

jects. Besides several excellent series of examples, a very useful summary is added to each chapter, which will be serviceable for revision purposes. The adoption of different sizes and kinds of type, when it is, as here, carefully done, is also a very great boon to beginners.

The Slide-Rule. A Practical Manual. By Charles N. Pickworth, Wh.Sc. (London: Emmott and Co., Ltd., 1894.)

THE most modern form of slide-rule is of the Mannheim or Tavernier-Gravêt type, and undoubtedly surpasses its predecessors in many ways. At the present time this instrument is in general use on the continent, principally in France and Germany, and it is now becoming more popular in England.

The slide-rule may be defined as an instrument for mechanically effecting calculations by logarithmic computation. By its aid arithmetical, algebraical, and trigonometrical processes may be performed much more quickly and with greater ease than by the ordinary methods, while the accuracy of the results are quite within the limits of error for all practical purposes. There is no doubt that when the instrument is better known, and its labour-saving property recognised, it will be more commonly seen in the laboratory and workshop than it is now. So many manipulations can be done with it that, without some guide, its full value cannot be appreciated. In the present little manual the author brings these all together, and in such a form that the reader can, by paying attention to the mechanical and mathematical principles, obtain an intelligent interest in the manipulations, and have confidence in the results.

W. J. L.

I Fondamenti Matematici per la Critica dei Risultati Sperimentali. Del Prof. P. Pizzetti. (Genova, 1892.)

AN elaborate memoir, of the nature of a complete treatise on the Method of Least Squares, in its application to the reduction to order of a long-continued series of experiments and of their numerical results.

It contains a valuable bibliography of writings on the subject, arranged alphabetically according to authors' names.

Hitherto the astronomer has made most use of this theory; but the artillerist is now finding it important for his purposes, in calculating from the number of hits to effect a desired amount of destruction the amount of ammunition required.

G.

Teppich-erzeugung im Orient. By various Contributors Pp. 204. (Wien: K. K. Österr. Handels-Museum, 1895.)

THIS work consists of a series of monographs on important antique tapestries contained in European museums and private collections, contributed by Sir George Birdwood, Mr. C. Purdon-Clarke, Mr. Vincent J. Robinson, Mr. S. J. A. Churchill, Dr. W. Bode, M. Gerspach, and M. O. M. Stoeckel. In addition to the history of antique tapestries, the work contains descriptions of a number of the more important types of modern tapestries of the Levant, Persia, and India. The illustrations are numerous and of high quality.

A Laboratory Manual. By W. R. Orndorff, A.B., Ph.D. (Boston: D. C. Heath. London: Isbister and Co., 1894.)

A COURSE of experiments in organic chemistry, systematically arranged as an adjunct to Prof. Ira Remsen's work on the "Compounds of Carbon." As Dr. Orndorff has had a large experience in the laboratory work to which the book refers, the conditions of the experiments described can be depended upon, which is the highest recommendation that can be given to a manual of this kind.

LETTERS TO THE EDITOR.

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Finger-Prints.

I HAVE been quite unable, since I saw Mr. Faulds' letter in your issue of October 4, to take the matter of it in hand hitherto; and I do so now only because I think Mr. Faulds is entitled to raise the question if he pleases. 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 finger-prints for the purpose of identification. His statement that he came upon it independently in 1879 (? 1878) commands acceptance as a matter of course. At the same time I scarcely think that such short experience as that justified his announcing that the finger-furrows were "for-ever unchanging."

How I chanced upon the thing myself in 1858, and followed it up afterwards, has been very kindly stated on my authority by Mr. Galton, at whose disposal I gladly placed all my materials on his request. Those published by him are only a part of what were available. (See his "Finger-Prints," page 27, and his "Blurred Finger-Prints.") To what is there stated I need now only add, at Mr. Faulds' request, a copy of the demi-official letter which I addressed in 1877 to the then Inspector-General of Jails in Bengal. That the reply I received appeared to me altogether discouraging was simply the result of my very depressed state of health at the time. The position into which the subject has now been lifted is therefore wholly due to Mr. Galton through his large development of the study, and his exquisite and costly methods of demonstrating in print the many new and important conclusions he has reached.

I take the opportunity, in reference to a late article on Anthropometry (in the *Nineteenth Century* of September 1894, p. 365), to deprecate, as being to the best of my knowledge wholly unproved, the assertion that the use of finger-marks in this way was "originally invented by the Chinese." I have met no evidence which goes anywhere near substantiating this. As a matter of fact, I exhibited the system to many passengers and officers of the P. and O. steamship *Mongolia* in the Indian Ocean, during her outward voyage in February 1877; and I have the finger-prints of her captain, and of all those persons, with their names. It is likely enough that the idea, which caught on rapidly among the passengers, may have found a settlement in some Chinese port by this route, and have there taken a practical form; but whether that be so or not, I must protest against the vague claim made on behalf of the Chinese, until satisfactory evidence of antiquity is produced.

Littlemore, November 7.

W. J. HERSCHEL.

(TRUE COPY OF OFFICE COPY.)

Hooghly, August 15, 1877.

MY DEAR B—.—I enclose a paper which looks unusual, but which I hope has some value. It exhibits a method of identification of persons, which, with ordinary care in execution, and with judicial care in the scrutiny, is, I can now say, for all practical purposes far more infallible than photography. It consists in taking a seal-like impression, in common seal ink, of the markings on the skin of the two forefingers of the right hand (these two being taken for convenience only).

I am able to say that these marks do not (bar accidents) change in the course of ten or fifteen years so much as to affect the utility of the test.

The process of taking the impression is hardly more difficult than that of making a fair stamp of an office seal. I have been trying it in the Jail and in the Registering Office and among pensioners here for some months past. I have purposely taken no particular pains in explaining the process, beyond once showing how it is done, and once or twice visiting the office, inspecting the signatures, and asking the *omlah*¹ to be a little more careful. The articles necessary are such as the *daftari*² can prepare on a mere verbal explanation.

Every person who now registers a document at Hooghly has to sign his "sign-manual." None has offered the smallest objection, and I believe that the practice, if generally adopted, will put an end to all attempts at personation.

¹ Clerks.

² Man in charge of stationery.