on many different pieces tell further that it was this same forgotten potter who made them all—a finding which has been put to use in dating the origin of confused débris.

In discussing the prints found by Badè, Bridges[12] expresses his judgment that "these impressions were obviously intentional and, no doubt, represented the workman's individual trade-mark." The implication of the context is that the trade-mark would have been identifiable as a finger print, though Badè has been quoted elsewhere[13] as saying: "I do not for a moment believe that the potters were aware that their finger prints had the distinctiveness which is now recognized in the finger-print system. It is the place and arrangement of the impressions which served as distinguishing marks to them." This view throws quite a different light on the significance of the prints in question; if serving as "trade-marks," it was not as finger prints *per se* that they proved useful, for if only their placing and arrangement supplied the identifying signs, scratches or other markings could have served as well. It is not open to proof, of course, that the prints were impressed for this purpose. Regularity of their positions in the output of a particular potter, which is suggested in Badè's comment, might signify nothing more than regularity of habit in the manipulations of potting. In attaching a handle the potter must needs have impressed a thumb or finger in joining it and the vessel with a firm bond. His intention certainly was to join them, but the imprint was a by-product of the process. Likewise in moulding a lamp or other vessel, the intention was to determine a particular form, and prints would have been impressed in the contact.

In a study of the technology of Pecos wares,[14] products of our own prehistoric Southwest, Miss Anna O. Shepard deals with many different types, of which one is of present interest. In the construction of this type, coiled pottery, clay is manipulated into a thin roll which is coiled and welded in a continuous wall. The marks incident to this method of manufacture are effaced in the making of a smooth-finished vessel, but they may be retained, the successive coils then showing as horizontal corrugations or ribs on the surface. In the process of coiling decorative indentions may be added, these being depressions spaced at regular intervals on the coil, made with either a digit or tool. The pottery to which I shall refer is both corrugated and indented, the indentions having been made by the edge of the thumb. Two sherds are illustrated in Fig. 7. The one uppermost

[11] University of California Press, 1934. (Bade's work is reviewed by an anonymous writer in The Scientific American, *152* (1935).)

[12] Finger Print Magazine, *13:* ** (1937).

[13] Science News Letter (October 27, 1934).

[14] A. V. Kidder, "Pottery of Pecos." Papers of the Southwestern Expedition, Yale University Press, published for Phillips Academy, 2 (7): Part 2 (1936).

Figure 7.

SHERDS OF INDENTED CORRUGATED POTS, ENLARGED

From the Laplata Valley of New Mexico (early Pueblo III Period, 900-1100 A.D.). The thumb impressions result from use of the digit as an indenting tool.

in the figure is of peculiar interest, not that the sherd is more noteworthy than the other but because of an accessory feature of the illustration. The photographer, quite unaware that his technique would make the picture the more useful in this discussion, had posed the sherd by pressing it against a lump of

plasticine or similar material. The mass had been kneaded into convenient form to serve as a support, and as will be noted even in the lack of sharp focus at this deeper level, the plasticine bears clear impressions of the skin features of the photographer's hand. Being chance impressions, made in the process of an operation designed for another purpose than to produce the prints, they are exactly analogous to the more durable prints in the accompanying piece of pottery.

In keeping with her thoroughgoing attack in other particulars of ceramic technology, Miss Shepard has investigated these imprints with care, and she finds that they throw light on the operations of pottery-making. The directions of the lines impressed by the skin ridges at the edge of the digit admit reconstruction of the method by which the coil was welded and indented. This finding, significant as it is in historical ceramic technology, is not related to the aim in citing the corrugated indented pottery. Of interest at the moment is the bearing of the thumb impressions on questions of finger-print history. Small as they are, and though they represent the margin of the thumb rather than the ball where the pattern is located, the areas of impression in some examples show a few ridge details, which naturally are repeated time after time in the imprints of the digit. While the limited number of ridge details would not justify a positive identification under the ordinary conditions, their repeated occurrence on prints of the same sherd is itself strong evidence that they were made by one potter! The prints thus are identifiable, with reservations, but they were not made for identification. They were impressed in a potting method which makes use of the thumb as a tool. They are the exact equivalent, in origin, to impressions found, for example, on the edges of some old Roman pieces. Digits were employed in the making of scalloped borders, the finger prints resulting as the scallops were shaped. They are chance prints, no more significant from the standpoint of finger prints recorded for identification than are the short-lived impressions left by the cook in crimping the edge of a pie.

In an account dealing with small clay figures of Aztec manufacture, recently excavated in southern Texas, B. C. Bridges[15] considers that the impressions of fingers present on some of them may have been made as identifying marks, though he adds the qualifying reservation that it was "sometimes through accident," as well as "often by design, [that] the maker must have left upon these earthen forms the trademark of his finger prints." Of the seven specimens illustrated in his article, three bear finger impressions. Through his kindness I have received copies of the original photographs, from which two examples have been selected for reproduction (Fig. 6). Both are heads, and each shows on its reverse surface the mould of a digit. I have examined a large series of similar figures, in the Middle American Research Institute at Tulane University and elsewhere. Frequently the reverse surfaces of the objects bear excavations which clearly are impressions of fingers. But their occurrence, whether on heads of the type cast in clay moulds or on hand-modeled fig-

[15] Finger Print Magazine, *20:* 8 (1939).

ures, leads only to the conclusion that the imprints are to be explained simply as chance marks of manufacture. At least some of the figures were cast in moulds, and the manufacturing significance of the indent of a thumb or finger is readily apparent. In so casting a small head the most natural procedure would be to use a digit in pressing the soft clay into the mould. In many specimens the finger imprints lack signs of the skin ridges, as if rubbing had effaced them or the clay were not of optimum consistency and texture to register these details. One head which shows details was constructed in two pieces—the head proper and head-dress being joined after modeling. The details of the skin markings, reproduced in Fig. 8, are fairly clear. The

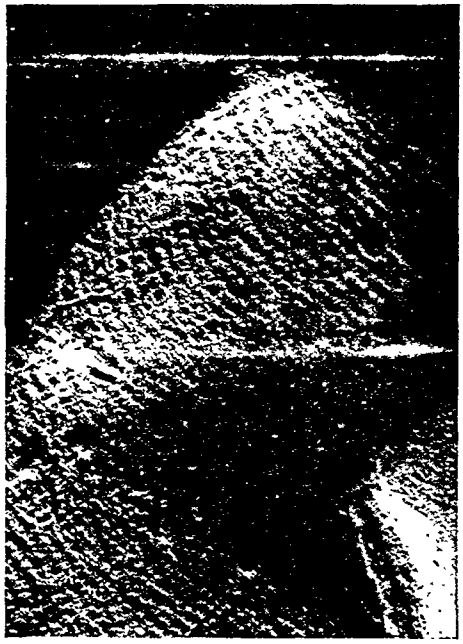

Figure 8.

IMPRINT ON CLAY HEAD

A clear imprint on the reverse surface of an ancient clay head (Mexico). The figure had been moulded in two pieces, and the imprint was clearly made in the process of joining them. Enlarged four times.

imprint, far from having an identifying or symbolic connotation, is so placed on the back of the figure that its origin as a chance imprint produced in the joining of the two pieces is indisputable, as are those observed on a Toltec figurine, obviously associated with the joinings to the torso of the separately modeled head, arms and legs.

Through the kindness of Professor A. D. Fraser, of the division of archaeology at the University of Virginia, I am permitted to refer to an excerpt from an unpublished manuscript and to reproduce two photographs of finger prints impressed in clay. He writes:

> But occasionally the potter may impress his fingers in the clay after the wheel's revolutions have ceased; or he may jab a finger down hard against the interior of the arybalos for the purpose of flattening the exterior surface of the bottom, and thus supply us with the desired impression. . . . In the firing of Roman *terra sigillata*, the bowls were usually stacked one within the other and were supported on the finger-tips of the workman as they were placed in the kiln. As a result their under surfaces bear numerous prints; but these, owing to the condition of the glaze, as has been explained above, are in almost all cases mere smudges. But occasionally one is seen whose pattern is reasonably distinct. Our richest field for the study of dactyloscopy amid ancient ceramic products is found undoubtedly in the interior of figurines and lamps. As the figurine is the product of the hand of the coroplast, or of the hand aided by small modeling tools, the print-smearing wheel is not in evidence. The same thing is partly true of the ancient lamp and the plastic vase. . . . Frequently we find well-defined prints in their interiors. . . .

Two of Professor Fraser's specimens, of Mesopotamian origin, are shown in Fig. 5. The photographs represent interior surfaces of fragments of figurines, each showing the "inching along" of the potter's fingers as he pressed the soft clay into a mould. Again these finger prints are obviously nothing more than tool marks. Wilhelmina van Ingen,[16] in discussing similar figurines

[16] Figurines from Seleucia on the Tigris. Ann Arbor and London: University of Michigan Press and Oxford University Press, 1939.

from the same locality, makes specific references to prints occurring on individually described examples and adds the following general comment on the method of manufacture.

> In the simplest of the mouldmade figurines the wet clay was pressed into a single mould, which gave the impression of one side of the figure only, usually the front. . . . The back was either roughly shaped by hand to be concave or convex, in which the maker's finger-prints are visible, or pared with an instrument.—In this process [the use of a double mould] separate moulds were used for the front and back halves of the figurine. The clay was pressed into each half of the mould, sometimes in several layers, to make a hollow shell (the finger-prints are always very clear).

There is no need to multiply instances further, describing more objects made of clay and extending the provenience in geography and time of those which carry finger impressions.[17] If not effaced by a finishing process or otherwise, imprints are to be found wherever plastic clay of suitable consistency and texture has been handled. In considering ancient examples there is danger of reading in them meanings which do not actually exist. While the historical uncertainties associated with their age offer a tempting ground for speculation, the availability of parallels in modern ceramics stands as a constant warning that too much license must not be allowed in interpreting such finger impressions. In my possession there are, for example, a tall Holland gin bottle with finger impressions so placed as to show that it was grasped and lifted before the plastic material had set, a clay jug with similar markings, a pottery cup having a finger-crimped border bearing a succession of prints, and two small moulded teapots which are literally covered with impressions of the fingers which formed them. In these there is not the slightest reason to believe that the finger prints were applied as identifying marks in any sense. If all the prints on old pottery are not to be explained on a like technological basis, and many of the recorded objects are best thus interpreted, it does not follow necessarily that intentional impressions of the fingers were made for the kind of identification which is practiced today. The intentional impressions fall into two classes: (1) merely symbolic personal marks, serving a token identification; (2) marks made for recognition, by spacing or number, as a tool might be used for that purpose. Finger-print identification in our usage of the term appears to have been practiced in a simple form in times long past, but some briefs for its claim to great age embody "evidences" which do not bear close scrutiny. The history of finger-print identification becomes shadowy as it is traced backward, and occasionally shadows of the remote past have been forced into standing for substance.

[17] Among the examples recorded in the literature, additional to those mentioned in the text, the following may be noted: (1) Chance prints on bases of old Roman columns probably dating from the third century, A.D.—Sir William Turner. Jour. Anthrop. Inst. Great Britain and Ireland, *30* (3): 106-107, new series (1900). (2) Chance prints on a small vase of the neolithic period—B. Males and M. Grbic. Riv. d. Antrop., *29:* 603-606 (1930-32). (3) Deep end-on excavations made by the finger tips, as by a dibble in soil, in the internal surfaces of Lake-dweller pots of the Bronze Age; from several to as many as 70 such pits occur in a single vessel; their purpose is problematic, but one of the suggestions advanced is the increase of heating area of the bottoms of pots used in cooking. Meisner (with important discussion by Kollman), Arch. f. Anthrop., *27:* 120-122 (1900-1902).