

and the three remaining volumes (xxiii., xxiv. and xxvi.) were assigned to the hard-worked officials of the British Museum. Of these Dr. Sharpe got out one in 1894, and another in 1896. The twenty-sixth volume, of which the first half was prepared by Dr. Sharpe, and the second by Mr. Grant, has now just made its appearance, and renders the long series of twenty-seven volumes complete.

Taking this laborious piece of systematic work as a whole, there can be no question, we think, of its value. This has been indeed acknowledged by naturalists all over the world, whose anxious inquiries for many years have been as to the prospects of its being brought to a conclusion. The variation in treatment of the different portions of the work, caused by the idiosyncracies of the eleven ornithologists who contributed to its composition, was of course unavoidable. No one person could have accomplished the task, and a wise discretion on minor points was left to those who helped in its composition. Some of them have made many generic divisions, others few. Some have written long descriptions, others short ones. Some have employed one set of rules of nomenclature, others have followed another code. Greater uniformity on all these points would, of course, have been very desirable. But it was practically unattainable, and its absence has scarcely diminished the usefulness of the whole series. During its progress, however, great additions have been made to our knowledge of many of the groups, especially to those treated of in the earlier volumes. From Sir William Flower's preface to the twenty-sixth volume we are pleased to learn that a supplement, containing references to every species of bird described subsequently to the publication of the volume which treats of the group to which it belongs, is in preparation, and will be accompanied by a general index. This will be a most valuable addition, and will serve to render the vast stores of ornithological lore comprised in the twenty-seven volumes of the "Great Catalogue of Birds" still more useful to future workers. Those who have planned and those who have carried out this important undertaking alike deserve the grateful thanks of all zoologists.

#### SIGNS OF PROGRESS IN SCIENCE TEACHING.

**D**URING the past Christmas vacation, London, Manchester, Shrewsbury and other places have been astir with educational conferences. These have been attended by teachers of all ranks. The College of Preceptors held a gathering which lasted a fortnight, with daily morning and afternoon sessions, including a conference of science teachers organised by the Technical Education Board of the London County Council. These conferences have dealt not only with questions of organisation, but largely with the subjects to be taught, and the methods of teaching them. The increasing interest in the movement is also indicated by the appearance of new educational journals, in addition to those that already occupy the field. One of these, *The School World*, has special reference to modes of instruction, together with articles on different departments of the subject by good writers of the advancing school. Progress is also shown by the much more general introduction of the teaching of science. The public elementary schools have mostly introduced science into their scheme of instruction, and it occupies a more and more worthy place in their time tables. All the great public schools include some amount of science in their curriculum. The universities of course have professorships of various sciences, and these are better attended by students than formerly. The intermediate schools, which are under private management, are following suit, though in very various degrees.

NO. 1526, VOL. 59]

But what is the teaching of science? The time is past for the chemistry lesson to consist merely of the precipitation of the highly coloured chromates or iodides, and the explosion of oxygen and hydrogen; or to appear as "la chimie amusante" in the prospectus of a young ladies' school. It is perhaps generally recognised that physics and chemistry cannot be taught merely from text-books; that would be uninteresting, and scarcely instructive. Nor must the teaching depend solely upon showy demonstrations on the lecturer's table. These may be attractive, but they often leave only a confusion of ideas in the mind of the student. There is a great tendency now to recognise that the pupils should not only read descriptions of objects, but see and handle them; not only watch experiments, but perform them. There is a movement in many quarters to adopt the "Heuristic" method, so strongly advocated by Prof. Armstrong, by which the student is led to find out results or causes for himself, and to express them intelligently in writing. This is a truly educational method; but it has its limitations. One of these is the amount of time that can be given, as from the very nature of it this must be a slow process: another is that the teacher ought himself to suggest certain lines of research, and watch over the student's progress, directing him unconsciously towards the right conclusions.

In this transition period there are two practical difficulties. First, the want of teachers sufficiently imbued with the new methods to carry them out successfully. Secondly, the examination which usually forms a necessary part of the student's career. This examination is generally founded more upon the old than the new methods, and is directed to ascertaining the amount of the student's knowledge rather than the discipline which his mind has received. It is important to bear in mind what is the chief object in view; not so much to teach a specific science as to indoctrinate the student in the principles which underlie all science, and which will be of essential service to him in whatever calling he may afterwards engage: not so much to store his mind with facts, as to develop his faculties—his powers of observation and reasoning. In bringing about such a reform the practical teacher may often find it necessary to proceed, not by a sudden revolution, but by gradual modifications and improvements in method.

J. H. GLADSTONE.

#### PROFESSOR ALLEYNE NICHOLSON.

**T**O all students of zoology (in its most extended sense) the name of Alleyne Nicholson is so familiar, that the recent announcement of his premature death will probably have caused a sense of personal loss even to those who never enjoyed the pleasure of his acquaintance. By those who did know him personally, the general charm of his manner, and his enthusiasm for his favourite science, will not readily be forgotten.

Henry Alleyne Nicholson was born at Penrith, Cumberland, in the autumn of 1844; his father being Dr. John Nicholson, who gained considerable distinction as a linguist and philologist, especially in Oriental literature. The son was educated first at Appleby Grammar School, subsequently at Göttingen, and finally at the University of Edinburgh. At the latter University he gained the Baxter Natural Science Scholarship; and when only twenty-five he was appointed (in 1869) Lecturer on Natural History in the Extra-Mural School of Medicine in that city, an appointment which he held till 1871, when he became Professor of Natural History and Botany in the University of Toronto. He did not, however, remain long at the latter post, moving to Durham in the same capacity in 1874; while one year later (1875), he accepted the

Natural History Professorship at St. Andrews. This post he held till 1882, when he was appointed Regius Professor of Natural History in the University of Aberdeen; and here he died in harness, respected and esteemed alike by colleagues and pupils. The degrees of M.D. (Edinburgh) and D.Sc. he took in due course; and he was also Ph.D. of Göttingen. In 1888 he was the recipient of the Lyell medal from the Geological Society. He also held the Swiney Lectureship in Geology from 1877 to 1882, and a second time from 1890 to 1894, when it had come under the direction of the Trustees of the British Museum. He was elected a Fellow of the Royal Society in 1897.

Although his life's work covered a very wide field, perhaps Nicholson's best claims to distinction will rest on his researches into the structure and affinities of the Stromatoporoids and the Graptolites. But, although all his conclusions did not meet with general acceptance, it would be unfair not to mention also his works on the Monticuliporoids and the Palæozoic Tabulate Corals. And here it should be observed that, through no fault of his own, his investigations of these latter groups took place a little too early; so that when the results of the *Challenger* discoveries became known, several modifications of view were rendered necessary. The older rocks of the Lake District likewise claimed a large share of his attention; many of his summer vacations being diverted, with a genial companion, to the elucidation of the difficult problems they present. His claims to distinction as a palæontological student of the lower Invertebrates are recognised by the dedication to him of the recently described *Millestroma Nicholsoni*. The important part he played in determining the rock-succession in the Lake District must not be forgotten in estimating his achievements. Nicholson's most widely-known monument will, however, undoubtedly be the large series of zoological and palæontological text-books, which have rendered his name a household word in every science-school and university where the English tongue is spoken. These had but comparatively humble beginnings; and it is to the credit of their author that, as they acquired a wider and wider reputation, he rose to the occasion by endeavouring to bring the later editions to a higher level than that on which he had started. Whether the plan of separating palæontology from zoology proper is the best that could have been devised, or the one likely to be followed in the future, this is neither the place nor the occasion to enquire. But, from a student's standpoint, it may be admitted that the first volume of the last edition of his "Palæontology" is almost the ideal of what a text-book should be. Personally, we knew him as a teacher only by a too brief portion of his last series of Swiney lectures; but, apart from the testimony of those who have enjoyed more favourable opportunities, his books are sufficient to proclaim how admirably suited he was for the important position he occupied with so much distinction.

The University of Aberdeen will have no easy task to secure a worthy successor!

R. L.

#### NOTES.

A FULL biography of the Polish philosopher Hoené-Wronski has been in preparation during the past seven years. Wronski resided in London in 1820-22, and Mr. Zenon Przesmycki, who has the work in hand, would be very grateful for any further information, or access to correspondence, bearing on Wronski's life during that period. Mr. Przesmycki was in London last summer, and through the kindness of the authorities of Greenwich Observatory, the Admiralty, Royal Society, British Museum, and Record Office, he was able to consult various important documents. But no trace was found of a paper

("Réforme de la théorie mathématique de la terre") of his, presented to the Royal Society in June 1820, by the hands of the Astronomer Royal, Mr. Pond, nor of two printed extracts of this paper which Mr. Pond was authorised by the Society to make; their titles being (1) "Extrait du mémoire de M. Hoené-Wronski sur la théorie de la terre"; (2) "Nouveaux extraits du mémoire de M. Hoené-Wronski et de son appendice, principalement sur la théorie des fluides, 1821." The publication now of these facts, and that when in London Wronski corresponded frequently with Pond, with the mathematician Davies Gilbert, with the Rev. Mr. Nolan, and with Lord Melville, then First Lord of the Admiralty, and that he resided in Thiot's Hotel, at 15 Bucklersbury Square, may help to the discovery of further particulars. Dr. Alexander Galt, of Glasgow University, will be glad to receive, for Mr. Przesmycki, any information upon these matters.

AT its annual meeting, on January 10, the Russian Academy of Sciences awarded its Helmersen premium to A. Mickwitz for his work, "Die Brachiopoden. Gattung *Obolus*, Eichwald"; the Lomonosoff premium to N. I. Andrusoff for his work, "The fossil and the living *Dreissenidae* of Eurasia"; to E. Burinsky, for his improvements in photography; and to P. I. Brounow, for his works in meteorology. The large Tolstoi medal was awarded to L. Besser and K. Ballod, for their researches into the natality and mortality of the populations of European Russia, the Baltic provinces, and different countries of Europe, including Great Britain; and the small medal to P. G. Matsokin, for a MS. work on the half-breeds of Transbaikalia.

PROF. RAY LANKESTER makes the welcome announcement that arrangements have been made for the supply of electric lighting to the Natural History Museum, South Kensington. The electric light will be gradually introduced into the various parts of the building—first of all into the offices and studies of the staff and the workshops in the basement, and then into the various public galleries.

HERR J. BORNMÜLLER starts this month on a botanical expedition to the less-known mountains of Northern Persia.

DR. DON FRANCISCO P. MORENO, director of the La Plata Museum, and commissioner of the Argentine Republic in the boundary delimitation with Chile, has arrived in London from Buenos Ayres.

WE regret to read, in the *Athenæum*, that, in a fire which broke out in the physical laboratory of the University of Geneva, Prof. Chodat has lost the whole of his valuable herbarium, together with two hundred botanical drawings, the result of ten years' labour. A large number of botanical specimens, lent by other institutions, have also been destroyed.

A SERIES of lectures will be delivered in the Lecture Theatre of the South Kensington Museum on the following Saturdays, at 3.30 p.m.:—January 28 and February 4, Dr. W. J. S. Lockyer, "Astronomical Instruments"; February 11 and 18, Mr. J. H. Pollen, "Furniture"; February 25 and March 4, Mr. William Burton, "Pottery."

THE Nicaragua Canal Bill has passed the U.S. Senate. The Bill provides for the construction of the canal by the present Nicaragua Maritime Canal Company. The United States will control the canal, and own all the stock except 7½ per cent. given to Nicaragua and Costa Rica. Each of these will have one director, the United States appointing five. The neutrality of the canal is guaranteed by the United States. The canal is to be used by all nations at equal tolls. It is to be completed within six years. Its cost is limited to 115,000,000 dollars, and not more than 20,000,000 dollars are to be expended annually.