

monuments themselves. In one case only a camp has been partly damaged, and this owing to mining operations involving a question of a large sum of money which made it impossible for the Government to interfere. Other non-scheduled monuments have since been added to the list, and the number is steadily but not rapidly increasing.

"The Government makes no allowance for an assistant; not even so much as a man to hold the end of the tape in measuring, without which no proper survey of the monuments can be made, and I have to employ a private assistant, whom I take about with me at my own cost. With his assistance, and by dividing the work with him—I making the necessary notes and measurements while he is drawing—each monument takes on an average about one day; without an assistant the time would be about doubled. After this the owner has to be visited, and as he generally lives at a distance from the monument, this frequently takes another day or more. A great deal of this time might be saved by the assistance of persons living in the localities and with better chance of success.

"I issued a circular to a number of local Societies inviting them to co-operate, but few responded. One instance, however, shows what may be done in this way. Sir Herbert Maxwell has not only sent me the addresses of several owners in Wiltshire and Kirkcudbrightshire, but, by using his influence with these, has been the means of placing several monuments under the Act. I would suggest that the same course might well be followed by others.

"The recommendation I would make is this:—Local Societies should (1) report to me what monuments in their district they think worthy of being put under the Act; (2) they should send me the names and addresses of the owners; (3) they should communicate with the owners, and, if possible, obtain their consent to have the monuments placed under the Act, subject, of course, to their subsequent acceptance by the Office of Works; and (4) they should report to me any damage that they find being done or contemplated either to the monuments under the Act, or to others not so protected. With such assistance I think that much more rapid progress may be made."

Prehistoric Remains Committee.—Mr. J. W. Davis stated that this Committee had been recommended for reappointment by the Committee of Section H. The recommendation is as follows:—

"That Sir John Lubbock, Dr. John Evans, Prof. Boyd Dawkins, Dr. R. Munro, Mr. Pengelly, Dr. Hicks, Mr. J. W. Davis, Prof. Meldola, and Dr. Muirhead be reappointed a Committee for the purpose of ascertaining and recording the localities in the British Islands in which evidences of the existence of prehistoric inhabitants of the country are found; and that Mr. J. W. Davis be the Secretary."

Prof. Lebour suggested that it would be convenient if, in registering prehistoric remains, the Committee would adopt a uniform scheme of signs—if possible, an international one.

Mr. William Gray stated that the work of registering ancient remains had been carried on for twenty-five or thirty years by members of their Society (Belfast Naturalists' Field Club) and others in Ireland, and they had long felt the want of some central organization such as that of the present Committee. He also alluded to the necessity for a uniform system of signs.

Mr. William White remarked upon the difficulty which private individuals often experienced in approaching the proprietors of ancient remains, and pointed out that individual efforts would be likely to be more successful if members of local Societies could make overtures backed up by the sanction of a British Association Committee such as the present one.

Work of the Corresponding Societies Committee.—The Secretary stated that during the present meeting of the Association an important resolution had been framed at the instigation of Sir Douglas Galton, with the object of extending the powers of their Committee. According to the present rules the Committee was nominated by the Council and appointed by the General Committee, but they had no power of submitting resolutions or recommendations to the Committee of Recommendations or to the General Committee. The present resolution, which was calculated to give them the necessary power, and thus to put them on the same footing as the Committees of the Sections, was as follows:—

"That the Conference of Delegates of Corresponding Societies be empowered to send recommendations to the Committee of Recommendations for their consideration, and for report to the General Committee."

The Secretary had succeeded that morning in getting this resolution passed by the Committees of Sections B and C, and it had been forwarded by them in due form to the Committee of Recommendations, by whom it had also been accepted. It was subsequently submitted to the General Committee, and accepted by them on the understanding that the recommendations so forwarded should not clash with the recommendations sent up by the Sectional Committees.

The Secretary remarked that he would take the present opportunity of explaining away a misunderstanding that had arisen on the part of some of the local Societies. Some of these had nominated Delegates to attend the Manchester meeting without having previously submitted any claim for election as Corresponding Societies. Such Delegates could not be officially recognized by the Association, as it was only those Societies which had been admitted as Corresponding Societies, and which were still on the list, that were thus entitled to be officially represented. According to the Rules no Society can be admitted without first sending in a formal application, accompanied by a specimen of its publications; this application would be considered by the Corresponding Societies Committee, and only in the event of the Society being recommended for election by this Committee, and this recommendation confirmed by the General Committee, would it be admitted to the privileges of a Corresponding Society.

At the termination of the meeting a vote of thanks was passed to Prof. Meldola, on the motion of Prof. Lebour, for the services which he had rendered as Secretary to the Committee and to the Conferences.

THE METEOROLOGY OF OXFORD.¹

THE forty-second volume of the Observations of the Radcliffe Observatory has recently been published, and is in nearly all respects a continuation of the previous publications. The Radcliffe takes precedence of all our British Observatories as regards the length of time over which the published hourly observations of atmospheric pressure and temperature extend; to which is to be added a commendable fullness, far from common, with which many other observations have been made and given to the public for a long term of years.

At Oxford, atmospheric pressure attains the maximum, 29.760 inches, in June, and falls to the minimum, 29.677 inches, in March, to which the mean of October, 29.680 inches, closely approximates. The annual mean is 29.720 inches; the highest during the previous thirty years being 29.785 inches in 1858, and the lowest 29.572 inches in 1872, the year to be long remembered for its excessive rainfall. Temperature rises to the maximum, 61°.7, in July, and falls to the minimum, 38°.8, in January, the annual mean being 49°.2. The warmest year was 1868, with a mean of 51°.4, and the coldest mean 45°.5 in 1879. Of individual months, the warmest was July 1859, the mean of which was 66°.5, while the mean for February 1855 was only 29°.5, giving thus a mean monthly range of 37°.0. The rainfall reaches the maximum, 2.81 inches, in October, and falls to the minimum, 1.62 inch, in March, and the mean annual amount is 26.42 inches. The extreme annual amounts were 40.42 inches in 1852 and 17.56 inches in 1870. The month of heaviest rainfall was October 1875, when 7.53 inches fell, and the lightest fall was 0.18 inch in September 1865, when temperature was unusually high for the season.

The diurnal curves of pressure approach closer than those of any other British Observatory of which we have records to the seasonal phases of these curves for continental situations. On the mean of the year, the first minimum occurs about 4 a.m., and the maximum at 9 a.m.; and the second minimum at 3.30 p.m. and maximum at 10 p.m.,—the former being earlier in summer and later in winter, whereas the afternoon phases are the reverse of this. In June the time between the first and second maximum is 14½ hours, but in winter only 12 hours.

Of quite exceptional interest are some of the other diurnal phenomena at Oxford, notably the diurnal distribution of thunderstorms, sheet lightning, and auroras. We have compiled the following table showing the sums of the times of occurrence

¹ "Results of Meteorological Observations made at the Radcliffe Observatory, Oxford, in the Year 1884, under the Superintendance of E. J. Stone, F.R.S." (Oxford, 1887.)

of these phenomena during the several hours of the day for the twenty years ending 1884:—

Hours.	Thunderstorms.			Sheet lightning.			Auroras.		
	Summer— June, July, August.	Year.	Year.	Summer— June, July, August.	Year.	Year.	Summer— June, July, August.	Year.	Year.
Mid. to 1 a.m.	9	14	10						
1 to 2 a.m.	5	4	2	1 to 2 p.m.	26	0	0	0	0
2 to 3 a.m.	5	1	2	2 to 3 p.m.	21	2	0	0	0
3 to 4 a.m.	6	1	1	3 to 4 p.m.	29	2	0	0	0
4 to 5 a.m.	4	0	0	4 to 5 p.m.	17	2	0	0	0
5 to 6 a.m.	6	0	1	5 to 6 p.m.	22	4	5	5	5
6 to 7 a.m.	4	0	1	6 to 7 p.m.	22	3	10	16	10
7 to 8 a.m.	7	1	0	7 to 8 p.m.	5	12	26	20	26
8 to 9 a.m.	8	0	0	8 to 9 p.m.	3	22	31	31	31
9 to 10 a.m.	8	0	0	9 to 10 p.m.	5	41	27	27	27
10 to 11 a.m.	7	1	0	10 to 11 p.m.	5	40	23	23	23
11 to noon.	21	1	0	11 to midnight.	5	26	16	16	16

Thus the daily maximum for thunderstorms is from about noon to 7 p.m., being the period of the day covered by the afternoon minimum of atmospheric pressure in summer; but the maximum for sheet lightning is from 8 p.m. to midnight, being the period embraced by the afternoon maximum of pressure. The absolute daily maximum for sheet lightning, it will be observed, does not occur till from 9 to 11 p.m., or till some time after dusk, and cannot therefore be accounted for by increased visibility as darkness sets in. The opinion is widespread that sheet lightning is merely the reflection of a distant flash of lightning. The Oxford observations show, however, that only a small percentage of all the cases admit of being explained in this way. In connexion with the well-defined maximum from 9 to 11 p.m. it may be remarked that there is no region of the globe nearer Oxford than America where thunderstorms with the accompanying true lightning have the daily maximum at the same physical time, 9 to 11 p.m. G.M.T., when sheet lightning has its daily maximum at Oxford.

The curve for auroras has its diurnal maximum substantially at the same time as sheet lightning, or during the time of the evening maximum of pressure. The agreement of these two maxima with this portion of the daily curve of pressure is all the closer when it is considered that the evening maximum of pressure is from one to two hours later in summer when the sheet lightning was observed than in the autumn and spring months when the great majority of auroras occur. These results are of the greatest importance with respect to recent theories regarding thunderstorms, and to suggested connexions between the aurora in arctic and sub-arctic regions and the lightnings of low latitudes. The time of occurrence of the maxima of aurora and sheet lightning from 9 to 11 p.m. indicates, perhaps, a more direct connexion between these phenomena and the evening maximum of pressure than has been suspected. This maximum is mainly due to an overflow of upper aerial currents back to eastward from the longitudes to westward, where at the time the afternoon pressure is at the minimum ("Encyc. Britt.," *Meteorology*, p. 122); and hence at these hours there is more aqueous vapour spread through the higher regions of the atmosphere in its gaseous and fluid states, and also in the solid state of minute spicules of ice, even though no cloud in the finest pencilled forms of the cirrus be visible.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Drs. Routh and Glaisher, Prof. J. J. Thomson, and Mr. A. R. Forsyth have been appointed Examiners in Part II. of the Mathematical Tripos of 1888.

The following appointments of Natural Science Examiners have been made:—Physics: Profs. J. J. Thomson and W. G. Adams. Chemistry: Prof. H. E. Armstrong and Mr. H. J. H. Fenton. Mineralogy: Messrs. T. W. Danby and H. A. Myers (British Museum). Botany: Prof. I. B. Balfour and Dr. S. H. Vines. Physiology: Dr. W. H. Gaskell and Prof. G. F. Yeo. Zoology: Messrs. H. Gadow and W. F. R.

Weldon. Geology: Prof. C. Lapworth and Mr. A. Harker. Human Anatomy: Prof. J. Cleland and Dr. A. Hill. Pharmaceutical Chemistry: Mr. Pattison Muir.

At a meeting of the Senate in the Arts School recently, general approval was expressed of the scheme for providing a new room for botanical microscopy. The scheme for new anatomical and physiological rooms was not so entirely approved, some persons wishing to retain the ugly old Anatomical Museum and buildings, and also considering that the requirements of the Medical School had not been sufficiently considered.

Mr. W. Bateson, M.A., Fellow of St. John's College, has been elected to the Balfour Studentship.

Group E (Natural Science), in the Higher Local Examination, attracts a diminishing number of candidates, we are sorry to see. Only 36 presented themselves this year as against 73 in 1879; but 10 candidates gained a first class this year, as against 4 in 1879; 35 failed then, only 5 this year. Elementary Biology is reported on fairly this year; but Elementary Chemistry does not seem to have been studied practically, and problems were not satisfactorily dealt with. Only four candidates passed in Physics. The Physiology, Zoology, and Geology papers were well answered; but in Botany the general standard was decidedly low.

SOCIETIES AND ACADEMIES.

LONDON.

Entomological Society, November 2.—Dr. D. Sharp, President, in the chair.—Mr. Stevens exhibited a specimen of *Acidalia immo-ata*, L., purchased by him some years ago at the sale of the collection of the late Mr. Desvignes. He remarked that specimens of the insect lately captured near Lewes had been described last month by Mr. J. H. A. Jenner as a species new to Britain.—Mr. Adkin exhibited, and made remarks on, a series of male and female specimens of *Arctia mentica* from co. Cork; also, for comparison, two specimens of *A. mendica* from Antrim, and a series of bred specimens from the London district.—Mr. Enoch exhibited a specimen of *Calocoris bipunctatus* containing an internal parasitic larva.—Dr. Sharp exhibited three species of Coleoptera new to the British list, viz. *Oethebius auriculatus*, Rey, found some years ago in the Isle of Sheppey, but described only quite recently by M. Rey from specimens found at Calais and Dieppe; *Limnius rizenlaris*, Rosenh., found by Dr. J. A. Power at Woking; and *Tropiphorus obtusus*, taken by himself on the banks of the Water of Cairn, Dumfriesshire.—Dr. Sharp also exhibited a *Goliathus* recently described by Dr. O. Nickerl as a new species under the name of *Goliathus atlas*, and remarked that the species existed in several collections, and had been supposed to be possibly a hybrid between *G. regius* and *G. cacticus*.—Mr. Eland Shaw exhibited two species of Orthoptera, which had been unusually abundant this year, viz. *Nemobius sylvestris*, and *Tettix subulatus*.—Mr. E. B. Poulton exhibited the cocoons of three species of Lepidoptera, in which the colour of the silk had been controlled by the use of appropriate colours in the larval environment at the time of spinning up. He said this colour-susceptibility had been previously proved by him in 1886 in the case of *Saturnia carpini*, and the experiments on the subject had been described in the Proc. Royal Society, 1887. It appeared from these experiments that the cocoons were dark brown when the larvæ had been placed in a black bag; white when they had been freely exposed to light with white surfaces in the immediate neighbourhood. Mr. Poulton stated that other species subjected to experiment during the past season afforded confirmatory results. Thus the larvæ of *Eriogaster lanestris* had been exposed to white surroundings by the Rev. W. J. H. Newman, and cream-coloured cocoons were produced in all cases; whilst two or three hundred larvæ from the same company spun the ordinary dark brown cocoons among the leaves of the food-plant. In the latter case the green surroundings appeared to act as a stimulus to the production of a colour which corresponded with that which the leaves would subsequently assume. Mr. Stainton suggested that larvæ should be placed in green boxes, with the view of ascertaining whether the cocoons would be green. It had been suggested that the cocoons formed amongst leaves became brown because the larvæ knew what colour the leaves would ultimately become. The discussion was continued by Mr. Waterhouse, Dr. Sharp, Mr. McLachlan, and others.—Mr. S. Klein read "Notes on *Ephestia kuhniella*," and exhibited a number of living larvæ of the species, which he said