

dealing especially with marine Crustacea, published in various scientific magazines, among them the *American Naturalist*, *American Journal of Science*, *Canadian Naturalist*, and *Annals and Magazine of Natural History* (London). In connection with his work for the U. S. Government he had contributed largely to the annual reports of the U. S. Fish Commission, Coast Survey, and Lake Survey, and also to reports of Department of Marine and Fisheries of Canada, of Committee on Progress of the Geological Survey of Canada, and the bulletins and proceedings of United States National Museum and Museum of Comparative Zoology.

A. E. VERRILL

SCIENTIFIC EVENTS

THE CONVERSAZIONE OF THE ROYAL SOCIETY¹

THE Royal Society usually holds two conversazioni annually. The first of these gatherings was cancelled owing to the general strike, and the second was held on June 16 last. Many of the exhibits arranged in the society's rooms have already been referred to in our columns. Limitations of space forbid more than passing notice of some of the remainder.

The Department of Entomology, British Museum (Natural History) (Mr. F. W. Edwards and Dr. P. A. Buxton), exhibited specimens of a submarine Chironomid. This is the first insect species known to spend its whole life in the sea, and was discovered by Dr. P. A. Buxton in Samoa, where it was found associated with other Chironomid flies having normal air-living adults. Mr. T. S. P. Strangeways and Dr. H. B. Fell showed microscope preparations of the development *in vitro* of the isolated eye of the embryonic fowl. Fowl embryos of 64-70 hours' incubation were used. An eye is dissected out and explanted into a medium composed of fowl plasma and embryonic tissue extract; here it grows and differentiates in a surprisingly normal way.

The soil physics department, Rothamsted Experimental Station (Dr. B. A. Keen and Dr. W. B. Haines), exhibited a new combination of apparatus for measuring soil resistance which has marked advantages over the usual type of dynamometer. It is light and portable, and gives a continuous record of the draught, and a time scale, on a celluloid strip, which has great advantages over paper for outdoor work under varied weather conditions.

Lieutenant-Colonel F. J. M. Stratton and Mr. C. R. Davidson showed a number of photographs of the solar eclipse of January 14 last, taken at the expedition sent to Benkulen, Sumatra. The expedition ob-

tained good photographs of the corona, the spectrum of the chromosphere and also of the corona both with slit spectroscope and prismatic cameras, from a discussion of which it is hoped that fresh knowledge may be gathered as to the condition and constitution of the solar atmosphere. From the spectrograms of the corona it will be possible to obtain accurate wavelength measurements of the lines of the coronal spectrum of unknown origin.

Professor O. W. Richardson showed an apparatus for the investigation of soft X-rays which are produced by the electronic bombardment of solids. The tube is of transparent silica, and is exhausted to a pressure of about one ten-millionth of a millimeter of mercury. The presence of the X-radiation is demonstrated by the photoelectric emission which it produces from a copper-plate enclosed in the tube.

The National Physical Laboratory had two interesting exhibits. The vector colorimeter (Mr. Guild and Dr. Perfect) enables a color to be specified by *qualitative* measurements involving color matches only. Two color matches are made. In one the test color is matched by a mixture of spectrum red with monochromatic light of suitable wave-length; in the other by a mixture of spectrum blue with another suitable monochromatic constituent. These matches determine the two vectors, and their intersection determined the position of the color on the color chart. A modified manometer for the determination of the vapor tensions of molten cadmium and zinc was also shown (Mr. C. H. M. Jenkins). This is measured by the pressure of nitrogen required to level the two liquid surfaces of the metal of a specially shaped manometer. The closed end of the manometer can be flooded by rotation of the apparatus, and foreign gases can also be removed by a similar rotation accompanied by a reduction of pressure.

Mr. W. M. Mordey showed some experiments demonstrating the possibility of getting a powerful rotation, in multiphase alternate current fields, of magnetic materials which are either non-conducting in themselves or are made so by being reduced to fine powder and then made up into solid discs or cylinders with some binding material, such as glue or shellac, which insulates the particles from one another. Such discs or cylinders, which form miniature induction rotors without windings and with non-conducting cores, can be made up of powdered magnetic materials such as hard cast-iron dust, hard steel grit, nickel, cobalt and of the magnetic minerals magnetite and pyrrhotite; in such bodies no appreciable eddy currents are produced, the rotation being due entirely to hysteresis. An interesting item in the exhibit was a small alternate-current electric fan, the rotor of which consisted simply of a piece of pyrrhotite rock

¹ From *Nature*.

with no winding on it, revolving freely in the field of a small model multiphase magnet. Loose powders of any of these materials rotated in such multiphase fields in a direction opposite to that in which solid masses of the same materials rotate, a reversal of direction due to a rolling action of the particles. No eddy currents are induced in any of the conducting materials when powdered. Dr. W. H. Eccles and Dr. Winifred Leyshon showed a neon tube and tuning fork combination for producing electrical oscillations of harmonic frequencies suitable for calibrating wave-meters. The neon tube is connected in parallel with a condenser and in series with a resistance and a battery; it then gives an intermittent luminous discharge and the current can be used to keep a steel tuning-fork in continuous vibration. The current in such a circuit has many high harmonics, and therefore induces an oscillatory current of any chosen harmonic frequency in a neighboring circuit tuned to that frequency.

Sir Robert Hadfield, Bart., exhibited a number of specimens of alloy steels for special purposes. These included a rotor in "ERA/ATV" steel used in the construction of exhaust gas turbines. These rotors are driven by the exhaust gases from internal combustion engines; they work continuously at a temperature of from about 800° to 950° C., and run up to the very high testing speed of 53,000 revolutions and working speeds of about 30,000 revolutions per minute. A tuning-fork of high nickel chromium alloy steel was shown which has constant frequency under varying temperature. For this purpose the metal must have a very low temperature coefficient of the modulus of elasticity.

THE RUSSIAN MINING CONGRESS

A REPORT of the proceedings of the first Federal Mining Technical Congress of the Soviet Union, held in Moscow, from April 13 to 27, and attended by 503 delegates, is made public by the Russian Information Bureau. The delegates included administrative and technical representatives of the various Soviet mining trusts, mineralogists and geologists of the Russian Academy of Sciences, officers of the labor organizations and representatives of the supreme economic council and other departments of the government.

All phases of the mining industry, including the oil industry, were discussed, including the latest technical methods and the training of engineers and technicians to direct the rapidly increasing output.

Representatives of the oil industry reported that the output would be increased from 8,500,000 metric tons during the present fiscal year, to 12,000,000 tons in 1929-30. Professor Taneyev pointed out that the

Soviet Union contained 75 per cent. of the world's resources in peat, and the development of this fuel was of great importance to the electric generating plants and to the textile industry.

A report on recent explorations in the Urals cited important prospects for the mining of iron, copper, coal, gold, platinum, asbestos and other minerals in hitherto untouched territory. Professor P. P. Lazarev, chemist, and other members of the Academy of Sciences reported on extensive explorations and surveys undertaken by the academy to discover for exploitation new sources of mineral wealth. Plans were discussed for the production of arsenic, aluminum and the mining of graphite, tin and other metals not hitherto produced in the Soviet Union. Prospective plans for the development of the various branches of the mining industry were also fully discussed.

OPHTHALMOLOGICAL LABORATORY FOR HARVARD UNIVERSITY

A GIFT of \$250,000 to Harvard University toward the foundation of an ophthalmological laboratory in memory of members of his family has been made by Dr. Lucien Howe, of Buffalo. Dr. Howe will become director of the laboratory when it is inaugurated next fall or winter.

The laboratory is expected to cost half a million dollars in all. Dr. Howe's donation will be supplemented by \$175,000 from the General Education Board and \$75,000 from Harvard University. The laboratory will serve for both research and teaching.

The institution will be officially called the Howe Laboratory of Ophthalmology, but Dr. Howe has explained that he would prefer to have it known as a memorial to his father, brother and father-in-law.

The father of Mrs. Howe commanded a division of the sixth corps in the Army of the Potomac in the Civil War, Dr. Howe's father commanded the 3d Cavalry, while his brother, a captain in the 4th Artillery, was killed in action early in life. These three men served in the regular army a total of over 70 years. It was therefore in accordance with the family plans to establish some memorial to that record which would seem lasting and also useful. The gift to Harvard University is the result.

The laboratory will be for some years to come in the present eye patient department of the Massachusetts Eye and Ear Infirmary, whose clinical opportunities are well known. A preliminary year will be given to forming a plan for its work, perhaps clearing up one corner of the field in physiological optics, or eye movements. It is hoped that the laboratory will in future become useful to research residents and to occasional workers at some special problem.