COPY of LETTERS returning unsatisfactory OUTLINE-CARDS, and directing a RE-EXAMINATION of the RECRUIT.

1. *When no moles and scars are shown.*

The enclosed outline-card of is respectfully returned with request that the man be again examined to ascertain whether he may or may not have moles and scars that have escaped observation and record. Cards received from recruiting depôts invariably show such marks, in addition to vaccinations and tattoos, often in great number, and seldom fewer than five. Of 130 cards noted from all depôts, but one shows less than five; of 25 Columbus Barracks cards taken at random, but one shows less than 12, and the average is over 17; of 25 later cards from the same depôt, but one shows less than 13, and the average is 22. It is believed that the rigorous examination contemplated by G.O. No. 33, of 1889, will almost without exception disclose at least five moles and scars, and it may be added that the work of identification for which the cards are designed cannot be reliably and satisfactorily accomplished with less.

2. *When but two or three scars and moles appear, or when no marks are shown except vaccinations and tattoos.*

The enclosed outline-card of is respectfully returned with request that the man be again examined to ascertain whether he may not have additional moles and scars that have escaped observation and record. Cards received from recruiting depôts seldom show fewer than five such marks in addition to vaccinations and tattoos. Of a total of 130 cards noted from all depôts, etc. (as above).

Finger-prints and their Registration as a Means of Personal Identification.*

BY

FRANCIS GALTON, F.R.S.

MR. GALTON demonstrated his method of identification by means of finger prints, and explained the degree of facility by which it is possible to determine whether the duplicate of a submitted set of impressions is or is not contained in a catalogued collection of the finger prints of different persons, say of criminals.

The prints used are those of the bulbs of the ten digits, in each of which a pattern is to be found that is usually isolated by one or two pairs of divergent papillary ridges. The varieties of these patterns, and the method of their formation were described by him in the Phil. Trans. Royal Society, 1891, where evidence was also given of the persistence, throughout life, in the minutest details of the ridges by which they are

* Abstract of remarks accompanying demonstration by the Author.

formed. The patterns grow in size with the individual, and in their proportions they somewhat vary at different periods of life according to the fatness or leanness, &c. of the finger, but their general character, on the one hand, and their structure in all its minuteness on the other, remain unchanged.

The method of identification proposed by him was described in a second memoir read more recently before the Royal Society, and about to be published in its proceedings.

The method consists of two stages; the first is classification according to the general character of the pattern, the second is the scrutiny of all the specimens that are contained in the same class by attending to one or more of the minutiæ.

For classification, the method is adopted of regarding only the most obvious differences of character in each of the ten fingers; these are whether the pattern in each of them ranks as a "Primary," a "Whorl," or as a "Loop." No other heads are recognised; the few doubtful cases being classed under one or other of these three heads according to a collection of standard specimens. Every one of these classes is, however, liable to a two-fold sub-division; being numbered with an even number* whenever the pattern is not symmetrical, and its slope lies from the finger tip downwards towards the *radial*, and not the cubital side of the hand. Thus a primary may be numbered 1 or 2, a whorl 3 or 4, or loop 5 or 6. These are the only numbers used. The numerical token of any hand is registered in a form like this; 153, 263, 35, 55, in which the first triplet of numerals refer to the first, second and third fingers successively of the left hand, the second triplet to the first, second, and third of the right hand, the first couplet of numerals to the thumb and little finger of the left hand, the second couplet to the thumb and little finger of the right hand.

The different sequences occur with widely different frequency.

An analysis of the prints from 100 persons taken at random, showed that there were 71 cases of the same sequence occurring only once, 10 cases of the same sequence occurring twice, one case of a sequence occuring three times, and one case (that of all being plain loops) of a sequence occurring six times. Consequently—

$$[71 \times 1 + 10 \times 2 + 1 \times 3 + 1 \times 6 = 100.]$$

A pattern is rapidly read off into numbers, whether it be read in a print or on the hand itself, and the case is quickly allotted to its appropriate pigeon hole. The number-token of a pair of hands suffices by itself for a large amount of negative identifications on the one hand, and of positive suspicion on the other.

The scrutiny of the individual prints that may be contained in any particular pigeon hole is conducted rapidly by fixing on some one well marked minute characteristic in any one finger in the specimen submitted

* During the year that has elapsed since these remarks were written, I have made considerable progress in the art of classification, and now use *letters* instead of numerals, as explained in my just published book on *Finger-Prints* (Macmillans & Co.)—F. G., October 1892.

for identification, and confining the attention to that alone. The prints are brought in rapid succession under a low-power lens (say six-inch focus), and are examined for this characteristic.

In the print of each finger bulb there are on the average at least 30 distinct points of reference, so that a degree of certainty in identification, far exceeding that by any other method, can rapidly be obtained.

Demonstrations were made with a classified set of prints from 300 different persons.

It was announced that an account of the method, with illustrations which are necessary for its adequate explanation, would be subsequently published.

Résultats statistiques de l'Anthropometrie appliquée [a] l'Identification des Personnes.

PAR

le Dr. JACQUES BERTILLON et le Dr. ALPHONSE BERTILLON, Paris.

Beaucoup de particularités anatomiques, analogues à celles qu'ils préconisent, ont été proposées pour définir l'identité individuelle. Toutes pèchent par le même défaut : *c'est qu'il est impossible de les classer.*

La supériorité du système d'identification inventé par M. Alphonse Bertillon, frère de l'orateur, c'est qu'il permet un classement rapide, sûr, et tellement simple qu'on peut y être initié en quelques minutes.

Les particularités anatomiques qu'on a proposées pour définir l'identité sont innombrables, parce que toutes les fois qu'on étudie soigneusement une partie quelconque du corps, on s'aperçoit bientôt que sa conformation varie extrêmement d'un individu à un autre. Aussi des dentistes ont-ils conseillé à M. Alphonse Bertillon de faire mordre les individus dont on veut déterminer l'identité, dans un morceau de cire ; ils affirment qu'il n'existe pas au monde deux individus, ayant la même denture. Fort bien ! Mais si vous avez cent mille empreintes de dents, comment les classerez-vous ? Quel motif aurez-vous de mettre ma denture à moi avant celle de mon voisin de droite en après celle de mon voisin de gauche ? Vous n'en avez aucun ! Des lors, lorsqu'un individu aura mordu dans ce morceau de cire, comment irez-vous rechercher dans votre collection si vous avez déjà une denture pareille ? Vous ne pourrez faire cette recherche. Donc ce mode d'identification est impraticable.

Même objection doit être opposée aux craniologistes qui conseillaient de dessiner le pourtour du crâne, affirmant que jamais deux hommes n'ont un pourtour de crâne identique. Il n'y a pas moyen de classer de tels documents. Donc ils ne peuvent pas servir.

Même objection pour ceux qui veulent utiliser de même le dessin de l'oreille, etc., etc.