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How the English fingerprint method arose

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Faulds, Henry

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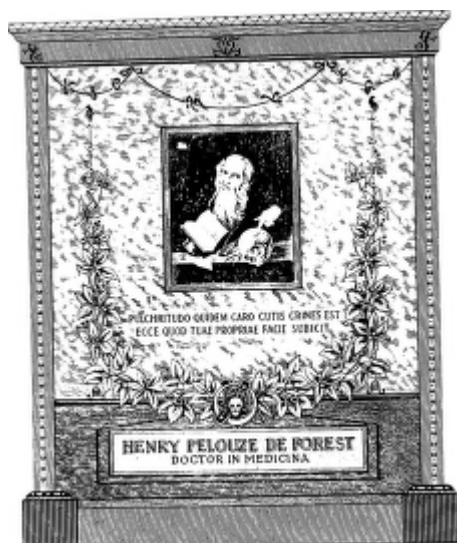
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Wins Fame In Laundry Marks

LONDON (/"".— The criminals of Great Britain are trembling in their shirts. A man who knows his laundry marks has become chief constable of Scotland Yard.

It wasn't John Ashley who coined the old saying; about murder will out, but it's John Ashley who knows, perhaps better than any man living, that it usually comes out in the wash. And now Ashley, the specialist in laundry marks, is chief constable of the Yard. He succeeded Frederick Wensley. Britain's ace of detectives, who retired Aug. 1, after 42 years of service. Unlike 'Wensley, who has the hawklike features of the perfect Sherlock Holmes, Ashley looks as mild as a Sunday school superintendent.

He entered his career of crime detection quite by accident: as a lad of 15 he crossed the path of a burglar with disastrous results to the burglar, and when a police commissioner complimented him on the clever capture young Ashley decided to make a regular thing of it. As soon as he could he joined the force.

For six years he worked in uniform ; then they made him a detective. Later, as a divisional detective inspector, he solved one of the most perplexing murder mysteries in .the history of the yard by bringing to justice Louis Voisin, the Belgian butcher who murdered a French soldier's w:ife visiting England during the war.

Ashley's acquaintance with laundry marks is vast, and intricate. To him they are as easy to read as the identification tags soldiers carried during the war. To him every laundry in the land is an unofficial branch of Scotland Yard, putting nice little tags on all the people he may want to meet later. To him a shirt is as easy to read as a book, and a sock is as good as a letter.

Criminals who value their privacy won't play drop-the-haudkerchief around Scotland Yard.

HOW, THE ENGLISH FINGER-PRINT METHOD AROSE. j

■ ■ ■ ■

BY

HENRY FAULDS.

'Thou hast no need of the things that are secret.'—Ecclesiasticus, III., 22.

HANLEY: ^'# ,P

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PREFACE.

The publication of my recent Guide to Finger-Print Identification has laid upon me the burden of a rather heavy correspondence.—yfr^/, as to my claim to have been the earliest to publish a proposal to identify persons by the finger-print method ; and, secondly, in answering requests for further details as to the system proposed by me for classifying and indexing finger-print patterns.

It was found to be difficult to answer civilly and correctly in a short sentence or two, inquiries which, however kindly meant, were often full of errors, ignorance of published facts, and even of total misconceptions ; and again, no one but a close student of finger-prints could hope to profit by, or understand, an exposition of how to arrange them systematically in a bureau.

Thus it seemed to me wise to word the matter for convenience in brief compass, and I really hope to have done so finally, for such

work is neither very entertaining nor remunerative.

I am now preparing, and hope soon to deposit with some learned society or university library, to which students of the system may have access, a clearly-written and bound copy of my index of Dactylographs. To print such a technical work for which no general demand can ever exist is beyond the limits of my present means. The proposal to have it printed by a certain learned society was met by the objection that it had already been made known publicly, as stated in the Guide, and could not now be embodied in original Transactions.

How the English Finger-Print Method arose.



PROF. Otto Schlaginhaufen, while my Guide was going through the press in England, published in the August number of Gegenbaur's Jahrbuch for 1905, a very copiously illustrated, learned and accurate article on the lineations in human and other skins, a study of which forms the basis of the general science of Dactylography. The writer is attached to the Anthropological Institute of Zurich, and has given, I believe, more attention to this complex subject than any single English writer has done. He does me the honour of stating (p. 584) that with my contribution to Nature in 1880 there begins a new period in the investigation of the lineations of the skin, that, namely, in which they were brought into the service of criminal anthropology and medical jurisprudence. This publication, he says, is the forerunner of a copious literature which flowed over into the popular magazines and daily press, and promises to keep no bounds. After

a correct summary of my original statements, he shows that I pointed the right way, as he believes, to gain a knowledge of man's genetic descent by a study of the corresponding lineations of certain lower

animals, such as lemurs, and that I had indicated other directions in which medical jurisprudence might profit by such investigations. These are of no interest here. In a brief footnote Dr. Schlaginhaufen deals with the published correspondence between Sir Wm. Herschel and myself, which note I here give verbatim :

"Zeitlich erschien die Publikation Faulds' friiher; aber Herschel wies durch die Veroffentlichung eines halboffiziellen Briefes nach, dass er sich schon 1877 mit dem Gegenstand beschaffigt habe. Jedenfalls sind beide Beobachter unabhingig voneinander auf die gleiche Idee gekommen, und wenn auch die Materialien, die Herschel lieferte, fur die kriminelle Anthropologic speziell von grosserer Bedeutung waren, so hat Faulds doch in seiner ersten Mitteilung die Erforschung der Hautleisten von einem hoheren Gesichtspunkt aus erfasst und ihr in einem umfassenderen Plan den Weg vorgezeichnet."

That is to say :

" Faulds's publication was earlier in time, but Herschel showed by the publication of a half-official letter that he had been engaged with the method from 1877 onwards. In any case both observers had independently come to the same idea, and while the material which Herschel supplied was of greater service for special criminal anthropology, Faulds had in his first communication grasped the investigation of the skin lineations from a higher standpoint, and had indicated the way to it through a more comprehensive plan."

With the decision of so competent a judge I have really no quarrel. A review of my Guide appeared in Nature, of date October 19th, 1905, and was signed

F.G., in which initials some ingenious persons may think they can detect the clue to a distinguished expositor of the subject of fingerprints. The critic says of his victim, that he was "a zealous and original investigator of fingerprints." He also alludes to me in my 1880 contribution as "dwelling upon the legal purposes to which they might be applied, and he appears to be the first person who

published anything, in print (F.G.'s italics) on this subject." Sir William Herschel himself on November 22nd, 1894, in *Nature* made, though in rather circuitous language, a similar admission. The baronet says : — " To the best of my knowledge, Mr. Faulds' letter of 1880 was, what he says it was, the first notice in the public papers, in your columns, of the value of fingerprints for the purpose of identification."

If the words "in your columns" is intended to convey, or suggest, that other journals contained earlier references, this is met by the conclusive entry in the *Index Medicus*, in which my article is noted as the very first contribution of which knowledge had been obtained. Surely, the fact that a student has the courage to put his idea "in print" counts for something in the evolution of a discovery. And on the whole, as the world wags, printed publicity in a matter of cosmopolitan importance is the one thing that really matters.

My critic goes on to say that my " suggestions of introducing the use of finger-prints fell flat." Perhaps they did, but only in the sense that they formed the foundation for a very extensive and vigorous upbuilding of scientific and even popular literature, which dates from that very period, as F.G. must very well know. There

was a sudden waking up of interest just after that date, and even " Mark Twain" must have set to work very soon afterwards on his *Life on the Mississippi*, which contains a clever story based upon the value of " thumbprints" as evidence. It was published early in 1883. I wrote before then, sending specimens to the police and criminal departments of most of the leading countries, to several lecturers on medical jurisprudence, and to many scientists and explorers. To my old professor of medical jurisprudence I offered to prepare a set of slides for class instruction, but got no acknowledgment of my proposal. Little was actually accomplished till my return to England at the close of 1885 through the sudden illness of my wife. My father's illness and death followed in 1886, and I had to look for a livelihood first of all. During the following two years which were chiefly spent in London, I had the opportunity, and used it, of expounding my ideas on finger-prints to many scientific people. I laid great stress on the

fact of their permanence, which I had tested by careful experiment, and showed to many in London and Glasgow, specimens of them done from the same person at different dates.

Mr. F. Galton, as he has stated in his work *Finger Prints* (p. 2), began the study on which so much preliminary work had been already done by me, in 1888 just after these doings of mine. His cousin, Charles Darwin, had in 1880 promised to bring my letter to him on the subject of skin lineations before Mr. Galton. Whether he had omitted to do so, or that Mr. Galton has merely forgotten the circumstance, I cannot tell. Mr. Darwin evidently from his answer to me had never heard of the subject till I called his attention to it in relation to the

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genetic descent of man. It has proved to be a matter of the utmost importance in that respect, and the study is now being eagerly taken up by many students in various parts of the world. Many of them, indeed, have already furnished most fruitful and significant details.

F.G. adds what appears to me to be either a most serious or very ludicrous statement of the reasons why my suggestions were not fruitful, or as he more bluntly expresses it, "fell flat."

I quote the passage in full :

" The reason that he did not attract attention was presumably that he supported them by no convincing proofs of three elementary propositions on which the suitability of finger-prints for legal purposes depends. It was necessary to adduce strong evidence of the, long since vaguely alleged, permanence of those ridges on the bulbs of the fingers that print their distinctive lineations. It was necessary to adduce better evidence than opinions based on mere inspection, of the vast variety in the minute details of those markings, and finally, for purposes of criminal investigation, it was necessary to prove that a large collection could be classified with sufficient precision to enable the officials in charge of it to find out speedily whether a duplicate of any set of prints that might be submitted to

them ■ did or did not exist in the collection. Dr. Faulds had no part in establishing any one of these most important preliminaries."

Now, if F.G. had contented himself with expressing his belief that Mr. Francis Galton had done much more in the matters spoken of than the present writer had published, or that Sir William Herschel had done these things, although, of course he had not put them " in print " one could understand and smile. Mr. Galton himself had modestly said, in 1895, *Finger-print Directories* (p. 5), " Those who will consent to stand on my shoulders, are

likely to see their way to improvements more surely than if they do not accept that aid." Yet he had to lean on Bertillon's crutches !

However F.G., after having seemingly made out that mere " print" was not of much account, coolly decides that anything else I might have done, was not done at all, because I had not put it into "print." Sir William Herschel's work only came to light through the publicity given to my proposal.

Is there one law then, for the baronet and his ftdus Achates, Mr. Galton, and another, and more stringent one for the provincial surgeon ? The statement, issued in a responsible scientific magazine like *Nature*, is very remarkable, because anyone versed in such problems can at once see that the " three elementary propositions " laid down by the reviewer cannot be disentangled one from another, in the practical relation which alone gives their discussion any value.

How could anyone attempt to classify finger-prints for identification without recognizing the variety of patterns? How could anyone think of their variety as having value without permanence behind them ? How could anyone face the problem of dealing with masses of men for identification by these patterns without having already provided a system of classification? A little training in philosophy in a Scotch college would have saved F.G. from making so silly a blunder. I had as a matter of fact sent to *Nature* along with my article a series of

figures—nature-printed—which the editor of Nature, in a note acknowledges and commends, but could

not insert. These would have shown that I had not ignored, but had emphatically recognised, the great variety of patterns. Indeed, as I had been five years in the Paisley shawl trade before studying medicine, I had had exceptional technical training in the subject of patterns, and how to distinguish and classify them. My methods of careful measurement have been fully explained to experts in the Guide, and some figures of the delicate instruments needed are supplied in that work. It was not the lack of those provisions mentioned that made public men a little shy of the system. It was the clear perception I impressed on officials of the need of those very qualities that possibly made them imagine a greater difficulty than had really to be met. I write with a clear and vivid remembrance of those official and scientific objections, and was able in 1888 (before Mr. Galton had, as he tells us, begun the study), to meet and answer them, every one. Now, as to details :—If I may modestly crave the liberty claimed by Sir William Herschel and Mr. F. Galton, to appeal to facts occurring outside of "print," surely my experiments and demonstrations to students and medical men in Tsukiji Hospital, Tokyo, were as public as Sir William Herschel's finally unsuccessful efforts to apply the system in India. My students, myself and several medical men, some of whom were western doctors, used pumice-stone, sand-paper, acids and razors to obliterate the lineations, time after time, without succeeding in modifying them in the slightest degree, over a period of about three years. A scheme I had formed to watch the history of any possible variations in a large number of individuals fell through in consequence of the misfortune which brought me suddenly back to England without time for arrangements. Enough

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had been observed, however, to enable me confidently, as a practical biologist, to assert the invariableness, for practical identification purposes, of the patterns formed by the lineations of

human finger-tips. This contention has been amply sustained by numerous workers, and my confidence in its validity was such that I never again seriously doubted that it had been sufficiently tested. So far from ignoring the possible danger of such variations, however, I am the only one who has ever publicly pointed out where such a danger is most likely to lurk, namely, in cases recovering from scarlet or typhoid fevers. I have endeavoured to enlist the interest of medical men and nurses in this subject, but hitherto have not received one solitary instance of such variations in reply to my numerous solicitations for aid'in this field of observation.

As to my system of classification and indexing I cannot deal at present otherwise than in the way I have indicated in the preface to this pamphlet. The methods of Mr. F. Galton, and of Chief Commissioner Sir-fames-Henry (whose organisation has been highly commended), based on the former, are elementary, and were tried and discarded by me before adopting my own. They are, if I may say so without offence, what marsupials like the kangaroo are in the organic world—very good as a first draught, but they are never able to get much "forrarder."

I offered to prepare a model bureau based on that method in 1888-9 when a leading detective was sent to me by Scotland Yard to learn what were my plans for identification by finger-prints. Mr. Galton was only beginning, if he had begun, the study then.

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The answer was that the system seemed to be scientific and ingenious, but that it was of no use then going into that matter till legislation had made the experiment possible. This matter is referred to in p. 88 of the Guide. The term "photograph" seems to be now used officially for finger-prints, so as to keep within the law. Teeth, I believe, have been knocked out in obtaining those novel sun pictures, made with printer's ink, by main force from reluctant criminals. I again laid my methods in this direction as fully as time permitted before Mr. Brodrick's Committee, who had to deal with the problem of identification in the army. All this F. G. must have very

well known when he reviewed my Guide to Finger- Print Identification, if he read the book, as the matter is stated in that work explicitly. The original form—a copperplate proof—for the five fingers of the right hand, prepared by me in Japan, about 1879, is in the Library of the Faculty of Physicians and Surgeons, Glasgow. That for the left hand was prepared some months afterwards.

The question in a nutshell is now reduced to something like this. The priority of publication is conceded to me, but to me alone is evidence of any other kind than "print" to be denied. I have elsewhere showed how necessarily weak and indefinite was the method or rather ' were the various tentative methods, brought into use for a brief time by Sir William Herschel. These are now absolutely known to be inapplicable, when even moderately large numbers have to be dealt with.

My own original scheme in 1880, now officially adopted, of printing in serial order the lineations of all fingers of at least one hand is the only

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one which gives security to the public and to the criminal himself against false identifications, although three fingers might suffice for many civil purposes. There are several good reasons why both hands should be imprinted in the case of recidivists. In conclusion, neither Sir William Herschel nor Mr F. Galton are known to me personally. They have both contributed very largely to the development of this complex, but most trustworthy, English method of scientific identification, a method which is rapidly being adopted for criminal purposes by the civilised world, and ought to have added to it now the nobler function of enabling us to deal efficiently with contracts and insurance and to recognise the dead after shipwreck, earthquake, fire, or battle. My own feeling is that to have been of some humble service in the opening development of such a grand series of social utilities is in itself a great reward.

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Although dactyloscopy—or, as I should prefer to call it, dactylography—has existed for a quarter of a century, no reference to it, or to its practical application in identification by the comparison of finger furrow patterns is to be found, so far as I know, in any recent textbook of medical jurisprudence or anatomy. It is not named or hinted at in the recent extension of the "Encyclopaedia Britannica," nor in the copious and well-arranged index to the whole of that extensive work.

A few words of exposition, therefore, by one who has given some attention to the subject, may perhaps be helpful.

The rugae or ridges of the skin, with their corresponding furrows, apart from any relation they may have to the sweat-pores and the tactile sense, seem to fulfil a useful function in the way of helping our hands to grasp objects firmly. When the fingers are well softened in water, and are then rubbed along a glass vessel, a musical sound is elicited, which seems to be caused by the successive resistance and yielding of the ridges. The horny-handed workman uses his physiological resources to give his hands a better grip in a well-known way. But a new utility has been conferred on the peculiar texture of the fingers. Looked at carefully, the furrows in the skin are seen to lie closely and evenly like those in a well-ploughed field. But just as the ploughman is observed sometimes to veer round some unseen obstacle and to form furrows in a new pattern, so you find in the palmar skin of the fingers peculiar patterns are formed. These present infinite varieties of detail, and resemble a greatly condensed railway map with junctions and sidings, loops, and curves. The rugae are confined to the palmar surfaces of the hands and feet. The feet, in this country at least, do not afford a convenient field for study, and the conditions of life would render them altogether unsuitable as a means of identification. With the hands, however, no such difficulty occurs, and their patterns have usually, I think, even more distinction of character about them. As I wrote to Charles Darwin twenty-four

years ago, monkeys have similar but simpler patterns in the rugae of their fore and posterior toes.

Dactyloscopy.

In a long-continued series of experiments on myself and many others, by rubbing away the ridges with sand-paper or shaving them off with razors, I found that the patterns invariably reproduced themselves with perfect fidelity. There can now be little doubt of their persistence during life, and the direct evidence of their continuity is now very great. This fact and their extraordinary complexity and variety is the basis of their growing use in identification.

The parts of the palms which have been found most serviceable for identification are those on the last phalanx of thumb and fingers, where specially characteristic ovals, circles, parallels, whorls, spirals, loops, dots, callipers, couplings, and the like, are to be observed.

There are two complementary ways of printing them from nature, as ferns and leaves are copied. In the one method smooth or glazed paper is used, which has been evenly smoked at the flame of a candle or in some other way. The dactylograph, as I name the resulting print, is then negative, the ridges coming out white and the furrows black. Such impressions are often very delicate and beautiful, showing even the pores perfectly. They may be made permanent by running some thin varnish or methylated spirit over them. Friar's balsam does very well for the purpose. The other and more practical mode for general use resembles ordinary printing. A porcelain tile, metal sheet, or ordinary school slate is smeared thinly and evenly with printers' ink, which may be dabbed on with a cork or a rag, or applied with a little printers' roller now sold for the express purpose. The resulting print is a positive dactylograph, in which the furrows remain white while the ridges impress their image in black. The distinction is of importance. A judge who insisted on examining for himself the imprints might be puzzled by the seeming contradictions in the language of experts as to particular ridges or furrows.

A fine quality of ink is supplied by Reeves and Sons (Ltd.), 53, Moorgate-street, in little collapsible tubes, such as artists use. The paper is better to be slightly damp, and great care should be taken to prevent friction and smudging details while the ink is wet.

I come now to the utility and trustworthiness of this mode of identification. It was hoped at one time that photography would do everything for this department of jurisprudence. I have in my possession a series of portraits of prominent people done recently and others of

Dactyloscopy.

the same persons taken twenty years before. Few of those duplicate portraits are at all recognisable as being of the same person. Then Bertillon's method of bodily measurements was of some service; but it is too delicate for any but experts to use accurately, and it is reported to have quite broken down under the strain of great numbers. Our Home Office was a little indisposed to move hastily in such a matter as dactylography, and Bertillon's system had the immense advantage of being of foreign manufacture, and had first to be tried. That the English system has at last taken root is now clear. Here is a bit of evidence from a criminal case (resulting in conviction) from the columns of the Daily Chronicle, December 2nd, 1903. Many such cases have never been reported. The witness is significantly described as Detective-Sergeant Collins, of the "Finger Print Office, Scotland Yard." The witness, we are told, had "not the slightest shadow of a doubt that the finger-prints of Elliott were identical with those in the records at Scotland Yard. He might be considered an expert on the matter of finger-prints. Altogether he had dealt with about 500,000 cases of finger-prints." To this report may be added a sentence from that of the Times, of the same date:—"He had never known the finger-prints of different persons to agree."

Experience has thus amply confirmed my original contention, based on much experiment and observation, that finger-print patterns are persistent. Such trivial modifications as occasionally, but rarely, occur have never, in my experience, affected the patterns so as to destroy

the overwhelming evidence of identity they afford any more than a fresh pimple on a man's face would prevent us from recognising him on the street.

The study of dactylography offers a wider field than that of its practical application in jurisprudence. I have been struck with the promise it gives of some light on heredity; race relationships might even be traced back by its aid to certain lemuroids or anthropoid apes. Professor Bowditch, of Harvard, wrote me many years ago as to his interest in the developmental relationships of anterior and posterior limbs as co-related to those patterns.

I should like to suggest a careful scrutiny of prints taken at the onset of enteric and scarlet fevers, and then again after the completion of convalescence. Records should, of course, be carefully dated at

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the time when made. One or both hands might be taken ; but even one or two fingers might yield interesting facts as to changes. I shall be happy to receive any examples of changes having been thus detected, to be returned if desired after scrutiny.

The practical utility of dactylography, however, must now force itself on the minds of our profession, as it promises to be applied in widely different spheres of life. During war time identification is often impossible from injury or decay; but the rugae long retain their characteristics, and are quite easily seen in Egyptian mummies.

Again, pensioners are proverbially long-lived, and I daresay their finger-patterns are not always quite persistent. Insurance frauds for large amounts are done by the 'personation of corpses, if I may use the term, and where records had been made of dactylographs detection would be very simple.

HENRY FAULDS.

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