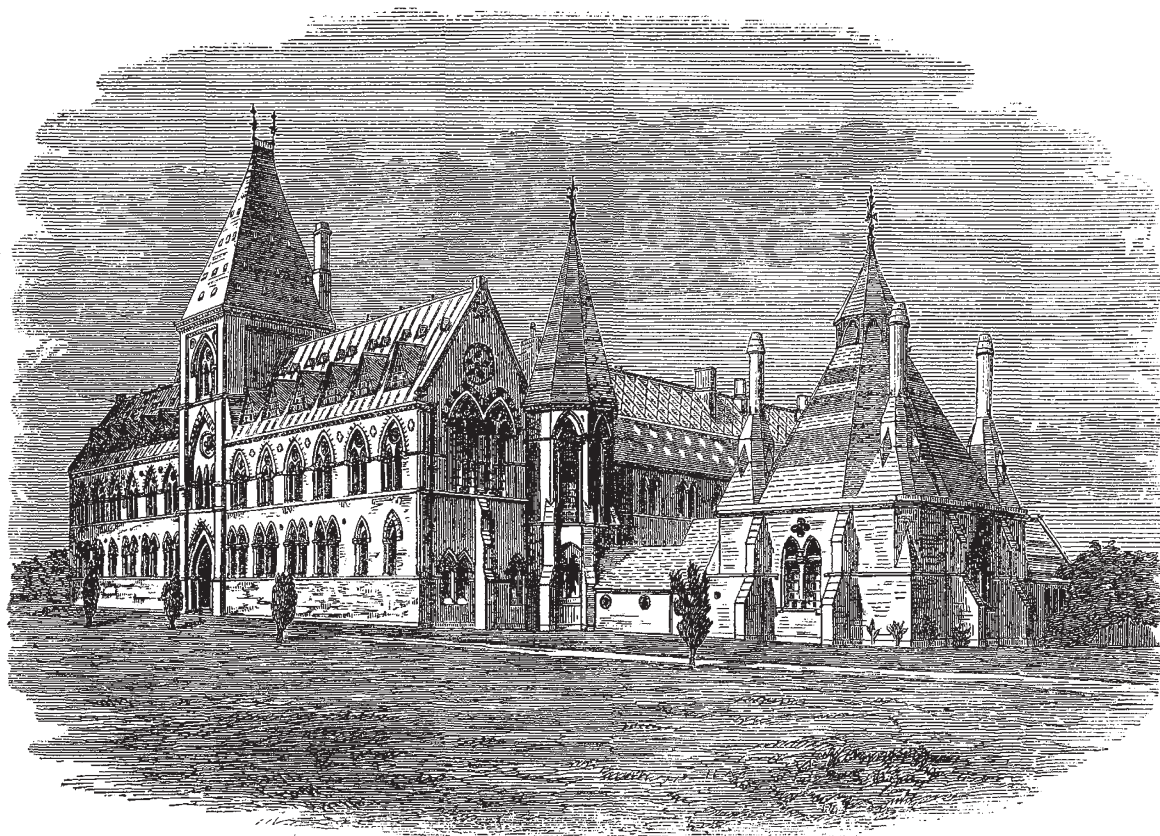


NATURAL SCIENCE AT OXFORD

THE progress which Natural Science has made at Oxford within the last few years has far exceeded the anticipations of even the most sanguine of its promoters. It is but ten years ago that the New Museum was opened, and not much longer since the School of Natural Science was founded. Since then, year by year, the interest shown in these studies has steadily augmented, the number of undergraduates attending the University College Science Lectures has augmented in proportion as the number of these lectures has increased, and the School of Natural Science has become recognised as on a par with the other three great schools of Philosophy, Mathematics, and Law and Modern History. This has been chiefly brought about by the high standard of excellence required by the examiners in this school. When

the position taken by Natural Science at a university which has commonly been condemned for neglecting this very subject, is fully recognised outside its own walls, there can be no doubt but that a far greater number than at present will come up to Oxford to pursue their science studies there. Hence it may not be here out of place to give as briefly as possible a short *résumé* of the opportunities held out to Natural Science students at Oxford, in the way of university and college lectures and the various scientific museums and libraries, as well as to notice the numerous rewards and honours which are open to all such students. To do this completely would far exceed the limits of this article, so that what follows must only be taken as a sort of index, as accurate as possible, to a subject, the details of which can be obtained by writing to the tutors of the various colleges mentioned.

Taking the rewards and honours first, we would notice



THE MUSEUM AT OXFORD

that the following colleges award scholarships and exhibitions for Natural Science, after an examination combining both book-work and practical work in any one or any two of the three great branches of Natural Science, Chemistry, Physics, and Physiology.

Balliol—one of 75*l.* every alternate year; one to be given in 1871.

Merton—one of 80*l.* and one or two exhibitions every year; no limit to age.

Christ Church—one of 100*l.* every year; age not to be above twenty.

Magdalen—one of 75*l.* and one or two exhibitions every year; age not above twenty.

Jesus—one of 80*l.*, generally every year; no limit as to age.

New College—one of 100*l.* occasionally.

Queen's—one of 75*l.* occasionally.

Lincoln—one of 60*l.*; a closed scholarship generally given to Owens College students.

There is but little doubt that many of the other colleges will give similar scholarships as time goes on.

But far greater rewards than these are the various fellowships, of from 150*l.* to 300*l.* per annum, which are open generally one or more every year, either for Natural Science alone or for Natural Science combined with Mathematics. These fellowships are awarded after a competitive examination, and are open to those who have taken their B.A. degree; and, unlike the system in vogue at Cambridge, they are open to all members of the University, and are not confined to the members of the particular college which offers the fellowship. Fellowships have been given for Natural Science at the following colleges: Merton,

Pembroke, Wadham, and Oriel, and, we believe, at Queen's and Magdalen, and one is to be given next February at Brasenose for Mathematics or Natural Science. It may not be superfluous to add that those who do not succeed in obtaining such a high reward as a fellowship, if they have taken a first class in the Natural Science School at Oxford, rarely fail to obtain valuable appointments after taking their degree, as Natural Science masters or lecturers at various colleges and public schools, whilst some are induced to stay up at Oxford as demonstrators and assistants to the professors, or else as college lecturers or private tutors.

In addition to the purely college rewards just mentioned, the University offers the following valuable emoluments, the first two only open to those who have taken their B.A. degree. The Radcliffe travelling fellowship, of the value of 200*l.* a year, and tenable for three years, of which eighteen months *must* be spent abroad, and the holder must be studying medicine and ultimately take his medical degree at Oxford. The Burdett Coutts Geological Scholarship of about 60*l.* for two years. A gold medal for the Johnson Memorial Prize Essay on some Natural Science or mathematical subject, awarded every four years. Various special prizes for essays, &c., given to the University by various benefactors.*

In addition to these, all the various open University Scholarships and prizes, so numerous at Oxford, are, of course, open to Natural Science students as to all others.

Every term, speaking generally, courses of lectures are given on the following subjects:—

Chemistry, by Prof. Sir B. C. Brodie, Bart., F.R.S.; Physiology and Zoology, by Prof. Rolleston, F.R.S.; Geology, by Prof. Phillips, F.R.S.; Physics (Heat, Light, and Electricity), by Prof. Clifton, F.R.S.; Botany, by Prof. Lawson, M.A.; Zoology (Invertebrate), by Prof. Westwood, F.R.S.; Mineralogy (occasionally), by Prof. Maskelyne, F.R.S. These lectures are open free to all undergraduates.

Lectures are also given at various Colleges, as at Christ Church, on Chemistry (advanced), by Mr. Vernon Harcourt, F.R.S.; on Physics and Mechanics, by Mr. Reinold; and on Physiology, by Mr. Thompson; at Merton on Chemistry (theoretical); at Magdalen on Physiology and Chemistry; at Wadham on Physics and Mechanics, which are open free to the members of the respective Colleges, and on payment of a small fee to others.

In addition to these lectures, a large amount of practical work is made an absolute necessity for a degree in the Natural Science School. Every opportunity for this practical work is given at the Museum, where, under one roof, all the various splendid collections of comparative anatomy, geology, mineralogy, and instruments for experimental, physical, and chemical science are collected together, and are made available for instruction. It is here also that all the University lectures are given, with the exception of those on Botany, which are given in the Botanical Museum in the Botanic Gardens. The illustration on the opposite page is from a photograph of the Museum taken before the building of the New Physical Laboratory. It would occupy far too much space in the present article to describe the contents of this Museum, adequately. Suffice it to say that on the left-hand side are the rooms occupied by Professor Rolleston, for practical work at physiology and comparative anatomy and osteology, fitted up with every convenience, and freely communicating with the general collection of specimens on these subjects placed in the Central Court. On the opposite side are the rooms and collections of Professor Phillips in geology and mineralogy, and above these in the gallery the magnificent collection of insects and invertebrata under the superintendence of Prof. Westwood.

* Thus a prize of 50*l.* was awarded last year for an essay "On Longevity" by an anonymous donor through the University; and a prize of 100*l.* is now offered for an essay to refute the materialism of the present age.

The building on the right-hand side, built apart from the Museum, but connected with it by a narrow passage, is the chemical laboratory. On the opposite side of the central building, not shown in the illustration, is the fine building lately erected as a physical laboratory for Professor Clifton. This building, which is the most perfect physical laboratory in the world, was only opened this term. The collection of physical science apparatus is very valuable, most of it having come from the last Paris Exhibition.

There is every facility given at the Astronomical Observatory for a practical acquaintance with astronomical instruments and methods of observation. There is a good chemical laboratory at Christ Church, as well as one at Magdalen, where, also, the valuable collection of fossils and minerals of the late Dr. Daubeny is open to all working at these subjects. Magdalen, also, has a very good astronomical telescope, and various modern meteorological instruments. A collection of minerals and geological specimens is also in process of formation at Merton. The Botanic Gardens contain every requisite for the thorough study of botany, and in the Museum in connection with it, is a very large and valuable herbarium containing collections of plants for every quarter of the globe.

Lastly, we have to mention what will ultimately tend as much, if not more, than anything else, to make Oxford the great home of Natural Science in the future. We allude to the splendid Radcliffe Scientific Library in the Museum. This Library occupies one side of the building, and consists of two great rooms each 80 feet long, 24 feet wide, and 20 feet in height. It contains the finest collection of scientific books almost in the world, certainly the most accessible. The importance and value of this fine Library cannot be over-rated. Connected with the Bodleian and the Radcliffe Libraries, it contains, as far as possible, complete sets of all the Transactions and Publications of every recognised Scientific Society in the world, and all the new scientific works are added as soon as published. Admirably arranged, admirably managed, freed from all narrow restrictions as to admittance, and open daily from ten to four, and twice a week in the evening from seven to nine, every possible facility is given to those who are working at Natural Science. We do not hesitate to say that until such libraries are founded in other places, Oxford cannot help becoming the great centre of scientific culture in England.

J. P. EARWAKER

NOTES

UNFORTUNATELY the weather does not appear to have been very favourable for the observation of the Eclipse in Sicily. The following telegram has been received from Mr. Lockyer, dated Catania, December 22, 9.40 P.M.:—"Observations of eclipse greatly interfered with by unfavourable weather, but substantial results have been secured. A definite [contact?] of the corona was noticed at a height of about one-third of radius as presented for corona. The sphero-spectroscopic method for first contact was successfully employed. The American observations of last year upon the corona are confirmed." The Astronomer Royal has received the following telegram, which was despatched by Lord Lindsay immediately after the Eclipse. Lord Lindsay's place of observation was La Maria Louisa, which appears to be near Puerto, the mainland station opposite Cadiz:—"Photographs successful. Two good pictures of corona. Polariscope doubtful. Sketching good. Corona [gives] continuous spectrum, no lines. Broken sky." From telegrams received from other members of the expedition, it is hoped that the weather may have been more favourable at the more westerly stations. At Oran, however, we hear that dense clouds covered the sky for twenty minutes before the period of totality; and till after it was over. The previous day there had been a gale of wind.