

he attributes the extension of the German export trade to the Stuttgart Geographical Society and similar institutions.

THE University of Minnesota at its commencement of the current year conferred 294 degrees as follows: Science, Literature and the Arts, B. A., 28; B. S., 32; B. L., 34; M. A., 3; M. S., 6; Ph. D., 1. Engineering, Metallurgy and the Mechanic Arts, B. C. E., 4; B. M. E., 3; B. E. E., 7; B. Min. E., 1; Min. E., 1. Agriculture, 2. Law, LL. B., 88; LL. M., 2. Medicine and Surgery, M. D., 53. Homeop. Medicine and Surgery, M. D., 5. Dentistry, D. D. M., 12. Pharmacy, Phm. D., 12.

CORRESPONDENCE.

WHAT IS 'HIGH WORK'?

THE students of the physiology and morphology of plants are fond of saying that these features of plant life stand for higher work than the older systematic treatment of botanical objects. My attention is called to this attitude of mind at this time by Professor Trelease's remark (although he himself does not subscribe to the sentiment) in *SCIENCE* for July 5th, in reviewing Mr. Small's excellent monograph of *Polygonum*, that "it is generally believed that the classification and naming of plants is a less advanced branch of botanical investigation than the study of their morphology, development and physiology." I must strenuously object to a comparison of natural objects in terms which are subjective to the student. There is no higher or lower in the forms of life, or in the problems which center about them. Every item in the material universe is worthy the attention of the best mind for a lifetime, and it is bigotry for one student to measure other subjects by the standard of his own specialty. 'High work' is entirely a subjective matter, and is not a quality of the object studied. One man may do 'higher' or 'more advanced' work

studying road dust than another may in studying star dust.

L. H. BAILEY.

SCIENTIFIC LITERATURE.

The Female Offender. CÆSAR LOMBROSO and WILLIAM FERRERO. With an introduction by W. DOUGLAS MORRISON. Illustrated. The Criminology Series. New York, D. Appleton & Co. 1895. 8°. Pl. 313.

The present work of Lombroso has an introduction by Mr. Douglas Morrison, a perusal of which should disarm all criticism against the body of the work which follows, for Mr. Morrison assures us that the essential aim of Lombroso's work here is to show the public that there are different kinds of criminals and that different kinds of punishments should be provided for them. In other words, the book is a contribution both to penology and to philanthropy. It is encouraging at this time to hear such words of kindness regarding the Italian criminologist. Largely, perhaps, through the instrumentality of Dr. Nordau's extravagances, the literary and artistic public have come to regard Lombroso with great suspicion. The attitude, in fact, toward this philosopher reminds us very much of the attitude of the religious world toward Darwin some years ago. Nothing that that eminent scientist produced was then received without questioning, and the descent of man was as much a matter of public interest and secular joke as is the existence of degenerative traits at the present time.

Lombroso's present work cannot excite much adverse criticism, for the reason that it is largely a collection of facts and statistics, measurements and tables; in fact, so much so that the book becomes rather too technical to interest the general reader. The author endeavors to determine the physical characteristics belonging to the female criminal, including the prostitute.

He gives first a series of anthropometrical measurements of the skull and of the brain, and then describes what he calls the pathological anatomy of the criminal. In other words, those anomalies which would come under the head of pathology, rather than some variation in simple normal measurements.

Professor Lombroso admits that there is very little to be learned from anthropometry in connection with the present study. It is only by comparison of a very large number of very carefully taken measurements that differences between normal and abnormal women can be discovered. It is in the line of the pathological anomalies that he finds the most to attract his attention. Generally speaking, he finds that the anomalies in the female offender are less than in the males of the corresponding class. So far as the skulls are concerned, he states that the skull of criminal woman approximates somewhat to the male skull, especially in the heaviness of the lower jaw-bone, in the exaggeration of the supra-ciliary ridges, and in peculiarities of the occipital region. As regards the brain of female offenders, the anomalies in structure and size are few. There are, however, very often pathological conditions which are of a striking character. Thus in one-third of thirty-three female criminals, there were found gross lesions of the central nervous system.

In making a summary of the chapters on anthropometry of female criminals, Lombroso confesses that the cumulative figures do not amount to much, and he affirms again that the stability of type is much greater in woman than in man. Still he asserts that in female criminals, the height, the stretch of arms and limbs, are less than normal, while in proportion to the height the average weight of certain classes of criminal women is greater than in moral women. Lombroso asserts that grayness is rarer in the normal women than in criminal

women, while baldness is less common in this latter class.

The author's chapter on facial and head anomalies of female criminals seems to us to be full of industriously collected figures, which have, at present, a very slight value. He asserts, however, as a conclusion from a study of them, that these anomalies of the face and body are much more frequent in the female criminal than in the moral classes. The asymmetrical face, strabismus, virile and Mongolian types of physiognomy, out-standing ears, crooked nose, hairiness, prehensile feet, large jaws and cheek bones and anomalous teeth, are among the stigmata that are mentioned. He endeavors to show that certain kinds of criminals have more of these stigmata than others, but no generalization is attempted.

A number of chapters follow upon the physiognomy of female criminals, on tattooing of the offender and on the acuteness of their various special senses, and the book concludes with studies upon the psychology of the born criminal, the occasional criminal and discussions upon hysterical criminals and crimes of passion.

The book as a whole leaves the impression that the author has not made very much headway in establishing a criminal type which can be determined by physical characteristics alone. Still, he has accumulated a large number of facts, and when this is still more increased, particularly by observations on normal women and upon women of different races, some deductions may perhaps be drawn.

The general chapters which bear upon the subject of the production of criminals are interesting and form a valuable contribution to penology.

CHARLES L. DANA.

NEW YORK.

Bildungselemente und erziehlicher Wert des Unterrichtes in der Chemie. VON PROF. DR. RUDOLF ARENDT. Voss, Hamburg and