

*SOME LABORATORIES OF MARINE
BIOLOGY.*

THE description of some of the Marine Biological Laboratories of Europe, contributed by Mr. Bashford Dean to the *American Naturalist* for July, and reprinted in *NATURE*, August 24, was continued by the author in the August number of our transatlantic contemporary. Some of the most important laboratories were omitted in the first article, but they are included in the second, from which the following account has been taken:—

“The Stazione Zoologica at Naples during the past twenty years has earned its reputation as the centre of marine biological work. Its success has been aided by the richness of the fauna of the Gulf, but it is due in no small degree to careful and energetic administration. The director of the station, Prof. Dohrn, deserves no little gratitude from every worker in science for his untiring efforts in securing its foundation and systematic management. Partly by his private generosity and partly by the financial support he obtained, the original or eastern building was constructed. Its annual maintenance was next assured by the aid he secured throughout (mainly) Germany and Austria. By the leasing of work tables to be used by representatives of the universities, a sufficient income was maintained to carry on the work of the station most efficiently. A gift by the German government of a small steam launch added not a little to the collecting facilities.”

After commenting upon the attractiveness of the Naples station, and the general air of quietness which results from the excellent system that prevails in every branch of the station's organisation, Mr. Dean goes on to describe the aquarium room, which is lighted only through wall-tanks. “There are in all about two dozen large aquaria embedded in the walls of the sides and of the main partition of the room. The water is clear and blue. The background in each aquaria, built of rockwork, catches the light from above and throws in clear relief the living inmates.”

“There is no more interesting department of the station than that of receiving and distributing the material. . . . Neapolitan fishermen have learned to bring all of their rarities to the station. The specimens are quickly assorted by the attendants; such as may not be needed for the immediate use of the investigators are retained and prepared for shipment to the universities throughout Europe. The methods of killing and preserving marine forms have been made a most careful study by Cav. Lo Bianco, and his preparations have gained him a world-wide reputation. Delicate jelly-fish have to be preserved distended, and the frail forms of almost every group have been successfully fixed. The methods of the Naples station were kept secret only until it was possible to verify and improve them, as it was not deemed desirable to have them given out in a scattered way by a number of investigators.”

There are at present two American tables at Naples, one supported by the Smithsonian Institution, and the other by gift of Agassiz.

“The entire Italian coast is so rich in its fauna that it is due perhaps, only to the greatness of Naples, that so few stations have been founded. Messina has its interesting laboratory well known in the work of its director, Prof. Kleinenberg. The Adriatic, especially favourable for collecting, has at Istria a small station on the Dalmatian coast, and at Trieste is the Austrian station. Trieste possesses one of the oldest and most honoured of marine observatories, although its station is but small in comparison with that of Naples, Plymouth, or Roscoff. Its work has in no small way been limited by scanty income; it has offered the investigator fewer advantages, and has, therefore, become out rivalled. During a greater part of the year it is but little more than the supply station of the University of Vienna, providing fresh material for the students of Prof. Claus. Its percentage of foreign investigators appears small; its visitors are usually from Vienna and of its university.”

Dr. Graefie is the director of this station. With regard to laboratories of marine biology in Germany, Norway, and Russia, Mr. Dean says:—

“The German universities have contributed to such a degree to the building up of the station at Naples that they have hitherto been little able to avail themselves of the more convenient but less favourable region of German coasts. The collecting resources of the North Sea and of the Baltic have perhaps been not sufficiently rich to warrant the establishment

of a central station. On the side of the Baltic, the University of Kiel, directly on the coast, may itself be regarded a marine station. At present the interest in founding local laboratories has, however, become stronger. At Plön, not far from Flensburg, is established a small station under the directorship of Prof. Zacharias, and the first number of its contributions has recently been published. In addition the newly-acquired Heligoland has become the seat of a well-equipped Governmental station, under the directorship of Dr. R. Heincke. The island has been long known as most favourable in collecting regions, and its position in the midst of the North Sea fisheries gives it especial importance.

“Norway, like Germany, is strengthening its interest in local marine laboratories. It has succeeded in establishing two permanent stations, one near Bergen, the other, most recently, on an out-jutting point of the North Sea almost westward of Christiania. The former is interested especially in matters relating to the North Sea fisheries, and is supported partly by the contributions of a learned society and partly by a subsidy from the Government in view of its relation to the practical fisheries. The second and smaller station is devoted almost exclusively to research in morphology. It is a dependency of the University of Christiania, and is under the directorship of one of its professors, Dr. Johan Hjört. With the richest collecting resources these new stations may naturally be expected to yield most important results.

“Russians have ever been most enthusiastic in marine research, and their investigators are to be found in nearly every marine station of Europe. The French laboratory on the Mediterranean at Ville Franche, as has previously been noted, is supported essentially by Russians. At Naples they are often next in numbers to the Germans and Austrians. The learned societies of Moscow and St. Petersburg have contributed in no little way to marine research. The station at Sebastopol on the Black Sea has become permanent, possessing an assured income. That near the convent Solovetsky on the White Sea, though small, is of marked importance. It is already in its thirteenth year. Prof. Wagner, of St. Petersburg, has been its most earnest promoter as well as constant visitor. He in fact caused the Superior of the convent to become interested in its work and secured a permanent building by the convent's grant; he was then enabled by an appropriation from Government to provide an equipment. Its annual maintenance is due to the Society of Naturalists of St. Petersburg. The matter of the appointment of a permanent director for the summer months is now being agitated. The station Solovetskaia is said to possess the richest collecting region of the Russian coasts. It is certainly the only laboratory which has at its command a truly Arctic fauna.”

The article concludes with a brief description of the Swedish zoological station on the west coast near Gothenberg. The station was founded by Dr. Regnell about fifteen years ago, and Dr. Hjalmar Theel is its present director. The students are mainly from the university of Upsala; indeed, no foreigners are admitted to it.

*UNIVERSITY AND EDUCATIONAL
INTELLIGENCE.*

OXFORD.—The accommodation for students in the Radcliffe Library has been improved by the removal of the sub-librarian's office to the room under the central tower and the provision of several new reading tables in the space thus created. But as the numbers of scientific students continue to increase, it is clear that some more extensive and permanent addition will very soon be necessary. The number of regular readers in the library this term is seventy-nine; ten years ago it was only thirty-one, and in the previous decade it was seldom that more than five or six students made use of the library in a single day. These figures give some idea of the gradual growth of scientific studies in the University. A proposal has been set on foot, which, if it is carried out, is likely to affect scientific studies in Oxford very beneficially. It is, that besides the existing means of obtaining a degree by examination, facilities shall be given for obtaining a degree for research in any recognised subject. It is proposed that a residential qualification of two years shall be imposed on any candidate for such a degree, and that evidence must be brought forward of continuous research and study, to the satisfaction of the board appointed for the purpose. At

present the scheme has merely been brought before the Hebdomadal Council, and has, as yet, assumed no definite shape.

CAMBRIDGE.—The Local Examinations and Lecture Syndicate have presented to the Senate their twentieth annual report. The most important event of the year has been the establishment of the University Extension and Technical College at Exeter. The college has been established by the co-operation of the Town Council of Exeter, the University Extension Committee of Exeter, and the Syndicate, and Mr. A. W. Clayden, of Christ's College, has been appointed principal. The work done for County Councils under the authority of the Syndicate has been continued during the past year. There has been a considerable diminution in the area covered, as County Councils have been able to utilise to a greater extent than before the services of local teachers, and have spent a larger proportion of their available funds in grants in aid of permanent institutions for technical teaching. On the other hand, the reports received from lecturers indicate considerable improvement in the quality of the work done. About 650 students attended the summer meeting, of whom 150 were men and 500 women. On the whole the work done was satisfactory, though a certain number of students attempted too many subjects. It is not considered desirable to hold such meetings oftener than once in two years, but classes on a smaller scale may satisfactorily be held in the alternate long vacations. From Mr. Arthur Berry's report to the Syndicate it appears that the stimulus given to the work of the local lectures last year by the activity of the County Councils in the matter of technical education has lost a good deal of its effect, as more permanent institutions for educational purposes are gradually being organised. Not only have literature and history thus suffered, but courses on branches of science not of obviously practical utility (such as astronomy) have tended to be displaced by more "technical" subjects. It is satisfactory to learn that such engagements as have already been made for the ensuing winter indicate a distinct reaction against the exclusive study of "bread and cheese" subjects.

In resigning office on September 30, the late Vice-Chancellor, Dr. Peile, called attention to the lack of funds for research in several of the scientific departments. He is now able to announce that an anonymous member of the Senate has placed in his hands £100 for the support of higher work in the Pathological Department during the coming academical year.

A fire, which took place at the Pitt Press last week, has necessitated the temporary evacuation of the room occupied by the Registrar. The Old Library of Pembroke College has been placed at his disposal by the Master and Fellows, and the business of the office will be carried on there during the present term.

The scheme for examinations in agricultural science under a managing syndicate was non-placeted on November 9, but was carried by a very large majority. The proposal to postpone the conferring of Honours degrees to the Long Vacation, in order to give more time for the Tripos examinations, was rejected.

The *University Reporter* of November 14 contains notices of scholarships in Natural Science open for competition to non-residents at Peterhouse, Clare, Pembroke, King's Queen's, St. John's, and Sidney Sussex. The examinations will be held in December and January next.

TRINITY COLLEGE, DUBLIN.—There is during this term a large increase in the number of students interested in the study of biology; so large, in fact, that the accommodation in the Botanical Laboratory has had to be increased. This is a pleasing feature in a university so long devoted to classical pursuits.

At the recent Moderatorship Examinations, three candidates, C. J. Patten, F. K. Boyd, and N. H. Alcock, obtained Senior Moderatorships, and were awarded gold medals in Natural Science (Botany, Zoology, Geology, and Physiology). During the week the University Experimental Science Association held its opening meeting, when a very large audience assembled to hear Dr. Joly, F.R.S., deliver a lecture on "Some Applications of Photography." The Provost, Dr. Salmon, occupied the chair.

The *British Medical Journal* says that steps are being taken to arrange for a deputation representing the university colleges in England to wait, shortly, upon the Chancellor of the Exchequer, to urge upon him the propriety of increasing the annual parliamentary grant. A sum of £15,000 has been

granted annually since 1890, and when this sum was first placed upon the estimates, it was understood that the question would be reviewed at the end of five years. A Treasury Committee, consisting of Sir Henry Roscoe, Mr. George Curzon, Prof. Bryce, Mr. R. G. C. Mowbray, and Mr. W. J. Courthope, have reported recently in favour of the grant being doubled, pointing out that all educational work connected with science is increasing yearly in cost, and that the growth in the number of students and the enlargement of the teaching staff have contributed to strain the resources of the colleges.

SCIENTIFIC SERIALS.

Bulletin of the New York Mathematical Society, vol. iii. No. 1. (New York: Macmillan, October, 1893.)—A congress of mathematics and astronomy was opened at Chicago on August 21, and this number commences with Dr. Felix Klein's inaugural address. It is brief but not witty, and merely sketches some of the papers to be read, and closes with the remark that mathematicians must go farther than to form "mathematical societies." "They must form international unions, and I trust that this present congress at Chicago will be a step in that direction." Prof. T. H. Safford narrates briefly, in his remarks on "instruction in mathematics in the United States," the history of the noteworthy rise in the general standard of mathematical teaching within the last few years. Prof. Ellery Davis reviews four recent geometries, viz. those by Hopkins, Dupuis, W. B. Smith, and Halsted. Prof. Tyler analyses the papers read at the Chicago congress, and Prof. Waldo gives a brief account of the American Association meeting at Madison on August 16-23. Three pages of notes of mathematical doings, and eight pages of new publications follow. This last feature of the *Bulletin* is a very prominent and highly valuable one.

The *American Meteorological Journal* for November contains an account of the second annual meeting of the American Association of State Weather Services, held in Chicago, on August 21-23, 1893. The meeting was well attended, and resolutions were adopted on various subjects, among which may be mentioned the issue of weekly crop bulletins. It was also recommended that the bottom of thermometer screens should be four and a half feet above the ground; this would make the thermometers about a foot higher than is recommended in this country. It is stated that experiments made during the past year prove the former elevation to give the best results.—Mr. C. E. Linney read a paper on the value of frost predictions, and the best method of making them locally. The author is of opinion that with a knowledge of the ordinary weather signs an observer can, by the aid of the wet and dry bulb thermometers, form a good idea of what minimum temperature to expect during the night.

In the *Transactions of the Austrian Geological Survey* we remark an important communication, made by Mr. Friedrich Teller, "On the so-called Granite of the Bacher Mountains in South Steiermark." It seems that the familiar term, "granite of the Bacher," has been entirely misapplied. In the eastern part of these mountains the rock is granitic *gneiss*, forming a dome-shaped core beneath the crystalline schists; while the so-called granite in the western part is an intrusive *porphyrite*, younger than the whole series of schists and phyllites, and possibly of the same age as the porphyrite which penetrates Triassic and Jurassic strata in the neighbouring district.—Dr. A. Kornhuber gives the name of *Carosaurus Marchesetti* to a new Saurian genus from the Karst district. It was found in the same cretaceous shales as *Acteosaurus*, a genus described thirty years ago by Hermann Meyer, and was erroneously thought to be merely a larger specimen of Meyer's genus.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, November 6.—M. Lœwy in the chair.—On Goubet's joint and its application to marine screw-propellers, by M. H. Resal. This is a mathematical investigation of the action of a joint capable of making the propeller act as supplementary steering gear, and of adapting it to submarine navigation. It is shown to possess several advantages over the