

the earth, and in the actual observation here mentioned the distance between the shadows is comparatively large. Among other communications in the same journal we may mention M. Cornu's address on the discovery of minor planets by photography, M. Flammarion on the spring of 1893, some notes on the late total solar eclipse, and a brief reference to a proposed new astronomical station on Mount Mounier, at an altitude of 2800 metres.

GEOGRAPHICAL NOTES.

MR. F. G. JACKSON, whose proposed attempt on the North Pole by Franz Josef Land has been announced, has altered his plans. He now proposes to spend next winter in Nova Zembla, in order to familiarise himself with the conditions of Arctic life, and to test his sledges and other appliances for travelling over the ice. His more serious journey in Franz Josef Land has been postponed for a year, and will have a greatly increased chance of success.

VITA HASSAN, well known as Emin Pasha's apothecary in the Equatorial province, died recently. He had published a book on affairs in the Sudan, which throws some new light on the history of the Egyptian provinces before Stanley's expedition reached the Albert Nyanza.

A LADY traveller, Miss Taylor, of the China Inland Mission, has made a somewhat remarkable journey in Eastern Tibet, details of which will be looked for with much interest. Miss Taylor, who travelled alone, is expected soon to arrive in this country.

A GEOGRAPHICAL Club has recently been established in Philadelphia, which practically constitutes a new geographical society. It has published the first number of a bulletin containing a paper by Mr. E. S. Balch on mountain exploration, in which he endeavours to redeem mountaineering from the charge of being only a dangerous pastime.

THE coral reefs of Dar-es-Salaam, on the east coast of Africa, have been carefully studied by Dr. Ortmann, whose observations extend considerably our knowledge of fringing reefs.

THE ROYAL SOCIETY SOIRÉE.

THE President of the Royal Society received a brilliant company at the Society's rooms on the occasion of the annual ladies' *soirée* on June 7. Many of the exhibits were shown at the *conversazione* of May 10, and were noted in NATURE of May 18. Other exhibits are described in the following account :

Mr. C. J. Woodward exhibited a bar over a resonance chamber illustrating sound interference. When a ventral segment is over the box a loud deep tone is heard. When the bar is placed so that a node is near the centre of the opening to the box no sound is heard, owing to opposite movements of the bar on either side of the node.

The Karakoram Mountain Survey Expedition exhibited Water-colour Drawings of the scenery of the Karakoram Mountains, Kashmir, India, by Mr. A. D. McCormick. These drawings were made at altitudes of from 15,000 to 20,000 feet, during the Expedition in 1892.

Prof. Osborne Reynolds, F.R.S., exhibited an illustration of vortex motion showing motion analogous to vortex rings in fluids.

Prof. Thorpe, F.R.S., exhibited autotype enlargements from photographs taken by himself, illustrative of the recent African Eclipse Expedition. The enlargements portrayed—(1) the eclipse party ; (2) the observing party at Fundum, Senegal—taken immediately after the eclipse ; (3) the duplex coronagraph ; (4) the prismatic camera ; (5) the integrating photometer ; (6) the equatorial photometer.

Capt. McEvoy exhibited the hydrophone. This, in connection with a new instrument named a kinesiscope, is intended to be used at night, or in foggy weather ; it has for its object the prevention of surprise attacks from torpedo-boats, or other hostile vessels, approaching anchorages, or mine-fields. It will give warning of their movements when they are several miles distant by ringing bells, flashing lights, &c. These signals in every case are verified by telephones in the circuit. The

apparatus, which is electrical, may also be employed to warn vessels off dangerous points of the coast.

Dr. John Gorham exhibited a reflecting kaleidoscope, which is a new instrument adapted to produce not merely symmetric patterns of beauty, but to exemplify many of the theories in optics connected with the reflections of light. To do this changes in its construction are required to adapt it to its novel uses. The two mirrors, for instance, must be thrown open to admit the light upon them and the objects. The objects themselves must have a definite shape to cause them to reflect oblique rays of light only, while the light again must fall upon them from above, instead of being transmitted through them from below. These objects consist of strips of card bent backwards and forwards into hollows and elevations, upon which the light falls obliquely. It is then received upon the mirrors and reflected from them to the eye. Experiments were made to show :—(1) Gray tones from oblique white surfaces ; (2) tints and shades of colour from oblique coloured surfaces ; (3) depth, intensity, and brilliancy by repeated reflections ; (4) the choice lustre, &c.

Mr. Edwin Edser exhibited an apparatus to illustrate Prof. Michelson's method of producing interference bands. Light is allowed to fall on a mirror thinly silvered, so that about half of the light is reflected and half transmitted. The two rays pursue paths which are mutually perpendicular, are reflected back by two ordinary mirrors, and on meeting interfere. The interference bands can be projected on a screen, and this fact together with the simplicity of the arrangements will make the method very useful for lecture illustration.

Mr. W. A. Shenstone and Mr. M. Priest exhibited an apparatus used for studying the action of the electric discharge on oxygen. A known volume of oxygen at known temperature and pressure is exposed to the "glow" discharge at known difference of potential. The change of pressure is read by a mercury manometer, and from this the proportion of ozone is calculated. The use of the mercury manometer, hitherto impossible, makes this method very accurate, and by means of it our knowledge of the influence of various conditions (such as difference of potential, rapidity of discharge) has been considerably extended. It is found that under equal conditions a coil is more effective than a "Winshurst" or "Voss" machine. The using of mercury in the manometer is made possible by protecting it from the ozone generator and the manometer.

Mr. Percy E. Newberry was in charge of an exhibit by the Egypt Exploration Fund (Archaeological Survey). The exhibit included water-colour drawings executed by the artists of the survey—Mr. Percy Buckman, Mr. John E. Newberry, and Mr. Howard Carter—during the past season, 1892-3. (1) Sketches of various sites visited by the officers of the survey, including views of Tell el Amarna, Sheikh Said and Dér el Gebrawi. (2) Specimens of facsimile drawings of wall paintings from ancient tombs in the provinces of Minieh and Assiut (VI. and XII. dynasties, B.C. 3800 and B.C. 2500).

Lord Kelvin, Pres. R.S., exhibited illustrations of the molecular tactics of a crystal. (1) Bravais homogeneous assemblage of 512 single points. (2) Two homogeneous equilateral assemblages of points, red and green, with stretched springs between each point of the green assemblage and its nearest neighbour, and four struts between each of the reds and its nearest neighbour of the green assemblage ; showing how any degree of resistance to compression with given rigidity can be provided for by Boscovich's theory. (3) Three-dimensional netting, analogous to the ordinary hexagonal netting of two dimensions. The stretched cords of this model are exactly in the positions of the struts of model No. 2. (4) Twelve nearest and eight next-nearest neighbours of an ideal particle at the centre of a cube, placed to show the cubic arrangement of an equilateral assemblage. (5) Cubic cluster of fourteen balls, being the least number which can show cubic form in an equilateral assemblage. (6) Probable molecular structure of Iceland spar. (7) Illustrating the molecular movement in the twinning of Iceland spar by knife according to Baumhauer. (8) Illustrating Baumhauer's artificial twinning of Iceland spar by knife. (9) Tetrahedron with adjustable edges (six independent variables). (10) Two geometrical models of :—(a) A dextro-chiral crystal. (b) A levo-chiral crystal. (11) Special tetrahedron, with perpendicularly from corners to faces, meeting in one point ; to illustrate engineering of Boscovich's theory for an incompressible elastic crystal with 12 arbitrarily given rigidity moduluses.

Dr. G. H. Fowler exhibited specimens of oyster shells. The