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233

## REVIEW.

### "FINGER PRINTS."\*

DR. GALTON has, without doubt, produced a most interesting book, and one which marks an epoch in anthropological investigation. Those who remember his article on "Identification by Finger Tips," which appeared in the *Nineteenth Century* two years ago, will be to some extent familiar with the main line of the argument which he here presents in an extended and improved form. Dr. Galton is the pioneer of an enterprise full of interest to all those who desire ampler knowledge of the relation of mental faculties to physical structure. That others have laboured before him in this field of research is true, but not to the same extent or with the same results. Dr. Galton himself tells us that Sir William Herschel, when "Collector" in Bengal, was the first to put to practical use the imprint of finger tips as a check on the attempts of the natives to personate dead pensioners, and in another part of the book he translates for us an almost forgotten thesis of Purkenje's—delivered before the University of Breslau in 1823—entitled, *Commentatio de examine physiologico organi visus et systematis cutanei*; or, "A Physiological Examination of the Visual Organ and the Cutaneous System,"—an attempt to classify impressions of finger tips and to study their normal forms. But in a free and full scientific treatment of the subject Dr. Galton stands alone. His researches in this field are as unique as those of Lavater in the science of physiognomy, or Bertillon's in what is now popularly known as *Bertillonage*. We say this with due reserve, for Dr. Galton probably claims for his investigations that they have greater theoretical value and practical utility than either those of Lavater or Bertillon—certainly than those of the former. That he is fully alive to the importance of his subject may be gathered from the following extract, which sounds the key-note of the book:—

"Let no one despise the ridges on account of their smallness, for they are in some respects the most important of all anthropological data. We shall see that they form

\* "Finger Prints": by Francis Galton, F.R.S., &c. Macmillan & Co., London and New York.

patterns considerable in size and of a curious variety of shape, whose boundaries can be firmly outlined, and which are little worlds in themselves. They have the unique merit of retaining all their peculiarities unchanged throughout life, and afford in consequence an incomparably surer criterion of identity than any other bodily feature. They may be made to throw welcome light on some of the most interesting biological questions of the day, such as heredity, symmetry, correlation, and the nature of genera and species. A representation of their lineations is easily secured in a self-recorded form by inking the fingers in the way that will be explained, and pressing them on paper. There is no prejudice to be overcome in procuring these most trustworthy sign-manuals, no vanity to be pacified, no untruths to be guarded against."

In the first few chapters, Dr. Galton treats of such matters as the previous employment of finger prints among various nations; the methods of making good prints from the fingers; and the character and purpose of the ridges whose lineations appear in the finger-prints aforesaid. These preliminary topics dismissed, he enters upon the direct course of the inquiry, and discusses the various patterns formed by the lineations. Dr. Galton admits that at first sight, the maze formed by the minute lineations is bewildering, but he shows that every interspace can clearly be outlined, and when that is done, the character of the pattern becomes plain. For "rough preliminary purposes" he classifies these patterns into arches, loops, and whorls, but he seems to be scarcely satisfied with this classification so far as transitional forms are concerned.

In discussing the question of persistence—whether or no the patterns are so durable as to afford a sure basis for identification—he holds that, so far as the proportions go, they are not absolutely fixed. But the ridges, islands, and enclosures in the ridges which compose the patterns are "almost beyond change." He says:—

"We are justified in inferring that between birth and death there is absolutely no change in, say, six hundred and ninety-nine out of seven hundred of the numerous characteristics in the markings of the fingers of the same persons, such as can be impressed by them whenever it is desirable to do so. Neither can there be any change after death up to the time when the skin perishes through decomposition. For example, the marks on the fingers of many Egyptian mummies, and on the paws of stuffed monkeys, still remain legible."

The evidential value of identity afforded by these unchanging finger-prints, Dr. Galton declares to be so great as to render it superfluous to seek corroboration from other sources, and he adds:—

"Let it also be remembered that this evidence is applicable not only to adults, but can establish identity of the same person at any stage of his life between babyhood and old age, and for some time after his death.

"We read of the dead body of Jezebel being devoured by the dogs of Jezreel, so that no man might say, 'This is Jezebel,' and that the dogs left only her skull, the palms of her hands, and the soles of her feet; but the palms of the hands and the soles of the feet are the very remains by which a corpse might be most surely identified, if impressions of them, made during life, were available."

If this be so, we have available an almost perfect criterion of personal identity, the importance of which can hardly be over-rated. It will render impossible in the future such a trial as that of the Tichborne claimant, and it opens up a new avenue for the Braddons and Gaboriaus, and other "detective novelists," to track and run to earth the most mysterious crimes. A field of investigation is here opened which will rival in fascination the celebrated "Adventures of Sherlock Holmes." Dr. Galton, however, admits that "for aid in searching the registers of a criminal intelligence bureau, its proper rank is probably a secondary one; the primary being some form of the system of measurement ingeniously invented by M. Bertillon." A brief account is given of this system, which has already been explained to our readers in an interesting paper which M. Bertillon contributed to the July issue of this magazine.

Dr. Galton next proceeds to treat of heredity, and to answer affirmatively, though with sundry reservations, the question whether patterns are transmissible by descent. The inquiry as to this is hardly complete, but one point is established, namely, that the finger marks of brothers are much more alike than those of any two persons taken at random. An interesting note is also recorded to the effect that the influence of the mother is stronger than the father in transmitting these patterns to the children.

A somewhat similar question is the one as to the use of finger marks in indicating race and temperament. The inquiry in this direction has been very limited, and "it is doubtful at present whether it is worth while to pursue the subject, except in the case of the hill tribes of India, and a few other peculiarly diverse races." With regard to class, it is noteworthy that Dr. Galton does not find any decided difference. The finger marks of students in science, and students in arts, farm labourers, men of much culture, eminent statesmen, and the lowest idiots in the London district, are all much the same.

The last chapter relates to genera, and may be summed up in the following passage:—

"Now all the evidence in the last chapter concurs in showing that no sensible amount of correlation exists between any of the patterns on the one hand and any of the bodily faculties or characteristics on the other. It would be absurd, therefore, to assert that in the struggle for existence a person with, say, a loop on his right middle finger, has a better chance of survival, or a better chance of early marriage, than one with an arch. Consequently, genera and species are here seen to be formed without the slightest aid from either natural or sexual selection, and these finger patterns are

apparently the only peculiarity which Panmixia, or the effect of promiscuous marriages, admits of being studied on a large scale."

Dr. Galton here returns to the argument which he expounded in *Natural Inheritance*, and those who wish to study the subject more closely cannot do better than to read it side by side with this interesting book. Enough has been said to show that his latest work marks a new departure in anthropological investigation, and one which cannot fail to be fruitful in results.

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