

several years, it was never applied to this purpose: and we think it but justice to the cause of science in Ireland, to call the attention of the Science and Art Department to this fact, and to urge them to have this sum inserted in the estimates for the coming year.

It is scarcely necessary to remind readers of NATURE of the importance of having the Museum of Economic Botany as close to the Botanical Gardens as possible, especially when, as in this case, these gardens are so largely resorted to; but it may not be amiss to inform them that the numerous members of the Royal Dublin Society have among themselves contributed, as donations, almost all the specimens in the present Economic Museum.

A local committee has been formed in Dublin of the "Veitch" Memorial. Dr. Moore, F.L.S., Director of the Botanical Gardens, Glasnevin, is the chairman, and a considerable number of subscriptions has been received.

At a meeting of the Ashmolean Society, Oxford, Nov. 29th, Prof. Lawson read a short paper on Chlorophyll. Although he had made no original observations on this subject himself, he had no doubt but that a general view of what had been done recently by others would prove interesting to the Society. In speaking of the optical properties of chlorophyll, he called particular attention to the observations made on this branch of the subject by Professor Stokes; observations which had disproved the old theory that chlorophyll could be separated into two primary substances of a yellow and blue colour (the xanthophyll and cyanophyll of M. Frémy). He dwelt also upon the fact that Mr. H. L. Smith's careful comparison of the spectrum of the endochrom of diatoms with that of chlorophyll went far to prove the two substances to be identical. Chlorophyll had been formerly supposed to be a product of the vegetable kingdom only; but more recently a green colouring matter, closely allied to chlorophyll if not identical with it, had been detected in many of the lower forms of animal life. These discoveries illustrated in a striking manner how the supposed gaps between the two kingdoms were filled up.

At Clare College, Cambridge, a scholarship, value 50*l.*, tenable for three years, will be given for proficiency in natural science. The examination, commencing March 30, 1870, will be in chemistry, chemical physics, comparative anatomy, physiology, and geology. Excellence in one or two of these subjects is preferred to a less perfect acquaintance with a greater number. Further particulars can be obtained from the tutor of the college.

THE *Pall Mall* announces the publication of the seventeenth volume of the Report of the Schools Inquiry Commission. It comprises reports on the schools in what the Commissioners have defined as the north-western district—namely, the counties of Lancashire and Cheshire.

WE understand that it is not the intention of the Government to fill up the vacancy in the curatorship of the Botanic Gardens at the Mauritius, caused by the death of Dr. Meller, but to promote the head-gardener to the highest post of authority.

DR. MCQUILLEN has exhibited in the Microscopical Department of the Academy of Natural Sciences at Philadelphia, slides of blood corpuscles of men and the lower animals, to which chloroform and nitrous oxide had been administered, to show that there was no morphological change in these bodies after administration of anesthetics, as stated by certain physiologists in England. He showed specimens also in which, the blood corpuscles having been brought into actual contact with chloroform and ether, disintegration had taken place.

ON the same occasion, Mr. W. H. Walmsley called attention to the very great merits of glycerine jelly as a medium for the

preservation of every description of objects, animal or vegetable. With this the most delicate tissues can be perfectly seen and examined; it preserves the colours, is very tenacious, and "its refractive powers are sufficient to render all inert structures transparent; while even the delicate lines on the scales of a mosquito's wing are as distinctly visible as if mounted dry." The formula for the preparation of this valuable jelly is thus set forth:—Take one package of Cox's gelatine, wash repeatedly in cold water, then place in a vessel and cover with cold water. Allow it to soak an hour or two, pour off superfluous water, add a pint of boiling water, place vessel on fire, and boil for ten or fifteen minutes; remove from fire, and when cool, but still fluid, add the white of an egg well beaten, replace on the fire, and boil until the albumen of the egg coagulates. Strain while hot through flannel, and add an equal portion by measurement of Bower's pure glycerine, and fifty drops of carbolic acid in solution: boil again for ten or fifteen minutes, and again strain through flannel; place in water bath, and evaporate to about one half; then filter (through cotton) into 2 oz. broad-mouthed phials. When thus made, the jelly is to be used in the mounting of objects as follows:—Place the stock bottle in a small jar of boiling water; when it becomes fluid, a sufficient quantity must be removed to the slide (previously warmed) with a glass rod; the object (previously soaked for some hours in equal parts of glycerine and distilled water, with a few drops of alcohol) is to be placed in the drop of fluid jelly, a cover applied, and a light weight placed upon it to exclude superfluous jelly. When cold, clean off the slide with a knife, wash in cold water, and finish with a ring of gold size or shellac varnish.

THE volume of the Memoirs of the Geological Survey of England and Wales, just published, consists of an important monograph on the Geology of the Carboniferous Limestone, Yordale Rocks, and Millstone Grit of North Derbyshire and the adjoining parts of Yorkshire, explanatory of sheets 81 N.E. and S.E., and 72 N.E. of the Survey Map. The work is by Messrs. A. H. Green, C. Le Neve Foster, and J. R. Dakyns; and contains an elaborate description of the geology of the district, illustrated with numerous important sections and a few views. Mr. Etheridge has contributed an Appendix and tabular list of fossils, with indications of the localities in which they occur.

ASTRONOMY

Spectroscopic Observations of the Sun

PROFESSOR C. A. Young, of Dartmouth, U.S., has communicated to the October number of the *Journal of the Franklin Institute* the following important observations of solar protuberances, which entirely endorse the work done by Mr. Lockyer in this country. We are enabled to place them thus early before our readers by the kindness of Professor Morton.

September 4th, 1869.—Prominences were noted on the sun's limb at 3 p.m. to-day in the following positions, angles reckoned from North point to the East:—

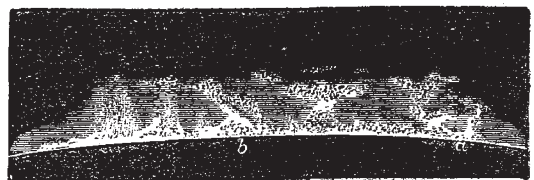


FIG. 1.

1. + 70° to + 100°, very straggling, not very bright.
2. - 10°, large and diffuse.
3. - 90°, small, but pretty bright.

September 13th, 1869.—The following protuberances were noted to-day.

1. Between + 80° and + 110°, a long straggling range of protuberances, whose form was as in Fig. 1. I dare not profess any

very extreme accuracy in the drawings, not being a practised draughtsman, but the sketch gives a very fair idea of the number, form, and arrangement of the immense cloudy mass, whose height was about 50" and its length 330" (22,500 miles by 1,350,000). The points *a* and *b* were very bright.

2. +135° small, but very bright at the base, of this form (Fig. 2).

3. -85° of this form (Fig. 3).

The dark spot, marked *c*, was very curious, reminding one strongly of the so-called fish-mouth in the nebula of Orion. I saw no change in it for 20 minutes. On the other hand, the first

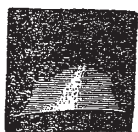


FIG. 2.



FIG. 3.

series mentioned were changing rapidly, so that at five o'clock the sketch which was drawn at two was quite inapplicable, only the general features remaining unaltered.

4. -128°, about 20" high, forked, as in Fig. 4.

The structure was *cirrus* in every one but No. 3, which seemed more like a mass of cumulus.



FIG. 4.

To-day, for the first time, I saw *b*₁ reversed in the chromosphere when the slit was tangent to disc; 1474 was easy; the new line at 2602 cannot be detected as yet.

At 2.25, while examining the spectrum of a large group of spots near the sun's western limb, my attention was drawn to a peculiar double *knobbiness* of the *F* line (on the sun's disc, not at the edge), represented by Fig. 5, *a*, at the point *a*. In a very few moments a brilliant spot replaced the knobs, not merely interrupting and reversing the dark line, but blazing like a star near the horizon, only with blue instead of red light; it remained for about two minutes, disappearing, unfortunately, while I was examining the sun's image upon the graduated screen at the slit, in order to fix its position, which was at -82½, about 43" from the edge of the limb, about 15" inside of the inner edge of the spot-cluster. I do not know, therefore, whether it disappeared instantaneously or gradually, but presume the latter.

Fig. 5, *b*, attempts to give an idea of the appearance. When I returned to the eye-piece, I saw what is represented at Fig. 5, *c*, &c. On the upper (more refrangible) edge of *F* there seemed to hang a little black mote, making a *barb*, whose point reached nearly to the faint iron line just above *F*. As given on Angström's atlas, the wave-length of *F* is 486.07, while that of the iron line referred to is 485.92 (the units being millionths of a millimetre). This shows an absolute change of 0.15 in the wave-length, or a fraction of its whole amount, represented by the

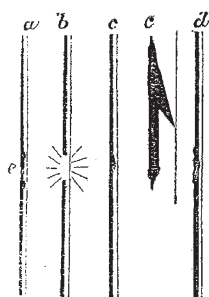


FIG. 5.

decimal 0.00030, and would indicate an advancing velocity of about 55.5 miles per second in the mass of hydrogen whose absorption produced this barbed displacement.

The barb continued visible for about five minutes, gradually resolving itself into three small lumps, one on the upper, and two on the lower line, Fig. 5, *d*. In about ten minutes more, the *F* line resumed its usual appearance. I did not examine the *c* line, as I did not wish to disturb the adjustments and risk losing some of the curious changes going on under my eye.

After the close of this strange phenomenon, I examined, with our large telescope of 6-inch aperture, the neighbourhood in which this took place, and found a very small spot exceedingly close to, if not actually at, the place. This was at 2.45. At 5.30 it had grown considerably.

Undoubtedly, the phenomenon seen was the same referred to by Mr. Lockyer when he speaks of often seeing the bright lines of the prominences not only at the sun's limb but on his disc. It is the only time I have had the good fortune to see it as yet.

GEOLOGY

Structure of Eophyton

THE *Geological Magazine* for the present month contains a paper by Mr. Henry Hicks, describing the structure of a fossil, from the Lower Arenig rocks of Ramsey Island, near St. David's, which he considers to be an *Eophyton*, resembling *E. Linnaeanum* of Torell. The rocks in which this fossil occurs rest conformably upon Upper Lingula flags, and underlie rocks of the Skiddaw or Tremadoc series.

Mr. Hicks describes and figures the fossil under the name of *Eophyton (?) explanatum*. He describes it as a moderately convex stem, about four lines broad, jointed, and ribbed throughout its whole length. At one joint in the specimen described, the ribs bend outwards, as if to form a branch. The stem is covered by a very thin cortical substance, within which it is composed of minute tubular columns, lying close together, and running the whole length from one joint to another.

The *Geological Magazine* also contains papers by Mr. Ruskin on Banded and Brecciated Concretions, illustrated with a plate and several woodcuts; by Mr. Poulett Scrope, on the pretended raised Beaches of the Inland Slopes of England and Wales, severely criticising Mr. D. Mackintosh's recent volume on Geology and Scenery; by Prof. Harkness, on the middle *Pleistocene* deposits of Britain; by Mr. R. Tate, on additions to the list of British *Brachiopoda* of the secondary rocks, including a table showing the distribution of the British *Liassic Brachiopoda*; and by Mr. W. H. S. Westropp, on the occurrence of "albite" in the granite of Leinster. Lord Emmiskillen contributes a catalogue of the type specimens of fossil fishes in his collection. The number also contains the usual notices, reviews, and abstracts of the proceedings of societies, correspondence, &c.

SOCIETIES AND ACADEMIES

LONDON

Chemical Society, December 2.—Dr. A. W. Williamson, F.R.S., in the chair. Sir Roderick Murchison, Bart., F.R.S., Messrs. M. H. Cochrane, Edward Smith, T. Walton, M.R.C.S., G. M. Hopwood, John Wiggan, Thomas Gibb, and George Harrison were elected Fellows. A paper on some points of the Chemical Nomenclature of Salts by Mr. H. G. Maden was read. The author advocated the use of the prefixes "proto" and "per" instead of the terminations "ous" and "ic" in the nomenclature of salts, and expressed his preference for the systematic names formed from English words, as "copper sulphate." Dr. Atfield recommended an adherence to trivial names like "calomel" and "corrosive sublimate," when possible, as changes in theory necessarily led to inconvenient alterations in nomenclature. Dr. Williamson objected to Mr. Maden's proposal to revert to the use of the prefixes "proto" and "per," on the ground that they had formerly produced great confusion, particularly in the nomenclature of the chlorides of mercury. He advocated an extension of the use of the terminations "ous" and "ic," which indicated the places of compounds in a series without binding chemists to particular views of constitution. He thought Mr. Maden's preference for English words might be carried too far and produce such terms as "brimstonic acid" and "charcoal oxide." Mr. Vernon Harcourt expressed his general concurrence with the author. Dr. Odling pointed out that in certain names, such as "ferricyanide of iron," it was advantageous to use both English and Latin names. Dr. Voelcker thought that the employment of different names for the same substance familiarised chemists with different views of constitution. A communication from Mr. J. Hunter on the analyses of sea-water from different depths was read. The author gave the results of observations made during the recent scientific expedition of the *Porcupine*.

Zoological Society, November 25.—Mr. John Gould, F.R.S., V.P., in the chair.—Mr. Sclater made some remarks on the condition of various zoological gardens on the Continent recently visited by him, and on rare animals observed in those establishments. The secretary exhibited on behalf of Mr. John Brazier, C.M.Z.S., the eggs of a megapode (*Megapodius*) from Banks Island, New Hebrides, indicating the existence of a species of this genus in that group of islands. A letter was read from Mr. W. T. Fraser, C.M.Z.S., giving some confirmatory facts