

to the determination of the characters of minerals. He rightly believes that, while a careful study of the variety of specimens contained in a large mineral collection is most helpful towards acquiring facility in recognising mineral species, yet it is always desirable to be able to confirm a judgment by, or even to base it wholly upon, a few well-chosen tests, and this book is intended to assist students and others who may have occasion to identify mineral specimens in carrying out such tests.

The opening chapter deals with the goniometrical measurement and the perspective drawing of crystals, the calculation of the fundamental morphological data, and the measurement of refractive indices by the method of minimum deviation. In the next chapter the author passes on to the chemical examination by means of the blow-pipe, microchemical reactions, and the quantitative determination of the precious metals, coal, &c. The third chapter is concerned with crystal optics, and the fourth with the special application of these properties to use with the microscope. The last chapter includes the remaining physical characters, such as hardness, specific gravity, pyroelectricity, etching, melting point, and crystallisation, the phenomena presented by mixed crystals being considered at some length. In an appendix the author offers some hints on the kind of apparatus useful for prospectors and generally travellers interested in minerals, and considers the special case of precious stones.

The book has been carefully written, the hints given being evidently based upon the author's own experience, and it will be found to serve well the purpose for which it is intended.

Mikrographie des Holzes der auf Java vorkommenden Baumarten, im Auftrage des Kolonial-Ministeriums, unter Leitung von Prof. J. W. Moll, bearbeitet von H. H. Janssonius. Dritte Lieferung. Pp. 161-540. (Leiden: E. J. Brill, 1911.)

THIS is the third part of an extensive publication, designed to take advantage of a large number of Javanese wood specimens collected by Koorders with a view to the preparation of a forest flora for Buitenzorg. The collection is unique because corresponding herbarium material was gathered at the same time, so that the identity of each specimen can be accurately determined. The herbarium material was critically examined and described in the "Additamenta" noted in the title. The microscopic investigation is being conducted by Mr. H. H. Janssonius in great detail; a "topographical" or general description of the sections which would serve for most purposes is not considered sufficient, but copious details are supplied for each type of cell represented. Figures are only given for one species of each genus, and the scale of 1:25 is adopted; it would have expedited reference if a figure had been provided for each species on a scale of 1:10, enabling direct comparison to be made with illustrations provided in several standard works. The most valuable feature is the summary of anatomical characters drawn up for the analytical determination of genera and species. Prof. Moll suggested, in a notice of the earlier parts subscribed to the *Botanische Centralblatt* (vol. cxiii.), that it should be possible to determine not only the families but genera, and occasionally species, by the characters of the wood; the full consummation of this scheme is reserved for a final survey.

A book on these lines has long been a desideratum. Some estimation of the magnitude of the work can be formed when it is mentioned that this part completes a second volume of 540 pages, devoted entirely to the Discifloræ represented by 163 species or varieties.

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When Should a Child Begin School? An Inquiry into the Relation between the Age of Entry and School Progress. By W. A. Winch. Pp. iii+98. (Baltimore: Warwick and York, Inc., 1911.)

MR. WINCH's book is an admirable example of educational inquiry as it should be pursued. Instead of arguing on *a priori* grounds that children under five are better at home than at school, he shows by careful statistical methods what the actual effect of early entrance upon school courses is. His research shows in a thoroughly convincing way that those who begin school about five years of age do quite as well—often very much better—than those who begin at an earlier age. Stated quite moderately, it is clear that it makes no actual difference to the future school record whether a child begins at three or at five, though incidentally the figures suggest that delay beyond the fifth year is actually disadvantageous—a point in favour of English as opposed to German practice. Of course, many school authorities have already ceased to provide for children so young, not because of Mr. Winch's work, but because the State has withdrawn the grants. Yet it does not follow, of course, that the social value of the babies' classes in the infants' schools is nil. It is something that overworked wives are relieved for a few hours a day of the strain which young children in a small house commonly bring. But it is abundantly clear that formal school lessons of any kind before the fifth year is completed are quite unnecessary. Hygienic surroundings and playful occupations with abundant opportunities for sleep are chiefly wanted. Trained nurses rather than trained teachers, crèches rather than schools, would perhaps meet the situation.

J. A. G.

LETTERS TO THE EDITOR.

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The Orientation of the Great Temple of Amen-Ra at Karnak.

IN 1891 Sir Norman Lockyer made a magnetic survey of the axis of the great Temple of Amen-Ra, at Karnak, with the view of determining an astronomical date for the original building.

Since that time a great deal has been done in excavating and exposing the foundations of the older work along the temple axis, chiefly under the personal supervision of M. Legrain, of the Department of Antiquities, who for sixteen years has been the director of the explorations at Karnak.

On my recent visit to Karnak, where I spent some weeks, M. Legrain gave me the greatest assistance to enable me to make a resurvey of the axis in the light of the many new discoveries, and particularly in pointing out the parts of the original buildings still *in situ*, many of which he had himself uncovered, and all of which I afterwards measured and centred up.

Unfortunately, I arrived at a very unlucky time for carrying out this work, as the place was crowded with Arab workmen hauling out great stones from the excavations, and gangs of boys carrying baskets of earth from the diggings, all making as much noise as possible, that the place was more like a busy ant-hill than the eternal calm which might be expected in an Egyptian temple. In addition to this, the tourist season was at its height, and personally conducted parties were continually passing up and down, and naturally made a highway of the axis where I had set up my instruments. One soon forgets small inconveniences; but the torment of the insects, when both hands were occupied, is brought to mind by a remark made to me by a passing gentleman from the *fai West* when he said, "Mr. Surveyor, I guess you're having a bully time with them flies."