treatment of Shaksperiana. He was an acknowledged authority on Shakspeare, and was proud of the part he took as president of the Shakspeare Reading Society in placing in Park Street, near Bankside, the handsome bronze memorial which now marks the site of the 'Globe'.

Dr. Martin was a graceful writer, clear and entertaining as a lecturer, and an ideal guide; with a very practical gift for organising which enabled him to carry through his arrangements strictly to time. Perhaps he found his greatest happiness in conducting parties through almost forgotten alleys and byeways of London which he loved, and filling them from his stores of knowledge with pictures of the life of other days. Many are those who have enjoyed afternoons spent with him on these rambles who will still find pleasure in the remembrance of his easy discourse and the charm of his personality. He was keenly interested in many aspects of natural history, as well as being an authority upon archæological subjects; and he served as president of the South-Eastern Union of Scientific Societies. It was particularly appropriate that Dr. Martin should be elected the first president of the Gilbert White Fellowship, the object of which is "To continue the work of Gilbert White in the study of natural history and antiquities". He took an active part in the meetings and excursions of this Fellowship within a few days of the illness which resulted in his regretted death.

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WE regret to announce the following deaths:

Prof. Thomas W. Cave, vice-principal of the South-Eastern Agricultural College, Wye, and for twenty-seven years head of the Veterinary Department of the College, on April 25, aged seventy years.

Mr. A. H. Cheatle, C.B.E., the distinguished aural surgeon, who presented to the Royal College of Surgeons his valuable collection of preparations illustrating the anatomy of the mastoid region, on May 11, aged sixty-two years.

Prof. Peter Gillespie, professor of civil engineering, University of Toronto, at fifty-six years of age.

Commendatore Rodolfo Lanciani, K.C.V.O., Senator of the Kingdom of Italy and formerly professor of Roman topography in the University of Rome, on May 21, aged eighty-three years.

Dr. James Moir, a past president of the Chemical, Metallurgical and Mining Society of South Africa and of the Chemical Section of the South African Association for the Advancement of Science, on Mar. 31.

Mr. O. A. Reade, pharmaceutical chemist, president of the Lowestoft and District Literary and Scientific Association, and author of a flora of the Bermudas, on April 14.

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## News and Views.

THE King's Birthday honours list includes the names of the following scientific workers and others associated with scientific activities. *Baron:* Sir Edward Allen Brotherton, chemical manufacturer. *Privy Councillor:* Lord Dawson of Penn, Physician-in-Ordinary to the King. *Baronets:* Sir E. F. Buzzard, Physician Extraordinary to the King; Sir Hugh Mallinson Rigby, Sergeant Surgeon to the King. *Knights:* Prof. H. C. H. Carpenter, professor of metallurgy in the Royal School of Mines, Imperial College of Science and Technology; Mr. J. J. Ralph Jackson, Chief Veterinary Officer, Ministry of Agriculture and Fisheries; Mr. W. S. Jarratt, Comptroller-General of the Patent Office; Prof. W. C. MacKenzie, Director, and professor of comparative anatomy, National Museum of Australian Zoology; Dr. Peter Chalmers Mitchell, Secretary of the Zoological Society of London; Prof. C. V. Raman, Palit professor of physics in the University of Calcutta; Brigadier E. A. Tandy, Surveyor-General of India (retired); Dr. R. S. Woods, Honorary Physician and Honorary Surgeon, London Hospital. *K.C.B.:* Sir F. S. Hewett, Surgeon Apothecary to the King. *C.B.:* Major-General H. P. W. Barrow, Director of Hygiene, War Office. *C.S.I.:* Mr. James Herman Field, late Director-General of Observatories, India. *G.C.M.G.:* Sir John Cadman, emeritus professor of mining, University of Birmingham. *C.M.G.:* Dr. L. Cockayne, in respect of honorary scientific services to the Government of the Dominion of New Zealand; Mr. O. F. H. Atkey, Director of the Sudan Medical Service. *G.C.V.O.:* Sir Humphry Rolleston, Physician-in-Ordinary to the King. *C.V.O.:* Dr. L. E. H. Whitby, bacteriologist. *M.V.O.:* Prof. E. C. Dodds, professor of bio-chemistry at Middlesex Hospital. *C.I.S.O.:* Mr. W. A. Baker, lately Surveyor-General, Jamaica; Mr. J. F. Halpin, Superintending Chemist, Government Chemist's Department. *G.B.E.:* Prof. Dame Helen Gwynne-Vaughan, professor of botany in the University of London; Sir Arthur McDougall Duckham, Director-General of Aircraft Production. *K.B.E.:* Major-General T. H. Symons, Honorary Surgeon to the King, Director-General, Indian Medical Service. *C.B.E.:* Mr. P. N. H. Jones, Director of Public Works, Bermuda; Lieut.-Col. F. J. McCall, Director of Veterinary Services, Tanganyika Territory; Capt. R. S. Rattray, for services as Government Anthropologist in the Gold Coast and to aviation in West Africa; Col. A. H. Safford, Assistant Director of Medical Services, Baluchistan District, India; Mr. Nicholas White, Chief Engineer, and Secretary to the Government of the Punjab, Irrigation Branch. *O.B.E.:* Mr. H. Brown, Principal Officer, Plant and Animal Products Department, Imperial Institute; Major D. G. Cheyne, Deputy Assistant Director of Hygiene, China Command; Dr. F. Dixey, Director of the Geological Survey, Nyasaland Protectorate; Major J. N. Duggan, professor of ophthalmic medicine and surgery, Grant Medical College, Bombay; Mr. J. C. F. Fryer, Director, Ministry of Agriculture and Fisheries Pathological Laboratory, Harpenden; Lieut.-Col. F. J. M. Stratton, professor of astrophysics in the University of Cambridge; Mr. G. Stuart, Assistant Director, Laboratories, Department of Health, Palestine. *M.B.E.:* Mr. E. W. Davy, Assistant Director of Agriculture, Nyasaland Protectorate.

THE Lords Commissioners of H.M. Treasury have appointed a committee to inquire into matters affecting the functions and staff of certain Research and Experimental Establishments of Government Departments, with the following terms of reference: To examine the functions and organisation of the undermentioned Establishments in the Government Service and to report on the method of recruitment and conditions of service of the civilian scientific and technical officers employed therein: (*a*) The Research and Experimental Establishments under the Admiralty, War Office, Air Ministry, and Department of Scientific and Industrial Research; (*b*) the Department of the Government Chemist and the Establishments under the Admiralty and War Office concerned with chemical analyses; and (*c*) the Meteorological Office.

THE chairman of the committee is Prof. H. C. H. Carpenter, professor of metallurgy, Royal School of Mines, and the members are Sir W. J. Larke, the director of the National Federation of Iron and Steel Manufacturers; Sir Robert Robertson, government chemist; Mr. F. M. Morris, the assistant secretary at the Treasury in charge of staff questions affecting the Defence Departments; Mr. R. J. G. C. Paterson, one of the directors of finance at the War Office; Dr. F. E. Smith, director of scientific research, Admiralty; Mr. H. T. Tizard, secretary of the Department of Scientific and Industrial Research; and Mr. H. E. Wimperis, director of scientific research, Air Ministry. The secretary is Mr. H. Brittain, a principal at the Treasury.

As was indicated in our leading article of May 11, the impending appointment of an inquiry into the organisation and lay-out of the research and experimental branches of the Civil Service was used in April last by the representatives of the Government on the National Whitley Council for the Civil Service as a reason for refusing a Joint Committee which the Staff Side, at the instance of the Institution of Professional Civil Servants, had proposed. It was understood that the official committee then foreshadowed would cover the whole of the research and experimental activities of government departments and would deal mainly, if not exclusively, with the widest questions of structure and organisation. Under the terms of reference now announced, however, the committee's sphere of action does not include the Museums, the Observatories, or the Research Services of the Ministry of Agriculture and Fisheries, and its authority to deal with matters of high policy is apparently confined to examination. We are also a little mystified by the relationship of this new committee to the Research Co-ordination Sub-Committee of the Committee of Civil Research which was appointed in 1926 under the chairmanship of Mr. W. G. A. Ormsby-Gore, and which presumably is continuing to function, since the report which it issued last year was purely descriptive in character. We understand that the Institution of Professional Civil Servants, which represents the staffs to be considered by the committee of inquiry, has been invited to submit evidence, but has not yet decided its policy.

EDUARD SUESS, the most illustrious member of the great school of geology in Vienna, was born in London on Aug. 30, 1831, and the Geological Society has placed a memorial tablet on the house, 4 Duncan Terrace, Islington. The tablet was unveiled on May 28, by his Excellency the Austrian Minister, Baron G. Frankenstein. The president of the Geological Society, Prof. J. W. Gregory, remarked that Suess came of a family that was settled in South Saxony by 1524. His father was destined for the Church, in which many of his ancestors had served; but he entered the wool business, and lived for a time in London. He removed to Vienna, where Eduard Suess graduated at the University, served on the staff of the Royal Museum, and was appointed professor at the University in 1857. Suess applied his geological knowledge to the provision of a better water supply for Vienna, and thereby effected a great improvement in the health of the city, which became a pioneer in the improvement of municipal water supplies. Suess's world-wide scientific reputation depends on his contributions to geology and physical geography. His views were most fully published in his "Face of the Earth"; they were so original and unorthodox that he was for a while regarded as a visionary, and his writings set aside as 'geo-poesy'.

SUESS'S main principles have been generally accepted and have had a fundamental influence on modern ideas of the internal structure of the earth and its geographical evolution. Before his work it was generally believed that changes in the distribution of the sea and land were due to irregular local oscillations of the crust. Suess held that they were mainly regular and world-wide in range, and due to changes in the form of the earth that cause a general advance of the sea at one time and retreat at another. The origin of mountain chains he attributed to the crust being folded by pressure in one direction forming waves which advance until they are stopped by older rigid masses of land, as waves of the sea are kept back by the projecting forelands along a coast. Suess ranks as the greatest original force in the geological philosophy of his time, as well as being remarkable for his influence as a far-seeing educationist and municipal reformer, statesman, and economist. The Austrian Minister expressed his pleasure at this recognition of the work of the great Viennese geologist. The Rt. Hon. Sir Maurice de Bunsen, on behalf of the Royal Geographical Society, expressed appreciation of Suess's work. Dr. F. A. Bather, representing the Royal Society, referred to the scientific imagination with which Suess handled his material. Alderman Harper, the Mayor of Islington, promised that the local authorities would see to the safety of this memorial to one of the illustrious sons of Islington. Sir Arthur Smith Woodward and Prof. W. J. Sollas, in moving a vote of thanks to the Austrian Minister, referred to Suess's nobility of character and literary distinction.

A PARTICULARLY interesting account is given in the *Engineer* of May 31, of the replica of the famous locomotive *Rocket*, which won the competition at

Rainhill on the Liverpool and Manchester Railway in October 1829, and at the same time established once and for all the suitability of the steam locomotive for railway work. The original *Rocket*, or what remains of it, stands in the Science Museum, South Kensington, but the replica has been made for Mr. Henry Ford for his museum at Detroit. The task of building the new *Rocket* was given to Messrs. Robert Stephenson & Co., Ltd., Darlington, the successors of the old Stephenson firm at Newcastle, and immense pains have been taken to follow as closely as possible the original plans. As is well known, the original *Rocket* was altered very considerably and to-day many parts are missing. The design of the fire-box—one of its most important features—has long been a matter for inquiry and discussion, but apparently the experts are now fairly well agreed as to the details, and in the replica Mr. Ford possesses what is undoubtedly the most complete piece of engine reconstruction ever carried out. Though there are various memorials to George and Robert Stephenson and to Henry Booth, who were jointly responsible for the building of the *Rocket*, on June 8 we shall possess another memorial to George Stephenson, for on that day the Lord Mayor of Newcastle-upon-Tyne will unveil a tablet on the cottage at Wylam, Northumberland, where he was born. The tablet has been erected through the joint efforts of the North-East Coast Institution of Engineers and Shipbuilders and the Institution of Mechanical Engineers.

MR. E. B. FORD, of the Department of Zoology, University of Oxford, delivered a lecture before the Eugenics Society in the rooms of the Royal Society on May 29, on "Recent Work on the Physiology of Genetics and its Bearing on Human Problems". Mr. Ford stated that the physiology of genetics has only been studied in comparatively recent years. Indeed, it could scarcely have been investigated until a considerable body of evidence respecting the mechanism of inheritance had been built up. Such evidence has now been obtained, and has resulted in an accurate knowledge of the behaviour of genetic factors and of the characters for which they are responsible, but the developmental processes by which these characters are produced are still for the most part obscure. Prof. R. Goldschmidt in Germany has, however, thrown some light on this part of the problem. He was led to postulate factors controlling the *rate* of production of sex-differentiating substances in his work on sex-determination, and later in other characters, in moths. However, these are animals which differentiate by means of sudden metamorphoses. For this reason they are unsuitable for an investigation of developmental processes. This difficulty has to some extent been overcome in Great Britain by the study of a Crustacean which grows and develops throughout life. By this means it has been possible to examine in detail a number of factors affecting the rate and time of onset of processes in the body, and their interaction with each other and with the environment. It is probable that factors of this type are of great importance in the mammals. In man they should be of particular interest, since so many of the differences which separate the human species from the apes are qualitative, and depend upon rates of development and the time at which certain processes begin. We have here an indication of how such differences are inherited and controlled.

THE Zoological Society of Scotland has entered upon a new and important stage of its steady development. The large area of ground, formerly a golf-course, which rises to the ridge of Corstorphine Hill, has been taken over, a road has been made traversing the new ground, large grass paddocks have been partitioned off, and a series of enclosures in the live rock has been created for beasts of prey at a cost of some £3500. Great improvements also continue to be made, we learn from the sixteenth Annual Report, in the older part of the Park. Unsightly cages have been replaced by rock-dens, and an extensive monkey-house, designed on modern lines and now in course of erection, promises to be as successful as the recently built houses for tropical birds and reptiles. The application of a device for the circulation and filtration of water has enabled the director-secretary to add a number of salt-water tanks to the Aquarium, much to its gain in attractiveness, and at a cost very much less than that of the original proposal for storage tanks. During the year 86,000 visitors entered the Park, and the accounts show a record surplus on the year of more than £4700.

THE teaching of Nature study in schools has been a problem bristling with difficulties, and to these difficulties is largely due the predominant place in school-teaching taken by the more concrete sciences of chemistry and physics. Part of the trouble is due to the impossibility of finding teachers with the necessary outlook and training, and this, we are inclined to think, may be traced to the tendency of the training colleges to model the biological syllabus too closely upon the botanical and zoological courses in the Universities. That is to say, too much stress has been laid upon the structure and systematics of plants and animals and too little upon life-activities. It is, therefore, with unusual pleasure that we welcome a course of Nature study, which in the hands of an intelligent and sympathetic teacher should bring to the class-room the real feeling of the progression of living things. The course is outlined week by week in *The Schoolmistress*, under the title "In England—Now!" by Mrs. Maribel Edwin, the daughter of Prof. J. Arthur Thomson. The general scheme of the series is to follow natural history the year round in Britain, and this is accomplished by striking in the first week of each month the keynote of the month, and in the succeeding weeks, by analysing the month's activities in greater detail. The treatment exhibits insight and imagination, and the wall diagram, on which pictures of the creatures and plants referred to may be hung in their appropriate environment month by month, strikes a practical note which must appeal to teacher and pupil alike.

THE fifth meeting of the Wool Breeding Council, appointed jointly by the Secretary of State for Scotland and the Minister of Agriculture and Fisheries

to advise the Departments of Agriculture for England and Wales and Scotland on questions relating to the improvement and utilisation of wool grown in Great Britain, was held at the Animal Breeding Research Department, University of Edinburgh, on May 23. Sir Robert Greig, chairman of the Council, presided. Short statements on research work in progress were submitted to the Council. In co-operation with the University College of North Wales, Bangor, large scale breeding experiments have been conducted in order to determine the mode of inheritance of the birth coat of lambs and the relationship between the type of birth coat and kemp in the subsequent fleece. At the Animal Breeding Research Department, University of Edinburgh, the work includes a critical repetition of the grafting experiments carried out by Dr. Voronoff, a study of the rôle of the pituitary gland in producing early maturity, and an investigation into the possibility of securing the moulting of kemp by the use of thyroxin.

DR. E. N. DA C. ANDRADE described "The Air-Pump: Past and Present" in a discourse delivered by him at The Royal Institution on May 31. The obtaining of a vacuum is an essential step in the majority of modern physical experiments, and in many of the products of the modern electrical industry, such as the electric lamp, the thermionic valve, and the X-ray tube. With modern methods a pressure of a ten-thousand-millionth of an atmosphere can be attained, which means only a few hundred million molecules per cubic centimetre. During the past sixteen years new principles of obtaining high vacua have been applied which have proved of the utmost importance for the laboratory and electrical workshop. At very low pressure the free path between the collision which a molecule makes with others is long, and the new pumps do not come into action until this state has been reached, and so work in conjunction with a preliminary pump which reduces the pressure sufficiently. In one type a cylinder provided with special grooves rotates very rapidly, and actually throws the molecules forward as sparks are thrown by a grindstone: this type of pump is usually called a molecular pump, and is very efficient, but demands great care in construction. In another type, which might with equal justice be called a molecular pump, since it is based on a consideration of molecular properties, a jet of vapour entrains the molecules which diffuse into it, and the pump is therefore often called a diffusion pump. The vapour itself has to be condensed, so the pumps are also called condensation pumps. Hitherto mercury vapour has generally been used for these pumps, on account of the non-volatile nature of the liquid at ordinary temperatures, but within the last year oils have been produced which can take its place, and within the last month or two another liquid still has been utilised.

THE first David Ferrier lecture of the Royal Society will be delivered on June 20 by Sir Charles Sherrington, upon the subject of "Some Functional Problems attaching to Convergence."

DR. H. S. H. WARDLAW, of the Department of Physiology of the University of Sydney, has been elected president of the Linnean Society of New South Wales for the current session.

PROF. RAYMOND A. DART, professor of anatomy in the University of the Witwatersrand, Johannesburg, has been elected a corresponding member of the Italian Society of Anthropology, Ethnology, and Comparative Psychology. The society was founded in 1871 and the number of corresponding members is limited to ninety.

FURTHER information is now available with regard to the large earthquake which was recorded at Kew Observatory and other seismological stations on May 26. In a message which was broadcast on May 27, in code, from Arlington, the United States Coast and Geodetic Survey gives the position of the epicentre as in Lat. 56° N., Long. 137° W., that is, under the Pacific Ocean, about 100 miles from Sitka, Alaska. The time was 22 hr. 40 min. G.M.T., which is 14 hr. 40 min. Pacific Coast time.

BY kind permission of the director of the Rothamsted Experimental Station, Harpenden, a summer meeting of the Royal Meteorological Society will be held there on Wednesday afternoon, June 12. Fellows will make a general tour of inspection of the various departments, and will visit the classical field plots and the meteorological station, where a number of recording instruments are maintained.

AT the general meeting of the Imperial Academy of Japan, held on April 12, Sir Alfred Ewing was elected a foreign member. The president, in announcing this election, stated that the Academy most highly appreciated Sir Alfred's numerous and important contributions to science, and gratefully remembered his untiring efforts in promoting in Japan the spirit of studying science for its own sake when scientific study was just beginning to be pursued in that country half a century ago.

THE New York correspondent of the *Times* announces that Prof. Henry Fairfield Osborne, president of the American Museum of Natural History, has secured from the Muller heirs in Sao Paulo, Brazil, the originals of an entire series of letters from Charles Darwin to the great German naturalist, Dr. Fritz Muller, with the view of sending them to be added to the memorial collection at Down House.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A science teacher for day and evening work at the Walker Technical College, Wellington, Shropshire — The Principal, Walker Technical College, Hartshill, Wellington, Shropshire (June 11). A lecturer in engineering at the Wigan and District Mining and Technical College—The Principal, Mining and Technical College, Wigan (June 12). A full-time assistant lecturer in pharmaceutical subjects, and a full-time lecturer in electrical engineering at the Leicester College of Technology — The Registrar, College of Technology, Leicester (June 19). An

adviser in agricultural chemistry in the University of Manchester—The Registrar, The University, Manchester (June 20). A lecturer in physics in the University of Durham (Durham Division)—The Head of the Department of Science, University of Durham, South Road, Durham (June 22). A lecturer in mechanical engineering at Armstrong College—The Registrar, Armstrong College, Newcastle-upon-Tyne (June 22). An assistant inspector under the Ministry of Agriculture and Fisheries for work in connexion with agricultural and horticultural education and research—The Secretary, Ministry of Agriculture and Fisheries, 10 Whitehall Place, S.W.1 (June 24). Two assistant superintendents under the Geological Survey of India—The Secretary to the High Commissioner for India, General Department, 42 Grosvenor Gardens, S.W.1 (June 24). A director of the Bureau of Economic Research of the Commonwealth of Australia—The Official Secretary, Commonwealth of Australia, Australia House, Strand, W.C.2 (July 1). A professor of Indian history and archæology in the University of Madras — The Registrar, University of Madras, Triplicane P.O., Madras (August 19). An instructor in engraving and etching, and an instructor in decorative composition and design in the new Higher School of Fine Arts, Cairo—The Ministry of Education, Cairo (Sept. 30). A chemist under the Air Ministry, Kidbrooke, with up-to-date knowledge of analytical methods, organic and inorganic chemistry, with specialised knowledge of one of the following subjects: (*a*) metallurgy; (*b*) petroleum technology; (*c*) non-metallic aeronautical materials, *i.e.* lubricating oils, dopes, paints, etc.; (*d*) textiles; also a chemist with analytical experience in organic and inorganic work, and, if possible, specialised knowledge of metallurgical chemistry or petroleum technology—The Secretary (I.G.), Air Ministry, W.C.2. A supervisor for the scientific instrument testing department of W. G. Pye and Co.—W. G. Pye and Co., Granta Works, Cambridge. A laboratory steward for the biochemical laboratory of University College, London—The Secretary, University College, Gower Street, W.C.1. A plant physiologist at the Welsh Plant Breeding Station, Aberystwyth—The Secretary, Welsh Plant Breeding Station, Agricultural Buildings, Aberystwyth. A laboratory assistant for the Health Department of the Government of Iraq—The Crown Agents for the Colonies, 4 Millbank, S.W.1 (quoting M/1546). A junior assistant at the Experimental Station, Porton—The Chief Superintendent, Chemical Warfare Research Department, War Office, 14 Grosvenor Gardens, S.W.1.

## Our Astronomical Column.

MATTER IN INTERSTELLAR SPACE.—The existence of interstellar calcium, as evidenced by the detached [*H*] and [*K*] lines in stellar spectra, has for some time engaged the attention of Dr. O. Struve (see, for example, NATURE, vol. 122, p. 252). His latest researches, made in collaboration with Prof. B. P. Gerasimovič, and described in the *Astrophysical Journal*, vol. 69, p. 7, deal with the physical properties of calcium and other elements in interstellar regions. Eddington's hypothesis of an interstellar substratum embodying the whole galactic system is regarded as the most satisfactory hypothesis at present, and the one most in accordance with both observational data and theoretical considerations. This substratum consists of many elements in various states of ionisation, with an average density of the order of $10^{-26}$. The observed intensities of detached $Ca^+$ lines show a definite distance effect, such as would be expected from a uniform distribution of $Ca^+$ with a density of about $3{\cdot}6 \times 10^{-32}$. The substratum of interstellar matter appears to share the rotational motion of the stars round a distant central mass in galactic longitude 325°.

THE SUNSPOT CYCLE AND THE CORONA.—It is about half a century since it was first noticed that the form of the corona varies with the progress of the sunspot cycle. Our knowledge on the subject has become more definite from the aid afforded by the long series of coronal photographs that is now available. Recently, studies on the subject have been made by Profs. H. Ludendorff and S. A. Mitchell. The latter contributes an article to *Popular Astronomy* for April, which discusses and amplifies Ludendorff's conclusions. The ellipticity of the corona near the sun's limb is denoted by $a$, that at a distance of one radius from the limb by $a + b$; $a$ varies very little with the sunspot cycle, its mean value being 0·04; $b$ is zero at maximum sunspot activity and about 0·26 near minimum activity; it appears, however, to reach its maximum a year or two before sunspot minimum. Mitchell notes that the coronal spectrum appears also to change its type; thus the line at λ6374 in the red, which is not often observed, was well seen both in 1914 and in 1925, these being at the same phase of the cycle. It is suggested that the Wolf numbers are a better guide to the type of corona than the phase of the sunspot cycle; it is also noted that the corona of 1918 was abnormal; it occurred a year after sunspot maximum, and had most of the features of maximum type, but there were also the strong polar brushes associated with minimum type.

OCCULTATIONS OF STARS BY VENUS.—*Acta Astronomica*, series A, vol. 2, contains a discussion by J. Witkowski of the occultations of three stars by Venus. That of the star BD − 0° 2554, mag. 7, was observed at Teramo on Nov. 9, 1895. This had not been predicted, and was observed by chance. Prof. T. Banachiewicz predicted that of the 4th magnitude star $\eta$ Geminorum on July 26, 1910; it was observed at seven observatories. Dr. L. J. Comrie predicted that of BD + 18° 1499, mag. 7·4, on Aug. 22, 1924. Both phases were observed at Neu-Babelsberg, and the reappearance at Bergedorf.

From discussion of these phenomena Mr. Witkowski finds a correction of $-0{\cdot}58'' \pm 0{\cdot}23''$ to Hartwig's value of the diameter at distance 1, which is 17·552″. This is in fair accord with Auwers's value 16·820″ derived from the transits of Venus in 1874 and 1882. He finds corrections to the *Nautical Almanac* positions of Venus which agree fairly well with those found with the Greenwich Transit Circle. The observations lead him to suspect some refraction of the stars due to the atmosphere of Venus.