

LETTERS TO THE EDITOR.

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Identification.

PERMIT me to make in your columns a few remarks on the following topic:—

It is now well known that the Council of the British Association have lately memorialised the Secretaries of State for the Home Department, Army, Navy, India, and the Colonies, expressing an opinion that the Anthropometric methods for Identification in use in France and elsewhere, deserve serious inquiry, as to their efficiency, the cost of their maintenance, their general utility, and the propriety of introducing them, or any modification of them, into the Criminal Department of the Home Office, into the Recruiting Departments of the Army and Navy, or in the Indian and Colonial Administration.

In connection with this suggested inquiry I have some very recent information to give as regards the inclusion of finger prints among the records that admit of being usefully employed in *bertillonage*. This convenient term has been coined to express the principle of the French system, invented and directed by Alphonse Bertillon, of so classifying anthropometric records that each can be sorted into its own natural group, just as each surname falls into its alphabetical place in a common directory. There may be many Smiths, but every Smith will be found among the Smiths and not among the Browns. There may be doubt about the exact spelling, and the Smythes will have also to be searched, but the range of uncertainty as to where to look for the required name will always be narrowly limited. So it is with the ordinary anthropometric records; so also it is with finger prints, which are as yet unused in the French system. Those who have read my book on the subject will recollect that the index letters for finger prints are limited to *a, u, r, w*, as the case may be, for the two fore-fingers, and *a, l, w*, for the remaining eight digits. These produce such combinations of ten letters as *ral, ull*; *wl, ll*, which are arranged alphabetically. The test of the efficiency of this system lies, first in the sureness with which different (instructed) persons assign the same index letters to the same indifferently printed set, and secondly in the degree to which the sets are differentiated by their classification. Now I possess and have examined some thousands of well printed sets of students and others at my laboratory; but until very recently I had no large collection of *ill*-printed sets of *prisoners*. This want has been at length supplied in the following manner, by which I am able to confirm previous conclusions. Lieut.-Col. Surgeon Hendley, whose energetic furtherance of science and art at Jeypore is well known, was in charge last year of the Maharajah's magnificent contribution to the Imperial Institute, and, having visited my laboratory, became much interested in finger prints, and promised to send me a collection taken from the goals of Jeypore. It arrived not very many days ago, too late to be alluded to in my recently issued supplementary chapter on the Decipherment of Blurred Finger Prints. It contains nearly a thousand cards, each card bearing the impressions of all the ten digits of a different person. They were printed by pressing the finger first on the pad used for inking the office stamp and then on the card. This method, as I have recently had occasion to point out, gives far inferior results to that of printers' ink. So far as the Jeypore collection shows favourable results, a similar collection printed in the way always used in my laboratory would give still better ones.

Consequently, the Jeypore collection is particularly serviceable for arriving at moderate conclusions; moreover, their number is sufficiently large to justify them. My assistant marked the appropriate index letters on each card, and I compared them with my own independent determinations. The result was very favourable; our readings practically agreed, and although most of the prints were faint, or blurred, or otherwise imperfect, it was possible to classify nearly all of them. This affords a strong confirmation to my formerly expressed belief that the method of finger prints must, in time, come into use as an important and supplementary aid to *bertillonage*. The process of taking the impressions is extremely simple after it has been learnt and the small but necessary equipment is at hand. At the same time, there is no

undressing necessary, and nothing else of a humiliating character to be undergone during the brief act of making the prints.

I shall not here enter upon the unique and extraordinary power of finger prints in enabling us to determine, irrespectively of age and growth, whether two clear impressions, taken at different dates, were or were not made by the same finger. It does not depend on that general pattern of the print which is the basis of classification, but upon the numerous forks and other details in the ridges that compose the patterns. This has been fully discussed and proved in my two books, and I have nothing new to say, except that in my laboratory I have now upwards of 300 complete duplicate sets to work upon, the two members of each of which were taken at times separated by various intervals ranging between one and three years. These intervals are too short to be of much value, but the collection will increase in importance as the years go by, and further repetitions of prints from the same fingers shall have been made.

My letter is already long, so perhaps you will permit me on another occasion to recur to the action of the Council of the British Association, and to indicate the character of the information regarding the efficiency, cost, and utility of *bertillonage*, that might be gained with little trouble officially, but which is almost beyond the reach of any private person to obtain.

FRANCIS GALTON.

The Publication of Physical Papers.

MR. SWINBURNE in his letter on this subject has omitted to recognise the existence of a society which is older and quite as important as the Physical Society, I mean the "London Mathematical Society."

For reasons which it is unnecessary to enter into, I fear that an impression has unfortunately got abroad that the London Mathematical Society is an institution which exists solely for the advancement of *pure* mathematics. No greater error could be made; for whatever may have been the case in the earlier days of the society, the council for some years past have been fully alive to the importance of doing everything they can to encourage mathematical physics, and to induce physicists, whether members of the society or not, to communicate papers on mathematical physics. In short, the policy of the council at the present time is to endeavour to hold the balance evenly between the two branches of mathematics, and not to favour the one more than the other.

The policy of the society is still further exemplified by the fact that on the last two occasions the De Morgan medal has been awarded alternately to a mathematical physicist and to a pure mathematician; and during the discussion which took place in connection with the last award to Prof. Klein, several members of the council expressed a hope that this practice would be followed in future years.

A scientific newspaper like NATURE is scarcely suitable for the publication *in extenso* of papers relating to mathematical physics; but it may be well to point out that the London Mathematical Society presents contributors of papers with twenty-five *gratuitous* copies, whereas the proprietors of the *Philosophical Magazine* refuse to present gratuitous copies or to remunerate contributors in any way whatever. Moreover, the Proceedings of the Society can be purchased by the public, whilst (according to Mr. Swinburne) those of the Physical Society cannot. Also abstracts of papers read at the meetings of the London Mathematical Society can always, if the author wishes it, be published in NATURE, and can thus be at once brought before the notice of the scientific public.

It will thus be seen that the London Mathematical Society offers greater advantages to contributors than the Physical Society or the *Philosophical Magazine*; and when this fact is once recognised I venture to hope that physicists will not stand aloof from the Society in the way that many of them have hitherto done.

A. B. BASSETT.

A Simple Rule for finding the Day of the Week corresponding to any given Day of the Month and Year.

MR. H. W. W., in NATURE, vol. xlvii. p. 509, gives a simple rule for finding the day of the week corresponding to any given date. It seems that this rule could be made still more simple. Thus, let

A = number of the given year.

B = number of the day in the year.

C = number of leap years from A.D. 1 to the beginning of