

reach the Bagrot Pass from the north, we returned to Nagyr, and started inwards towards the wholly-unknown region. We left Nagyr behind on June 27, and in a mile or two came to the foot of the Hopar Glacier. This glacier was once joined by the Hispar Glacier, and their united moraines were deposited at Nagyr, the town being actually built upon their crest. Now the foot of the Hispar Glacier has retreated some twenty miles into the mountains. The Hopar Glacier is greatly shrunken in width, and in its shrinkage it has left a fine, almost level area, beside its left bank, which is covered by the fields of Hopar.

We were delighted to find an enormous and almost unsuspected series of glacier basins above Barpu. In order to get some idea of them we spent a day mounting to the crest of the ridge north of our camp, which divides Barpu from the Hispar Valley. The view was of peculiar interest to us, for we looked for the first time into the Hispar Valley and beheld the long avenue of peaks that lined the way up the Hispar Glacier towards the unknown snowy regions through which lay our intended route into Baltistan. We reached the summit of the Hispar Pass on July 18, and Askole on the 26th, our slow progress being caused by the exigencies of the survey in weather that was oftener bad than fair.

We left Askole on July 31 and returned to it again on September 5, the intervening time having been spent over our expedition up the Baltoro Glacier and the ascent of Crystal and Pioneer Peaks. On September 10 we embarked on a skin raft, which carried us down the Shigar River to the Indus. We landed, and in half an hour reached the scattered villages of Skardo, capital of Baltistan. Of our journey from Skardo to Leh to verify our instruments, and from Leh back to Srinagar, it is unnecessary to speak. We reached Abbottabad on October 28, exactly seven months from the day on which we left it.

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—During this term Prof. Clifton is lecturing on the optical properties of crystals, and other lectures and practical instruction are given by Mr. Walker and Mr. White at the Museum, by Mr. Baynes at Christchurch, by Sir J. Conroy at Balliol, and Mr. F. J. Smith at Trinity. In chemistry, Mr. Fisher and Mr. Watts are lecturing on inorganic and organic chemistry respectively, and Messrs. V. H. Veley and J. E. Marsh are demonstrators at the Museum. Mr. Vernon Harcourt is lecturing on inorganic chemistry at Christchurch, and Mr. D. H. Nagel at Trinity.

The professor of geology announces a course of lectures on economic geology and geological excursions. Prof. Ray Lankester is giving two courses, on embryology, and on the protozoa, rotifera, and urochorda; and supplementary lectures are given by Dr. Benham, Mr. J. Barclay Thompson, Mr. Bourne, and Mr. Minchin.

Prof. Burdon Sanderson is lecturing on the central nervous system, and has the assistance of Dr. Haldane and Mr. Pembury.

Prof. Vines is lecturing on outlines of classification, and has appointed Mr. P. Groom, of Cambridge, as demonstrator.

At the end of last term a sum of £3500 was voted by Convocation towards the renewal of a portion of the buildings and hothouses in the Botanic Garden. Prof. Vines made a full report on the condition of the houses at the end of last year, showing that all were old, of faulty construction, and so dilapidated as to entail a heavy annual expenditure for repairs. At the same meeting of Convocation a sum of £1000 was placed to the credit of the delegates of the University Museum, to be employed at their discretion for the maintenance and improvement of the collections in the Museum.

At a meeting of the Ashmolean Society on Monday, May 1, under the presidency of Mr. E. B. Poulton, Prof. A. W. Rücker, F.R.S., gave an interesting lecture on the electrical conductivity of thin films, which was largely attended.

On the 16th inst. Lord Kelvin will give the annual Boyle lecture to the Junior Scientific Club, and on the 18th the Romanes lecture will be given in the Sheldonian theatre by the Right Hon. T. H. Huxley.

CAMBRIDGE.—The term for which Mr. J. Y. Buchanan, F.R.S., was appointed to the University Lectureship in Geography expires at the end of the present term. The Committee of

Selection for the appointment of a Lecturer to hold office for the next five years, will meet at Gonville and Caius Lodge on May 31. The stipend of the Lecturer is £200 a year, and he is required to deliver courses of Lectures in Geography during two terms at least, and to give informal instruction and assistance to students attending his lectures, and to promote the study of his subject in the University. The retiring lecturer is re-eligible. Candidates are to send their names and testimonials to the Master of Gonville and Caius College, on or before May 27.

The first Arnold Gerstenberg Studentship, of the value of £90 a year for two years, will be competed for in May, 1894, by men or women who have obtained honours in either part of the Natural Science Tripos, and whose first term of residence was not earlier than the Easter term 1888. The subjects of examination are Logic and Psychology, and the successful candidate must undertake to pursue a course of philosophical study.

Applications for permission to occupy the University's tables at the Zoological stations of Naples and Plymouth are invited; they should be addressed to Prof. Newton, and reach him on or before May 25.

The names of Prof. John Couch Adams, and of William, seventh Duke of Devonshire, have been inserted in the list of Benefactors of the University, recited at the annual Commemoration Service.

The plans for the Sedgwick Memorial Museum of Geology, prepared by Mr. T. G. Jackson, A.R.A., were approved, by a large majority, in the Senate on Thursday last. The work of construction cannot however be begun until the finances of the University, which this year show a deficit of some £4000, are in a more satisfactory state. A proposal to raise funds, by increasing the capitation-fee paid by undergraduates from 17s. to 40s. a year, is now before the Senate.

Alfred Eichholz, B.A., first class in both parts of the Natural Science Tripos 1891-92, with distinction in physiology, has been elected to a Fellowship at Emmanuel College. Mr. Eichholz has already published papers of interest on physiological and anatomical subjects, and his election reflects great credit on his college.

#### SCIENTIFIC SERIAL.

*Bulletin of the New York Mathematical Society*, vol. ii. nos. 5, 6 (New York, 1893).—The earlier number opens with an account of the theory of substitutions (pp. 83-106), by Prof. Oskar Bolza. This is a warmly appreciative notice of Dr. F. N. Cole's translation of Netto's "Theory of Substitutions and its Applications to Algebra," to which attention has recently been drawn in our columns (see NATURE, pp. 338, 339).—Dr. M. Bôcher in a bit of mathematical history (pp. 107-109) calls attention to a remarkable memoir by Euler ("De motu Vibratorio Tympanorum," 1764).—No. 6 contains a paper read before the New York Mathematical Society by Dr. T. Craig on some of the developments in the theory of ordinary differential equations (pp. 119-134). This is likely to be useful to students. Another paper read before the same Society is one entitled "On a General Formula for the Expansion of Functions in Series," by Prof. Echols (pp. 135-144), which is intended to be a brief exposition of a general theorem which forms the basis of a series of papers on certain determinant forms and their applications.—A short note follows by Dr. E. McClintock on the early history of the non-euclidian geometry (pp. 144-147), in continuation and part correction of his previous note in No. 2 of this volume. It discusses the claim to priority, brought forward recently by Prof. Beltrami, of Saccheri (1733) in his "Euclides ab omni nœvo Vindicatus" as against Lobatschewsky.—"Notes" and "new publications" complete each number.

#### SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 16.—"On a Portable Ophthalmometer." By Dr. Thomas Reid, Glasgow. Communicated by Lord Kelvin, P.R.S.

The object of this instrument is to measure the curvature of the central area of the cornea, the polar or optical zone, and as this polar zone is the part of the cornea utilised for distinct vision, the instrument furnishes all the data practically requisite for the diagnosis and measurement of corneal astigmatism. Its use