News and Views.

THE congratulatory dinner given at Cambridge on Saturday last to Sir J. J. Thomson, Master of Trinity, will long be cherished in the memory by all who were privileged to take part in it. The occasion was Sir Joseph's seventieth birthday, and the celebration was arranged by the Cavendish Society, which consists of past and present students of the Cavendish Laboratory, together with members of the staff. Sir Ernest Rutherford occupied the chair, and about 130 other members of the Society were present, while numerous messages of affection and esteem were sent by old students who are carrying on the Cavendish tradition of faithful work and productive insight in many parts of the world. To all of these, 'J. J.' is, what man finally became to Wordsworth, "an object of delight, of pure imagination and of love." He is the uncrowned king of physical science, and it is an honour and an inspiration to have come within his sphere of influence. Something of the spirit of devotion which he creates in all who have been associated with him is expressed in the following address, which was presented to Sir Joseph at the dinner, bearing the signatures of 230 of his disciples :—

"WE, the past and present workers in the Cavendish Laboratory, wish to congratulate you on the completion of your seventieth year. We remember with pride your contributions to theoretical and experimental physics, and especially your pioneer work on the structure of the atom. The additions you have made to knowledge are conspicuous even in this age of remarkable achievement, and have profoundly influenced the history of science. Succeeding to the Chair of Clerk Maxwell and Lord Rayleigh, you have made the Cavendish Laboratory, during your forty-six years' association with it, an unrivalled centre of intellectual activity. We, who have had the privilege of working with you, cannot adequately measure our debt. We can only express our grateful appreciation of the help, encouragement, and friendship given so freely to all your students, and our hope that you may long live to be an inspiration to the Cavendish Laboratory and the whole world of physical science."

IN presenting this address, together with two silver caskets to Sir Joseph and Lady Thomson, Sir Ernest Rutherford related some personal reminiscences of the years—"the happiest in my life"—spent with 'J. J.' in the Cavendish Laboratory, of which he is now the director, and so successfully penetrating into the innermost courts of eternal wisdom. Prof. P. Langevin, representing men of science from other lands, who have worked in the laboratory and been admitted to the freedom of its fellowship, paid a charming tribute of affection to the guest of the evening. Sir Joseph expressed his thanks in an eloquent speech in which, in generous words, he referred to the unselfish support he had received from all members of his staff, and to the ever-expanding field of scientific research which can never be a terminus but is always revealing new avenues to be explored. The toast of "The Old Cavendish Students" was proposed by Dr. A. Wood, who, with Mr. H. Thirkill, organised the dinner; and Sir Arthur Schuster, Sir Richard Threlfall, and Prof. F. Horton, in acknowledging it, bore grateful testimony to the stimulating influence of the laboratory and its directors upon successive generations of students. All who have worked within its walls have acquired a quality of spiritual radioactivity which makes for light and leading wherever they go. But though they take away this emanation with them, there is no weakening of the parent source, which, we are sure, will continue to illuminate the road along which science advances to secure increase of knowledge for the benefit and admiration of posterity.

THE Council of the Physical Society, at its meeting on December 10, awarded the fourth Duddell medal for meritorious work on scientific instruments and materials to Mr. F. Twyman. The firm of Adam Hilger, Ltd., of which Mr. Twyman has for many years been both managing and technical director, enjoys a reputation for the production of optical instruments employed in physical research which is not approached by that of any other firm in Great Britain or any other country. The fundamental researches which have led to the formation of the current conceptions of the nature of matter have been carried out to a large extent with the aid of instruments of the necessary high degree of precision constructed in the Hilger workshops. The production of these instruments has frequently involved the solution of problems which have only been met successfully through Mr. Twyman's persistence and resourcefulness.

IN addition to the services rendered to the cause of pure science, Mr. Twyman has carried out notable work on a number of technical problems. Two may be specially mentioned. His investigations on the annealing of glass (which incidentally led to Twyman's Law on the influence of temperature upon the mobility of the melt) are of fundamental importance, and his instruments for controlling this operation have been of service to all branches of the glass-making industry. These investigations have been an important factor in securing home supplies of reliable glass-ware for scientific purposes. Moreover, during the War, they led to a notable increase in the output of optical glass, by substituting for the traditional routine a novel scheme of annealing, which, without any deterioration in the quality of the product, enabled the time occupied in this operation to be greatly reduced. As another example of technical work, the extensive series of Hilger interferometers may be mentioned. The Michelson type of interferometer has been modified and adapted to a large number of special uses of interest to the optical industry. By the use of these instruments accurate measurements can now be made of the defects of all manner of optical parts and instruments, whether these defects are due to faulty design, imperfect workmanship, or defective material. It is characteristic of Mr. Twyman that these new instruments were immediately used not merely to measure the defects, but also as a means of removing them.

AT the present time, no problem interests electrical engineers more than the question of the best type of main to use for the underground distribution of electrical energy. In many towns, even the suburban districts are so built over that the use of overhead lines is quite out of the question. As the load increases, the necessity of using very high pressures becomes urgent. It is common knowledge that some of the high-tension mains laid in Great Britain have given a great deal of trouble owing to breakdowns. The paper read to the Institution of Electrical Engineers on December 16 by Colonel E. Mercier on the 60,000-volt underground network operated in Paris by the Union d'Électricité was therefore of great value. The system of distribution most favoured at present is the three-phase system. There are three distributing mains which can either be bound together so as to form a single cable called a three-core cable, or three separate cables can be used. The former solution is that generally adopted in Britain, and the latter is the one adopted in Paris. When they are bound together they can be handled more expeditiously, but there are a few drawbacks. The carrying capacity of the cables is limited by their temperature rise. The heat generated in three-core cables has greater difficulty in getting conducted away, and so they carry less current in proportion. The predetermination of their carrying capacities and breaking-down voltages presents much greater difficulty. The rotating electrostatic fields produced in these cables also produce dielectric losses. The great steam-driven station at Gennevilliers in Paris in linked with the station at Vitry and will soon be connected with the hydro-electric station at Eguzon on the River Creuse. The total power of these stations is nearly 500,000 kilowatts. The network connects a ring of distributing stations round the city of Paris. The company's engineers have recently examined the best types of three-core cable and have reported adversely on them for their extensions. They consider that single cables involve a smaller initial outlay, are more trustworthy, and are easier to repair.

THE annual Philosophical Lecture of the British Academy under the Henriette Hertz Trust is always an event of much interest. This year's lecture, which was given in the rooms of the Royal Society on Wednesday, December 15, was no exception, as the lecturer, Prof. T. Percy Nunn, Principal of the London Day Training College, is a man of outstanding ability and experience in the realms of education, mathematics, and philosophy. The subject of the lecture was "Anthropomorphism and Physics." By anthropomorphism Prof. Nunn stated that he means, broadly, the 'projection' of any human character into the non-human world, and in this way it is a trait of primitive mentality which still colours man's dealings with his environment. As Prof. Nunn showed, it has played an important part in the history of science, and even some of the technical vocabulary is an indication of the way in which the human point of view can be projected. Prof. Nunn pointed out that to some, the theory of relativity allows for an anthropocentric view of Nature; whereas the truth about the modern theory of relativity is that it is really one more step further away from the old anthropomorphic ideas, emancipation from which was begun by the work of Copernicus. Prof. Max Planck has said that physical science can only reach unity by eliminating all anthropomorphous elements. The main purpose of the lecture was to inquire how far this elimination can proceed. The first step is to seek a tenable theory of physical objects which presumes the objective existence of secondary qualities; such theories have been formulated by the Realists. The next step is to raise the question of the reality of such objects as electrons which physics offers. The tendency of recent attempts to overcome such difficulties is to show that physics has no need of the hypothetical forms of matter which have been claimed as the reality behind the apparent world.

ANCIENT surveying instruments were described by Sir Henry Lyons in a lecture to the Royal Geographical Society on December 13. In Egypt, records of land measurements are found from very early times, although no map of landed property in ancient Egypt has survived. The marking of province boundaries was also recognised as being of great importance, and operations of levelling reached a satisfactory accuracy, as can be gauged from the rock pavement on which the great pyramid was built. In ancient Egypt the instruments employed in land survey were very simple, and included probably only the measuring cord of 100 cubits, the measuring rod, and the *merkhet* for laying out lines in any desired direction. The *merkhet* consisted of a plumb-line hanging from a holder, which was aligned on any object by looking through a sight vane made of a cleft stick. The levelling instrument was probably a right-angled isosceles triangle of wood with a plummet attached to the apex. In use it was placed on a long wooden straight-edge resting on pickets. Probably not until Greco-Roman times was another instrument, the *groma*, introduced. Egypt may have been its place of origin, but the Romans used it widely. The *groma* consists of two pairs of plumb-lines suspended from the ends of two rods at right angles to one another. Some of these instruments of different designs have been recovered.

ON Tuesday, December 14, a new research laboratory for physical and inorganic chemistry was opened at East London College by Mr. E. de Q. Quincey, the chairman of the College council. This laboratory is the gift of Mr. and Mrs. Henry Cohen, of Beckenham, and is a memorial to their son David, a former student of the College, who died in May 1925. The laboratory is equipped for research work in physical and inorganic chemistry and chemical microscopy, and contains a small library, also the gift of Mr. and Mrs. Cohen. Mr. Quincey, in accepting the gift on behalf of the College council, pointed out that it was a valuable appreciation of the necessity of assisting advanced work at the College, and expressed the hope that other old students would follow this excellent example. The

Principal of the College and Prof. J. R. Partington, in whose department the new laboratory is situated, both emphasised the importance of a period of study after graduation to students entering industry or the teaching profession.

IN the House of Commons on December 15 Mr. W. Baker asked the President of the Board of Education whether his attention had been directed to the planetarium invented by the firm of Zeiss and erected by the Düsseldorf Corporation. The firm declines to supply these structures to any one proposing to make a profit, and having regard to educational possibilities and the poverty of educational authorities, Mr. Baker asked whether the Board would consider the purchase for educational purposes of at least one planetarium. The Duchess of Atholl, Parliamentary Secretary to the Board of Education, who replied, stated that the Board of Education has no power under the Education Act, 1921, to make a purchase of this kind. Two years ago a planetarium was installed at Munich, and a description of the apparatus appeared in NATURE of December 27, 1924, p. 937. According to a letter from Dr. J. Jackson in the *Times* of December 20, the success of this instrument led Messrs. Zeiss to build a larger and improved planetarium for Jena, while similar instruments have been made, or are on order, for Barmen, Berlin, Dresden, Düsseldorf, Hamburg, Hanover, Leipzig, Mannheim, Nürnberg, Stuttgart, and Copenhagen.

AT the ordinary scientific meeting of the Chemical Society held on December 16 the president, Prof. H. Brereton Baker, announced that the Council had unanimously resolved to award the Longstaff medal for 1927 to Prof. Robert Robinson of the University of Manchester for his distinguished researches in organic chemistry. It was also announced that, in accordance with the terms of the trust-deed establishing the Edward Frank Harrison Memorial Prize, the selection committee, consisting of the presidents of the Chemical Society, the Institute of Chemistry, the Society of Chemical Industry, and the Pharmaceutical Society, had met to consider applications for the Harrison Memorial Prize. This prize, it will be recalled, is awarded to the chemist of either sex, being a natural-born British subject and not more than thirty years of age, who in the opinion of the selection committee has, during the past five years, conducted the most meritorious and promising original investigations in chemistry and published the results of those investigations in a scientific periodical or periodicals. The selection committee has unanimously resolved that the prize for 1926, of the value of 150*l*., should be awarded to Dr. Charles Robert Harington of University College, London. Dr. Harington has within the last five years synthesised the active principle of the thyroid gland (thyroxine); he has determined its constitution and worked out a practical process by which it may be produced on a large scale. This artificial product has been found to have the same physiological efficacy as the active principle in the natural extract. The presentation of the Longstaff medal and of the Harrison Memorial Prize will take place at the annual general meeting of the Chemical Society on March 24, 1927.

THE Kamerlingh Onnes Memorial Lecture of the Chemical Society will be delivered by Prof. Ernst Cohen of Utrecht, at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, on Thursday, February 10, 1927, at 8 P.M.

DR. A. B. WALKOM, secretary of the Linnean Society of New South Wales, has been granted twelve months' leave by the council of the Society to enable him to study palæobotany under Prof. A. C. Seward at Cambridge.

MR. HERON-ALLEN has presented the Heron-Allen and Earland collection of Foraminifera to the British Museum (Natural History) under conditions which will enable him and his collaborator to keep it up-to-date, with additions and rearrangement. The collection, which numbers between seventeen and eighteen thousand slides, includes the Millett, Siddall, Sidebottom, and other notable collections, and is undoubtedly the largest and most complete in the world.

THE annual meeting of the Science Masters' Association will be held at Oxford on January 4-7, under the presidency of Brigadier-General H. Hartley. The meeting includes lectures by distinguished scientific workers at Oxford, and an exhibition of apparatus and books at the Electrical Laboratory, Parks Road. The organising secretary for the meeting is Mr. W. J. Gale, 50 Stanton Road, Wimbledon, London, S.W.20.

THE Eastern Siberian section of the Russian Geographical Society announces the celebration of its seventy-fifth anniversary at the end of this month. The occasion is to be marked by various social functions and an exhibition illustrating the results of the Society's work in Siberia. Various publications are also announced, including the fifteenth volume of the *Isvestia*, with a series of historical articles and a volume of general geographical and statistical articles on Eastern Siberia. These publications are apparently to be in Russian.

THE Buchan Prize of the Royal Meteorological Society for 1927 has been awarded to Mr. C. K. M. Douglas for the following papers contributed to the *Quarterly Journal* of the Society during the years 1922–25: "Observations of upper cloud drift as an aid to research and to weather forecasting"; "Further researches into the European upper air data, with special reference to the life history of cyclones"; "On the relation between the source of the air and the upper air temperature up to the base of the atmosphere."

AN interesting exhibition of some of the results of research recently carried out in adhesives (glues and sticking substances) and their application has been arranged at the Science Museum, South Kensington, by the Adhesives Research Committee of the Department of Scientific and Industrial Research.

This Committee was established by the Department in 1919 to continue the work of the Adhesives Research Committee of the Conjoint Board of Scientific Societies which was set up towards the end of the War to conduct research on adhesives with the aid of a grant from the Ministry of Munitions. The exhibition was opened to the public on Saturday, December 18, and will remain open for some months.

A BROCHURE on electro-medical apparatus by Messrs. Newton and Wright, Ltd., 72 Wigmore Street, London, W.1, gives a fairly complete list of appliances in current use with illustrations and prices. These appliances include portable sets required for administering faradic or galvanic currents. An electro-medical table shown has all the requisite gear for giving both varieties of current from any D.C. supply between 50 and 250 volts. There is also illustrated an "Omnistat" machine in which the motor is an integral part of the apparatus, which is made in two models; the "Standard," providing galvanic and sinusoidal currents; and the "Therapeutic," in which the faradic is substituted for the sinusoidal. Both types are adapted for the inclusion of vibro-massage apparatus.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—An assistant master at the Dewsbury Municipal Technical College, with qualifications in physics and electrical engineering—The Secretary for Education, Education Offices, Town Hall, Dewsbury (January 3). An assistant lecturer in physics at the Bradford Technical College—The Principal (January 11). A director of tubercular research in the University of Melbourne—The Agent-General for Victoria, Victoria House, Melbourne Place, Strand, W.C.2 (February 1). Assistantships in the departments of zoology, botany, entomology, and mineralogy of the British Museum (Natural History)—The Director, British Museum (Natural History), South Kensington, S.W.7. A teacher of engineering subjects and metalwork at the Doncaster Technical College—The Principal, Technical College, St. George Gate, Doncaster.

Our Astronomical Column.

RECENT SUNSPOTS.—The stream of spots seen near the sun's central meridian on Dec. 15 and 16 is the most important group observed for the last two months. Except for occasional short intervals, there has been no dearth, however, of smaller spots, whilst faculæ have been abundant (see also NATURE, Oct. 23, p. 603). The spots recently under observation appear to have originated about Nov. 21, but cloudy weather prevented their development being followed at that time, and later when the group was due to return at the east limb on Dec. 9. When first seen on Dec. 15, the arrangement of the spots was that usually associated with a bipolar group or stream of normal type. With the exception of the leader, the component spots were much broken up. The length of the stream, which was parallel to the sun's equator, was about 12° of solar longitude. Although the aggregate area of the spots was fully 1000 millionths of the sun's hemisphere, the group could be seen on Dec. 15 and 16 only when the disc was very carefully screened. Particulars of position, etc., are given below. It may be noted that no group so large as this has hitherto appeared during the present cycle so close to the sun's equator.

No.	Date on Disc.	Central Meridian Passage.	Latitude.	Area.
11	(Dec. 9–22)	Dec. 15·9	7° N.	1/1000 of sun's hemisphere

THE DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA, B.C.—Vol. 3, Nos. 9, 10, 11, 12 of the publications of this observatory, deal with the orbits of nine spectroscopic binaries and the radial velocities of 48 stars. 12 Lacertæ is interesting from the rapid change in the amplitude of the radial motion, accompanied, according to Guthnick, by a similar change in the range of variability of light. As in many other cases, the *H* and *K* lines of calcium are stationary, and nearly accord with the solar component of radial motion. The 48 stars were found to include 9 binaries.

Boss 1275 was found to be a binary by Adams at Mt. Wilson in 1916, but the period previously adopted, 27·43 days, is shown to be wrong. The true value is 2·15165 days.

H. D. 191201 is a very massive binary, the minimum values for the components being 13·8 and 12·9 times the sun. The type is Bo, and the estimated distance 5000 light years.

U.S. NAVAL OBSERVATORY, WASHINGTON.—Vol. 10 of the publications of this observatory deals, in the first place, with observations made with the Prime Vertical Instrument during the period 1893–1912. Vega was the star most regularly observed, since it is readily visible by day. It was found, however, that the daylight observations differ systematically from the night ones; the difference is ascribed to lateral refraction produced by unequal heating of the layers of air near the instrument.

The parallax of Vega was deduced to be 0·123″, the aberration constant 20·542″, the nutation constant 9·250″, the mass of the moon 1/80·54. The last was deduced from the nutation constant, assuming the luni-solar precession for 1850 to be 50·373″. The variation of latitude was not deduced from the observations but was taken from the values published by the International Geodetic Association.

The volume also gives in detail the results obtained during the total solar eclipses of 1905, 1918, 1923. Two expeditions were sent to Spain and one to Algeria in 1905. Numerous plates contain reproductions of the coronal photographs and also of drawings, both those made direct from the corona and those from combinations of photographs. There are some excellent reproductions of the chromospheric spectrum; in one plate this is placed in juxtaposition with the corresponding region in Rowland's Atlas.

Some striking drawings in colour of the landscape (showing approach of moon's shadow) and of the corona and prominences were obtained in 1918 by Mr. Howard Russell Butler, and are reproduced in colour in the volume. He gives the corona a distinct blue tint, agreeing with several observers, though others describe it as white. The distant hills in the shadow are drawn as purplish violet; the sky just above them in orange, changing to bluish purple higher up. The orange band was also seen in Norway in 1896, when Mr. N. E. Green made a colour drawing of the landscape during totality. The eclipse of 1923 was observed from aeroplanes; interesting descriptions are given, but they are of little scientific value.