News and Views.

THE nineteenth May Lecture of the Institute of Metals was delivered on May 7 by Sir Oliver Lodge, who chose as his title "Some Ideas about Metals". A large part of the lecture was devoted to the subject of metallic conduction, a theme selected by two of his predecessors, by Sir J. J. Thomson in 1915, and by Prof. H. A. Lorentz in 1925, but by no means exhausted even now. Adopting the 'electron gas' hypothesis as to the nature of metallic conduction, Sir Oliver Lodge discussed in a fascinating manner the phenomena of thermo-electricity and the Hall effect, suggesting the lines along which a solution of outstanding difficulties may be pursued. Great significance is attached to the results obtained by Kapitza in intense magnetic fields, and it is conjectured that a flow along magnetic lines of force, indicated by ether theory but too slow to be observed by existing means, might be detected if such intense fields could be extended over a considerable region instead of being concentrated in a very small space. The earlier part of the lecture, however, was of wider scope, and dealt in a reminiscent vein with some of the anomalies of discovery in physics, such as the failure to recognise a new phenomenon through excessive deference to existing views and the happy results sometimes derived from the exercise of boldness in experiment or speculation. A wide range is covered by the lecture, and the student of the history of physics will find an illuminating survey of some aspects of the growth of the Bohr atom, among many thumb-nail sketches of the physical discoveries of the present generation, from the hand of a master of exposition who has himself been in close contact with such discoveries over the most interesting period in the whole history of the science.

SCIENCE SERVICE, of Washington, D.C., announces that fourteen Americans and five foreigners were honoured at the concluding session of the annual spring meeting of the National Academy of Sciences, either by election to membership or to the foreign associateship. Prof. Arnold Sommerfeld, of Munich, known for his work on the quantum theory of spectra, who attended the scientific sessions of the meeting as a guest, was one of the newly elected foreign associates. The others included Richard v. Hertwig, professor of zoology and comparative anatomy in the University of Munich; C. de la Vallée-Poussin, professor of analytical mechanics at the University of Louvain; Willem de Sitter, of the Observatory of Leyden, Holland; and Prof. F. O. Bower, formerly Regius professor of botany at the University of Glasgow.

THE new members of the National Academy are Dr. Roger Adams, professor of organic chemistry at the University of Illinois; Irving W. Bailey, associate professor of botany, Bussey Institution, Boston; Dr. A. F. Blakeslee, botanist at the Carnegie Institution's station for experimental evolution at Cold Spring Harbor, N.Y.; Dr. James B. Conant, associate professor of chemistry, Harvard University; Dr. Bergen Davis, professor of physics at Columbia University; Dr. C. J. Davisson, physicist at the Bell Telephone Laboratories, New York, whose recent work on the wave nature of electrons has proved a most important advance in physics; Dr. Joel H. Hildebrand, professor of chemistry at the University of California, Berkeley; William Hovgaard, professor of naval design at the Massachusetts Institute of Technology; Dr. Albert W. Hull, research physicist at the General Electric Company's Research Laboratory at Schenectady, N.Y.; Frank Leverett, geologist of the U.S. Geological Survey and lecturer in glacial geology at the University of Michigan, Ann Arbor; Dr. Paul W. Merrill, astronomer at the Mt. Wilson Observatory, Pasadena, California; Dr. David H. Tennent, zoologist at Bryn Mawr College, Pennsylvania; Dr. George H. Whipple, dean of the School of Medicine and Dentistry and professor of pathology at the University of Rochester, N.Y.; and Dr. Clark Wissler, curator of ethnology at the American Museum of Natural History, New York, and professor of anthropology in the Institute of Psychology at Yale.

ON Feb. 13 last, Mr. Frederick Chapman, palæontologist to the National Museum, Melbourne, retired from the State service, and the National Museum Committee has passed a resolution recording appreciation of the services rendered by him since his appointment on Mar. 12, 1902. During his twenty-seven years of tenure, Mr. Chapman has arranged, and illustrated with his own pen and brush, the two extensive galleries of fossils in the Museum; identified 22,000 fossil specimens for visitors; and registered about 14,000 exhibited specimens. He has determined and labelled 7200 specimens in the reference collection of Australian fossils; and, apart from routine work, has described many hundreds of types. He is a member of the Australian Research Council and lecturer in palæontology at the University of Melbourne. In March last he was elected president of the Royal Society of Victoria. At present Mr. Chapman is attached to the Commonwealth service as Federal palæontologist, directing the examination of bore-cores, a work with which he is especially acquainted, for forty years ago he was helping the late Prof. J. W. Judd, of the Royal College of Science, to examine the borings from Meux's Well and from Richmond near London, whilst only last year he published a work on the Sorrento Bore. Mr. Chapman's work is familiar through his writings on Foraminifera and on Australasian fossils and the recently published guide book to the Fossil Galleries at the Museum.

THE Central Electricity Board, in accordance with the provisions laid down in the Electricity Supply Act of 1926, has published a report of its work up to January 1929. It will be remembered that the function of the Board is to co-operate with the supply industry in Great Britain in reducing production costs to a minimum and concurrently to increase the availability of the supply. The method of doing this which has been adopted is to interconnect the more efficient stations by a network of high pressure trans-

mission lines, called the grid, and operate 'selected' stations in the most economic way. The report indicates that good progress has been made in these directions. Many difficulties have been tactfully overcome. In central Scotland the Grampian Electricity Supply Company feared that the scheme would be prejudicial to its interests since it had counted on getting much of its revenue by supplying several industrial districts which will be connected with the grid. The Board, recognising the importance of developing the water power of the country, has promised to take a load not exceeding a maximum demand of 12,000 kilowatts from the company.

THE report goes on to state that in south-east England the demand has increased so rapidly that three additional stations had to be selected by the Central Electricity Board. The difficulties that were expected to arise owing to the standardisation of the frequency of the supply in central England and North Wales have been carefully considered, and in several cases the Board has given permission for schemes at a lower frequency to be completed, as the savings under the scheme would not have justified the higher expenditure. The total value of the work contracted for under the Government scheme up to the end of last year exceeds eight million pounds. In Scotland the erection of towers in the Clyde Valley will be completed this month. In south-east England towers are being built between Bedford and Little Barford, and forty-six out of seventy-three are now erected. One very satisfactory feature is that many landowners have facilitated the work and co-operated with the Board in preserving the amenities of the countryside by choosing the most suitable sites for the towers.

AT a recent meeting of the Council of the Institution of Professional Civil Servants the announcement of the appointment of a Royal Commission on the Civil Service, with the wide terms of reference indicated by Mr. Churchill in the House of Commons, was considered. While welcoming such a Royal Commission, the Council is of opinion, however, that such an inquiry can only discharge the task imposed upon it satisfactorily provided that professional and scientific men of standing and administrative experience are appointed to serve on the Commission. In its view, the problem of the structure of Civil Service organisation must be approached afresh in relation to the functions which should be accorded to the 'technical expert' in the administrative machinery of the modern State. An approach from the traditional Civil Service point of view is considered unlikely to lead to those fundamental changes which are rendered necessary by modern conditions.

IN a reprint of certain articles published in the *Journal* of the American Society for Psychical Research during 1928, and now issued under the title of "The Thumbprint and Cross-Correspondence Experiments made with the Medium Margery during 1927 and 1928," Dr. Mark W. Richardson and his associates have collected some of the more striking episodes in the later history of the development of the alleged supernormal phenomena occurring with the Boston medium, Margery (Mrs. L. R. G. Crandon). The paper is divided into two sections, one dealing with the thumb impressions upon dental wax which have so far been traced to no living person; and the other to the series of cross-correspondences between Margery and other mediums, which have the merit of simplicity, and possess a degree of accuracy which would be regarded with suspicion if it represented any kind of scientific result. There is little doubt that, merely considered as a question of mechanical production, the thumb prints are of some interest. Unlike the prints which engage the attention of the police, the Margery impressions are made in wax, and are therefore capable of more detailed examination and analysis than are those of two dimensions. Moreover, the fact that these wax impressions are said to be negative *and* positive together with 'mirror' images of both these series serves to illustrate the complexity of the problem.

THESE wax originals are open to inspection in Boston, and it is clear that an examination of them would be more satisfactory than of the photographs here included, excellent though the latter undoubtedly are. Hence any detailed criticism would be out of place, although it ought to be said that in the account there are certain suspicious incidents which again are not absent in the records of the cross-correspondences. Here we have broadly what is claimed to be the transmission of an idea independently chosen and presented which is reproduced at approximately the same time by two or more mediums at widely separated distances. Such a claim lends itself to scientific scrutiny, and it would appear that, under much stricter conditions than those described in this paper, it might be possible to test these phenomena in a manner free from those objections which usually prevent any adequate examination of supposed 'psychic' manifestations.

THE Right Hon. W. Ormsby Gore, Under-Secretary of State for the Colonies, recently gave an address before the Royal Scottish Geographical Society on the "Development of our Tropical Dependencies", and the lecture has now been published in the Society's magazine. He points out that in the true equatorial territories the combination of high rainfall, perpetually humid atmosphere, and comparatively high temperatures, provides all the circumstances necessary for constant and rank vegetable growth. On the north and south, these regions are bounded by great torrid deserts with a rainfall lower, and a temperature far higher, than those found in the true equatorial belt. The wealth of the tropics lies mainly in the production of certain foodstuffs and raw materials, which are becoming of increased importance year by year. Despite the bountiful and productive nature of the true equatorial regions, there is, however, an extraordinary sparseness of human population. A variety of causes retard development, among which the more important are tropical diseases, the ravages of mosquitoes and tsetse flies which attack man and animals, and the prevalence of plant diseases. For

the development of the tropics, further research work in tropical medicine and veterinary science is all important. In agriculture, also, research is vital, since immune varieties of higher yielding strains of particular crops are urgently required. Mr. Ormsby Gore considers that it is in the fields of economic botany, plant genetics, and soil science that the economic conquest of the tropics has its future. In tropical agriculture, medicine, and veterinary science the main problems now to be faced are not so much the cure of diseases as and when they arise but rather the eradication of disease and the maintenance in health of men, animals, and plants.

THE first number of *Human Biology*, a new magazine with a definite and specific aim, has made its appearance from the Institute for Biological Research, under the editorship of Prof. Raymond Pearl. Its object is to publish in readable English original articles in all fields of human biology, including physical and general anthropology, anthropometry, vital statistics, human heredity and eugenics, prehistory, human anatomy, sociology, constitutional pathology, and psychobiology. There was need for such a work, for not only has it become increasingly apparent that humanistic researches must all wander into biological fields, but also the publication of papers on human biology found their way into many and scattered journals, and lost the value of a massed attack. The first part—the journal is to be a quarterly—contains a varied series of papers, dealing with subjects from human evolution to biological philosophy and medicine. All the articles are stimulating in their suggestiveness, but a perusal of some suggests that the editor is to have a hard task to capture the standard of thorough and entertaining readableness at which he aims through his contributors. There are no book reviews, but a list of new books and memoirs received at the editorial office is printed as a bibliographical guide. There is a niche for *Human Biology*, and this it promises to fill very satisfactorily.

DR. FRANK B. JEWETT, of New York, who has recently been honoured by the American Institute of Electrical Engineers, gave an address on Dec. 29 last to the American Association for the Advancement of Science, which has appeared in a recent issue of *Science*, on leadership in industrial research. As one of the founders of the Bell Telephone Laboratories, and as one who has been engaged for the last twenty-five years in finding and encouraging others to do scientific research in industry, his paper deserves consideration by scientific and technical professors. He has worked all his life to promote co-operative research, not with any idea of banishing the individual inventor, especially if that inventor happens to be a genius, but in the belief that co-operation provides a new method of research. In both scientific and industrial research the men who succeed are driven to work by insatiable curiosity about natural laws and not mainly by a desire for personal wealth. Looking back over his successes and failures in selecting young men for industrial research during the last twenty-five years, Dr. Jewett says that the majority of his successes were secured by attaching one-third weight to his own personal appraisement and two-thirds to that of experienced professors under whom the candidate had worked. His failures were mainly due to paying too little attention to the professorial opinion and to attaching too much weight to those whose judgment he should have distrusted. In order to promote the peace of mind and the continued productivity of the research worker, it is necessary to encourage him by a sympathetic understanding of the work he has done and the obstacles he has to overcome. We are human beings dealing with each other, and no hard-and-fast rules can be applied to workers in the field of research any more than in any other field of activity.

A FURTHER Circular (No. 6) has been issued by the secretaries of the International Congress of Forestry Experimental Stations to be held in Stockholm next July, which has been referred to in previous issues of NATURE. So far, about a hundred applications to attend the Congress have been received and fifty papers have been presented to be read, the latter chiefly from Europe and the United States. It is proposed to set up an organising committee, consisting of one representative from each country, which will deal with questions concerning the organisation of the Congress and the revived International Association of Experimental Stations. This Committee will have the power to summon experts to its meetings, which will not clash with the general meetings of the Congress, to assist in the solution of such problems as may arise; small executive sub-committees will be appointed when deemed necessary. Delegates submitting papers are requested to send in a précis of their papers at once, in order that such summaries may be printed and thus be in the hands of delegates before the meetings at which the papers are read. It is further announced that the period of application to attend the Congress has been extended to June 1, although the date of giving notice regarding attendance at the excursions to take place before and after the Congress meetings was left at April 30. The meetings in Stockholm will take place on July 22–27. The first meeting of the organising committee will be held in the afternoon of Sunday, July 21, and this will be followed by a garden party at the beautifully situated College of Forestry at Stockholm, to which all delegates are invited. The proceedings of the Congress will open on July 22, and the programme of the first two days' meetings is given in the circular. The last meetings of the Congress will be held on Saturday, July 27, when resolutions will be submitted, the election of a president, and the time and place of the next meeting, and the appointment of an executive committee of the Association will be discussed.

IN a recent issue of *Science*, Prof. Knight Dunlop has a paper on the outlook for psychology, presented before the New York meeting of the American Association for the Advancement of Science. He reviews the present situation with special emphasis on what he calls the laboratory method, believing that the laboratory is the centre of true psychological activities. It is dis-

appointing that such a subject should be treated so generally; he asserts, but presents no evidence, that the laboratory method has justified itself and contrasts it with the mental test movement and the psycho-analytic movement, both of which he looks upon as in a state of eclipse. One cannot help feeling either that the position of psychology in the United States is radically different from what it is in Britain, or that Prof. Knight Dunlop is comparing the best work of the laboratory with the worst and most uncritical of the practical movements. There is no inherent opposition between the laboratory method and scientific method pursued in the field for practical purposes. The laboratory worker in psychology, as in any other science, can pursue knowledge for the sake of knowledge, regardless of possible practical applications, but he can also receive his stimulus to work from the practical side and pursue his research scientifically with a practical aim. The mental tester in his domain and the doctor in his, were confronted with serious problems. Neither of them could wait until, if ever, the laboratory worker bestirred himself to help him. Because both movements have had over-enthusiastic exponents and reckless theorisers, one cannot look upon them as discredited. So also has the theory of evolution. Perhaps in England less was expected of either mental testing or psycho-analysis, and therefore they have been kept in better perspective. In the latest edition of Osler and M'Crae's "Modern Medicine", there occurs the statement: "Psycho-analysis is of the greatest service for the strictly psychogenic cases", and the mental test is used not as a method of universal validity, but as a convenient measure of differentiation.

THE effect of the erection of overhead power lines on the beauty of the countryside has been much discussed in the Press. Electrical engineers are, however, more concerned at present with the possible interference these high voltage lines may produce with telephone lines, radio transmission, and broadcast reception. Dr. R. L. Smith Rose has been experimenting, on behalf of the Radio Research Board, at the National Physical Laboratory on this subject and has arrived at definite conclusions. These are given in the *Wireless World* for May 8. American experience has shown that if the radio reception station be farther than about half a mile from a high-tension overhead line, no interference or disturbing effects will be experienced. The station itself may, without causing interference, be supplied with power from the overhead system. Experiments were made by Dr. Smith Rose to find out the effects of high voltage spark discharges on a sensitive radio receiver in the neighbourhood. When a spark or arc discharge initiated by a voltage of about 850,000 and carrying a current of about half an ampere took place, then if the receiver were less than 200 yards from it, disturbance ensued. This effect was only serious when long drawn arcs occurred at frequent intervals, a phenomenon which would very rarely happen on transmission lines. When the distance was so great as 600 yards, the interference was negligible. The distance, therefore, of half a mile which is customarily chosen for other reasons ensures that the disturbing effects produced by 'man-made static' are negligible.

TEST transmissions of the new Marconi broadcasting station at Bratislava, Czechoslovakia, have been carried out and satisfactory reception has been reported, generally on three-valve sets, from all parts of the British Isles. The new station comprises a Marconi 12-kilowatt broadcasting transmitter, Type P.A.5, employing the principle of low-power modulation. Its wave-length is 277·8 metres (1080 kh.), and among its special features is the half wave-length æriał, the first of its kind to be used in the broadcast band of wave-lengths. The station, which is situated about three miles to the east of the town, replaces an old broadcasting station of ½-kilowatt power. It is connected by land line with up-to-date studios in the centre of Bratislava, Prague, and Brno.

THE Fourth World's Poultry Congress is to be held at the Crystal Palace on July 22–30, 1930. It is being organised by the English Ministry of Agriculture and Fisheries in conjunction with the Scottish Department of Agriculture and the Ministry of Agriculture for Northern Ireland. The official host is the Government, and Their Majesties the King and Queen and H.R.H. the Prince of Wales have consented to become its patrons. National committees have been formed in most countries for the purposes of organising national exhibits, and of selecting papers to be read at the Congress. The business activities of the Congress will consist of paper-reading sessions, national displays of live-stock, and commercial exhibits. Whilst most that is to be heard and to be seen will deal with the democratisation of information relating to poultry-keeping, there are to be in addition special paper-reading sessions devoted to the presentation and discussion of original scientific contributions in genetics, dietetics, pathology, and husbandry. This Congress is expected to be no less successful than the last, which was held at Ottawa in 1927, when 3000 delegates and 200,000 members of the general public attended.

A FORMIDABLE and very widely spread insect pest of fruits, namely, the Mediterranean fruit fly (*Ceratitis capitata*), has recently, and for the first time, secured a footing in the United States. We learn from recent *Daily Science News Bulletins*, issued by Science Service, Washington, D.C., that its discovery in citrus orchards in Florida, over an area of about 40 square miles, has led to the planning of energetic measures of repression. The fly was first found on April 6 and its identity established soon afterwards. Specimens were then rushed by air mail to Washington and the identification confirmed. It is stated that within one week of the date of discovery, 75 entomologists and plant experts were on the ground, and the battle of extermination has begun!

THE Bakerian Lecture of the Royal Society will be delivered by Prof. E. A. Milne, Rouse Ball professor of mathematics in the University of Oxford, on June 6, the title being "The Structure and Opacity of a Stellar Atmosphere".

AT the annual meeting of the members of the Royal Institution, held on May 1, the following officers were elected :—*President :* The Duke of Northumberland ; *Treasurer :* Sir Robert Robertson ; *Secretary :* Major Charles E. S. Phillips.

THE President of the French Republic has, on the recommendation of the Association Technique Maritime et Aéronautique, conferred the Legion of Honour upon Mr. Robert W. Dana, secretary of the Institution of Naval Architects.

THE first Pedler Lecture of the Chemical Society will be delivered by Prof. W. H. Perkin, Waynflete professor of chemistry in the University of Oxford, on Thursday, May 30, at 5.30 P.M., the title of his lecture being "The Early History of the Synthesis of Closed Carbon Chains". The lecture will be given in the hall of the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1. Tickets of admission will not be required.

'NATIONAL Baby Week' is to be celebrated this year in Great Britain on July 1–7. The National Baby Week Council desires that special attention should be directed to three problems : (1) The practical measures that can be taken to combat maternal mortality, morbidity, and disability ; (2) what local authorities and parents can do to lessen the incidence and dangers of infectious diseases among young children ; and (3) the teaching of parentcraft and hygiene to school children. Particulars may be obtained from the Secretary, Miss Norah March, 117 Piccadilly, W.1.

A PUBLICATION grant of £2500 is receivable by the Royal Society from H.M. Government during the current year. The grant is available for assisting the publications of other scientific societies, as well as for assisting the separate publication of books, memoirs, etc., of a scientific nature. Applications for grant will be adjudged by the Council of the Royal Society at its meeting early in July, but should be received before the Council meeting of June 13. Applications from societies will be received by the secretaries of the Royal Society ; those from individuals must be brought forward by members of Council.

THE second meeting of the Internationale Gesellschaft für Sexualforschung will be held in the house of the British Medical Association, Tavistock Square, London, on Aug. 3–9, 1930. It may be assumed that, as was the case in Berlin, the papers presented for discussion will fall into the following groups : biology ; physiology, pathology, and therapeutics ; psychology, pedagogy, ethics, æsthetics, religion ; demography, statistics, social and racial hygiene ; sociology, ethnology, and folk-lore. All arrangements are in the hands of Prof. F. A. E. Crew, The University, West Mains Road, Edinburgh, to whom all those who are interested are requested to write.

THE cheap popular series of books which have long been a feature of publishing enterprise fall into two main divisions ; those which have long attained the rank of classics, and those which provide expositions, brief but authoritative, of new problems, or of problems which have assumed new forms or a new importance. Of the latter kind of cheap series, "Benn's Sixpenny Library" is one of the most remarkable (London : Ernest Benn, Ltd.). To mention three examples, rather wide apart as to subject matter, from a number of volumes which have recently reached us—Dr. Cyril Norwood on "The English Educational System", Mr. E. N. Fallaize on "The Origins of Civilisation", and Lord Monkswell on "Railways"—is to convey some idea of the comprehensiveness of the series. Many of the volumes dealing with scientific subjects have been noticed separately in NATURE. As at present arranged, the series is to run to some two hundred and fifty books, of which we have already received about a hundred and fifty. The undertaking is one which deserves, and we trust is commanding, success.

A CORRESPONDENT in Tanganyika has directed attention to an error in the provenance of the wooden dolls described in NATURE of Mar. 9, p. 388, where they are attributed to West Africa. This should be East Africa, as the Wamakonde, by whom the dolls were made, are native to Portuguese East Africa.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned :—A soil analyst in the West of Scotland Agricultural College —The Secretary, West of Scotland Agricultural College, 6 Blythswood Square, Glasgow (May 24). An assistant lecturer in chemistry and an assistant lecturer in biology at the Brighton Technical College —The Secretary, Brighton Technical College, 54 Old Steine, Brighton (May 25). An assistant at the Forest Products Research Laboratory, Princes Risborough, for work on the identification and structure of wood—The Secretary, Department of Scientific and Industrial Research, 16 Old Queen Street, S.W.1 (May 25). Temporary assistant chemists at the Government Laboratory—The Government Chemist, Clement's Inn Passage, W.C.2 (May 25). An assistant master to teach mathematics at the Toxteth Junior (Day) Technical School—The Director of Education, 14 Sir Thomas Street, Liverpool (May 25). A part-time demonstrator in chemistry at King's College of Household and Social Science—The Secretary, King's College of Household and Social Science, Campden Hill Road, W.8 (May 29). A demonstrator in the mechanical engineering branch of the Military College of Science, Woolwich—The Assistant Commandant, Military College of Science, Woolwich, S.E.18 (May 31). A pathologist and curator at the Royal London Ophthalmic Hospital—The Secretary, Royal London Ophthalmic Hospital, City Road, E.C.1 (May 31). An assistant lecturer in physical chemistry in the University of Sheffield—The Registrar, The University, Sheffield (June 3). A demonstrator in the department of physiology of Middlesex Hospital Medical School—The School Secretary, Middlesex Hospital Medical School, London, W.1 (June 5). A professor of mechanical engineering at the College of Engineering, Guindy, Madras — The Secretary to the High Commissioner for India, General Department, 42 Grosvenor Gardens, S.W.1 (June 8). A research chemist in the department of Coal Gas

and Fuel Industries of the University of Leeds—The Registrar, The University, Leeds (June 9). A lecturer in civil engineering in the University of the Witwatersrand, Johannesburg—The Secretary, Office of the High Commissioner for the Union of South Africa, South Africa House, Trafalgar Square, W.C.2 (June 11). Two research fellows in the Department of Chemical Technology of the Imperial College of Science and Technology for work in connexion with the carbonisation of coal, gaseous combustion or catalytic reactions—The Registrar, Imperial College of Science and Technology, South Kensington, S.W.7 (June 15). Three assistants in the Research Department, Woolwich, under the Directorate of Explosives Research—The Chief Superintendent, Research Department, Woolwich, S.E.18. An examiner in the Aeronautical Inspection Department, Air Ministry, Kidbrooke, S.E.—The Secretary (I.G.), Air Ministry, W.C.2. A temporary woman lecturer in geography at the Warrington Training College, temporarily at St. John's College, Battersea—The Principal. An assistant in the Public Health Laboratories and Bacteriological Department of the University of Durham College of Medicine—The Registrar, University of Durham College of Medicine, Newcastle-upon-Tyne.

Our Astronomical Column.

THE TOTAL SOLAR ECLIPSE OF MAY 9.—Unfortunately, the news from the official British parties at Alor Star and Patani are very disappointing. At the latter station nothing could be done owing to thick clouds. At the former the clouds were thinner, and some plates were exposed, but it is feared that they will be of little value.

Fortunately, the parties in Sumatra and the Philippines had better conditions. Iloilo (Philippines) was occupied by American and German parties from the Naval Observatory, Washington, and from Hamburg. There were also two English observers, Dr. R. L. Waterfield and Mr. W. Lloyd. There was a little high cirrus cloud here, but it does not appear to have interfered much with the observations; there was a fine flag-shaped prominence, which the Americans humorously compared to the 'Stars and Stripes'. The corona was of maximum type and had six-pointed streamers; Dr. Waterfield reports that it was brighter and more extensive than that of June 1927, but the darkness during totality was not so great. He states (*Daily News*, May 11) that the infra-red plates overcome thin clouds and give the corona a harder outline, but no greater extension, than ordinary plates. A kinematograph film was exposed during totality by the Washington party, but this had not then been developed.

Some of the parties in Sumatra report some interference by cloud, while others enjoyed very good conditions. Prof. J. A. Miller, of Swarthmore Observatory, who probably holds the record for the number of eclipses he has observed, took coronal photographs with a camera of 65-feet focus; comparison of his plates with those taken in Iloilo will reveal any coronal changes that may have taken place in an hour. Prof. E. F. Freundlich, from Potsdam, has telegraphed that he obtained successful results. He was studying the Einstein bending of light, a problem on which he was engaged even in pre-War days, before the publication of the general theory of relativity. This is the third totality that has been successfully observed in Sumatra in the present century; the others were 1901 and 1926.

Since the above was written, a Reuter telegram received from Dr. Jackson at Alor Star reports as follows: Developed plates better than anticipated. Transparencies equal to that of Giggleswick. Several beautiful prominences, one 150,000 miles long, 100,000 miles high, with coronal arches. Apparatus for velocity in the corona satisfactory.

THE PLEIADES.—At the meeting of the Royal Astronomical Society of May 10, the George Darwin Lecture was delivered by Prof. Ejnar Hertzsprung, of Leyden Observatory. He chose as his subject the Pleiades, and began with describing the methods by which the stars of the cluster could be discriminated from background stars by photographic determinations of their proper motions. Slides were shown of the proper motions of each magnitude of stars from the third to the fifteenth. The brighter ones are all cluster stars; it is only in the case of the faintest stars that any doubt arises as to which belong to the cluster, and even here there are only one or two doubtful cases.

Prof. Hertzsprung then proceeded to divide the stars into the spectral classes, which was done for the fainter stars by their colour indices. There are no red or yellow giants, the brightest stars being of type *B*, and the faintest being red dwarfs. Prof. A. S. Eddington remarked after the lecture that the resulting diagram of spectral type and absolute magnitude brought out the 'main sequence' more vividly than he had seen before, since it was the first time that such a large number of stars, all known to be at the same distance, had been studied. The globular clusters are too remote for the dwarf stars in them to be seen. The colour indices of the non-cluster stars in the region were also determined; there was some reason to think that they were rather redder than the average, which might possibly be caused by the presence of the nebulosities round the principal stars.

Prof. Hertzsprung adopted the parallax of the cluster as 0·0065″, which is smaller than some other estimates, which go up to 0·01″. He ascribed the proper motion almost entirely to the motion of the solar system.

MEASURING THE HEAT OF THE STARS.—The May *Scientific American* contains an account by Prof. H. N. Russell of the very delicate measures of stellar heat made by Messrs. E. Pettit and S. B. Nicholson with the 100-inch reflector at Mount Wilson. The wires of the thermocouple are about one-thousandth of an inch in diameter and weigh 1/600 of a grain. Betelgeuse is the star that gives us the most heat, but even this only raises the temperature of the wire on which it falls by 1/60 of a degree, and produces a current of one seven-millionth of an ampere. This, however, suffices to move the spot of light reflected from the mirror of the galvanometer through 18 inches. Some stars invisible to the naked eye give a measurable displacement. The next in order after Betelgeuse are Antares, Sirius, Canopus, Gamma Crucis, Arcturus, Alpha Herculis, Aldebaran, Mira at its maximum. It is noted that a very red star, such as Alpha Herculis, sends us 50 times as much heat as a white star of the same visual magnitude, in spite of the fact that the surface temperature of the first is only 2300°, that of the second being 6000°. The article contains a picture of the thermocouple used by Dr. W. W. Coblentz for measuring the heat received from the planets.