

lines. Mr. Jolly here pointed out the position of the successive contractions of the ice required to dam the lake, and described the abundant evidences of this last stage of the glaciers there, in scratchings, carried blocks, boulder clay, &c., and in the splendid horse-shoe moraines of the Treig glacier, lying intact across and along Glen Spean. He held that the low-t road extended up Loch Treig only a short distance, suddenly ceasing there, and not round the whole lake—an additional remarkable proof in favour of a glacier then filling that basin down to the ends of the roads, where a dam was necessary. Similar remarks were made regarding the Glen Gluoy and Glen Laggan parallels.

By means of coloured additions laid over the map, the state of the ice at this period, necessary to fulfil the requisite conditions, was graphically exhibited. Mr. Jolly concluded with an appeal to the Society to study the fascinating problem on the ground itself, so as to help to a final settlement of the much-debated question. Inverness had already done honourable work in connection with it, for the height of the lowest road had been first determined by an Inverness man, Mr. Wm. Paterson, sent there for the purpose in 1847 by Mr. Joseph Mitchell, at the request of Mr. Robert Chambers.

Mr. Horne, of the Geological Survey, Banff, and others, afterwards spoke on the subject, and a cordial vote of thanks was awarded to Mr. Jolly.

The reader may consult with advantage, for the better understanding of the subject, the admirable maps of the district of the Ordnance Survey, both the six- and one-inch, in which the Roads and the related phenomena are accurately and fully laid down; or the special Ordnance selected map of the locality, appended to the paper of Sir Henry James, mentioned above.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The authorities of both Girton and Newnham Colleges have supported the general memorial of 8,500 persons in favour of the admission of women to academical degrees and examinations, by informing the Senate in detail of their past proceedings, the number of their students who have been examined informally, none of whom have failed to attain Tripos standards; and both colleges believe that they will be able to offer sufficient guarantees of stability and good administration, so that the University can admit their students to full academical privileges.

Newnham College has now been fully constituted, with Prof. Cayley as president. Prof. Adams has ably aided the Women's Educational Association during the last seven years as president, and now retires, on the amalgamation of Newnham Hall with it, retaining his place on the Council.

Mr. R. C. Rowe, of Trinity College, is appointed an Examiner in the next Mathematical Tripos, and Mr. A. G. Greenhill Additional Examiner.

Dr. Alexander Dickson has been appointed Regius Professor of Botany in the University of Edinburgh and Keeper of the Royal Botanic Garden of that city in succession to Dr. Balfour, who resigned some time ago.

The new representative Council of Education in France has been completed by the appointment of a number of official members. M. Berthelot has been nominated President by the Ministry. A number of sections and special commissions have been established, amongst which we must direct attention to the Commission for Reforming Secondary Instruction. One of the principal features of the intended reform is to divide secondary instruction into three different courses, so that any pupil leaving the school after having gone through the elementary course might have a general knowledge of the principal subjects which are to be investigated more fully in the other two courses.

The University of the City of Pesth celebrated its hundredth anniversary in presence of the Emperor on the 13th inst.

SCIENTIFIC SERIALS

*Annalen der Physik und Chemie*, No. 4.—On the propagation of electricity through current water in tubes, and allied phenomena, by E. Dorn.—Thermic theory of the galvanic current, by J. L. Hoorweg.—On the cause of excitation of electricity in contact of heterogeneous metals, by F. Exner.—On diffusion of salts in aqueous solution, by J. H. Long.—On the relation between propagation of light and the density of bodies, by H. A.

Lorenz.—On Stokes's law, by O. Lubarsch.—On after images of motion, by G. Zehfuss.—Supplementary note to the paper on currents of the Gramme machine, by O. E. Meyer and F. Auerbach.

SOCIETIES AND ACADEMIES LONDON

Royal Society, April 29.—“Measurement of the Actinism of the Sun's Rays and of Daylight.” By Dr. R. Angus Smith, F.R.S.

When examining the air of towns and the effect of smoke and fogs, I have often wished for a very simple chemical method of measuring the total light absorbed by these gases, vapours, and floating solids. I do not undervalue the work of others, but I think I have obtained a process promising good results with great simplicity, although I daresay it introduces its own class of difficulties.

1. The fundamental fact is that when iodide of potassium in solution is treated with nitric acid, so small in quantity as to cause no change of colour in dull diffused light, a change takes place when the same mixture is brought into clear light; iodine is set free and the solution becomes yellow.

2. The amount of iodine freed can be titrated with great exactness by the use of hyposulphite, as is well known.

In these two facts lies the whole process: the first is the new part, the second makes the first quantitative, and its use is of course part of the novelty.

3. It is known that strong acid liberates iodine. Weak acid does so after a long time, but the process is hastened by light.

4. Heat even to the boiling point does not act so well as light (experiments being made in sealed tubes to prevent loss of iodine, and with a considerable volume of air).

5. Heat assists the action of light.

6. A solution may be exposed day after day so as to give the accumulated effect of sunlight, in a measurable condition at the end of the time.

7. The solution of iodide of potassium as hitherto obtained is subject to change. An old solution, that is, one nearly a month old, was found more sensitive than a new one in all cases tried.

8. The result of No. 7 is, that a certain allowance may require to be made for this, in those cases where the periods of observation with one solution are long.

9. The amount of allowance to be made for temperature is not made out. It is not certain that any is required in the cases when weak acid is used. The weather has not allowed any combined action of great light and heat, but with heat and light in the rays from an electric light with a parabolic reflector, the action was very rapid.

10. Specimens of experiments (prospective at first). It was found convenient to use a solution of 2 grms. of iodide of potassium, afterwards changed to 1 gm., in 100 of water, and to use half of this for an experiment, *i.e.*, 50 cub. centims. of the solution, which may be called A.

A nitric acid solution having an acidity equal to 1 per cent. of sulphuric anhydride was made; this may be called B. Only very small portions of B were added to A.

Examples in which the decomposition was measured by a solution of hyposulphite of sodium, which may be called solution C = 0.1 gm. per litre of iodine (or as convenient). I shall extract experiments made with B solution 0.8 cub. centim., because it is an intermediate one (2, 4, 8, 16, and 32 have hitherto been the favourites).

| 1880.   |                                 | B sol. |                | Measure by C solution (hyposulphite). |
|---------|---------------------------------|--------|----------------|---------------------------------------|
| Mar. 3  | Sunshine and cloud alternately  | 0.8    | After 2½ hours | 8.1. First colour in 20'.             |
| „ 4     | Sunshine ... ..                 | 0.8    | —              | First colour in 30'.                  |
| „ 5     | Dull all day ... ..             | 0.8    | „ 4 „          | 0.9.                                  |
| „ 8     | Sunshine ... ..                 | 0.8    | „ 2½ „         | 7.5. Colour in 20                     |
| „ 9     | A little sunshine ...           | 0.8    | „ 2½ „         | 4.8.                                  |
| „ 10    | Foggy, with a gleam of sunshine | 0.8    | „ 6 „          | 1.5.                                  |
| „ 11    | Bright ... ..                   | 0.8    | „ 2½ „         | 7.2.                                  |
| „ 12    | Dull and wet ... ..             | 0.8    | „ 3 „          | 0.6.                                  |
| „ 13    | Dark and dull ... ..            | 0.8    | „ 2½ „         | Faint trace.                          |
| „ 15    | Changeable ... ..               | 0.8    | „ 2½ „         | 1.8.                                  |
| „ 16    | Changeable ... ..               | 0.8    | „ 2½ „         | 1.6.                                  |
| „ 18    | Sun through haze ...            | 0.8    | „ 2½ „         | 5.8.                                  |
| „ 19    | Bright ... ..                   | 0.8    | „ 2½ „         | 11.5.                                 |
| „ 20    | Fog till 11.30 ... ..           | 0.8    | „ 2½ „         | 3.2.                                  |
| April 1 | Sun and showers ...             | 0.8    | „ 2½ „         | 1.6.                                  |