

Myers, Sir John Russell, and Dr. W. de Sitter are expected to be present.

One evening at Cape Town will be devoted to a discussion on science and industry, which will be continued on another evening at Johannesburg.

The meeting concludes officially at Johannesburg on Aug. 3; thereafter most of the visitors will pro-

ceed on sight-seeing tours, and doubtless many of them will take the opportunity of visiting the Victoria Falls. One party will assemble at Durban towards the end of August, and a semi-official session will be held there; this party will be joined by the president, Sir Thomas Holland, who will give a special address at Durban.

### News and Views.

AN important step in the development of the Waite Institute for Agricultural Research, South Australia, was taken when the John Melrose Laboratory was officially opened at the end of April. The Institute was established some years ago as the result of a gift by the late Mr. Peter Waite to the University of Adelaide for the purpose of furthering education and research in agriculture and allied subjects. The endowment comprises the Urrbrae, Claremont, and Netherby Estates lying on the scarp of the Adelaide foothills within four miles of the city and consisting of nearly 300 acres. In addition there is a trust fund of £58,450. Of recent years considerable assistance has been forthcoming from the State Government, Empire Marketing Board, the Council for Scientific and Industrial Research, Imperial Chemical Industries, Ltd., and the Commonwealth Bank of Australia. The need for increased laboratory accommodation has been acutely felt, and, mainly through the generosity of Sir John Melrose in providing the sum of £10,000, a wing has been completed of what will in time constitute a large block of laboratory buildings.

THE Melrose Laboratory at the Waite Institute contains two main floors, the ground floor being devoted to administrative and botanical work, and the first floor mainly to chemical work, but with provision also for entomology. The entire content of the building is approximately 274,000 cubic feet and the total floor space 14,700 square feet. Quite possibly further extensions may soon prove necessary, as it is understood that the Council for Scientific and Industrial Research and the University of Adelaide are discussing a project for establishing jointly at the Institute a Division of Soils Research. The need for a move of the kind has been very apparent in Australia for some time, and there can be little doubt that its establishment at the Waite Institute would be a wise move, as this Institute is rapidly becoming one of the most important centres of agricultural research in the Commonwealth.

MESSRS. SOTHERAN, LTD., booksellers, Strand and Piccadilly, have in their hands and are proposing to sell *en bloc* a collection of some eight hundred and sixty books which undoubtedly formed a part of a library brought together by Sir Isaac Newton. It had been known to a past generation that at Newton's death a large mass of papers, annotated copies of his own and other authors' works, and an extensive correspondence with English and foreign mathematicians, remained with Mr. Conduitt and his wife. Ultimately those of this series which related to science were presented to the University of Cambridge in 1872 by the

Earl of Portsmouth, and were reported on in 1888 over the signatures of such authorities as H. R. Luard, G. G. Stokes, J. C. Adams, and G. D. Liveing.

THE works that actually constituted Newton's library occupy, however, a different niche in history, unrecorded as an entity by his biographers. One may, perhaps, conjecture that the volumes were left intact at the house in St. Martin's Street, Leicester Fields (occupied for so long by the philosopher), and not removed on his change of quarters, through ill-health, to Kensington, where he died within a brief space, in 1727; certainly the old residence was still on the rate books of his former parish at that date. Twenty books in the above collection bear Newton's autograph; four are dated 1661; whilst eighty-three carry, here and there, notes in his handwriting. The first and second editions of the "Principia" (with numerous corrections) are prime items of interest in the set. Some of the books have presentation inscriptions to Newton by their authors; others are finely bound in contemporary morocco. A Latin-Greek Dictionary (1650) with autograph, has the date Mar. 29, 1661, presumed to be the earliest known Newtonian signature, in any case, written shortly before he entered Trinity College, Cambridge.

FROM a reprint of the correspondence between Isaac Newton and Robert Hooke during the years 1679-1680, published in chapter viii. of Rouse Ball's "Essay on Newton's Principia", pp. 138-153 (Macmillan), 1893, two letters were missing. These letters "are known to have been written, but they have never been published, and it is possible that no copies of them are now extant". The correspondence dealt with the question of the path of a falling body, "moved circularly by the diurnal motion of the earth, and perpendicularly by the power of gravity". The first of the missing letters was read to the Royal Society on Dec. 11, 1679, two days after Hooke sent it to Newton. The reply from Newton, dated Trin. Coll., Dec. 13, 1679, and addressed: "For Mr. Robert Hooke, at his Lodgings in Gresham College in London," was discovered in a collection of autographs, sold in 1904 by Messrs. Sotheby to the British Museum. Thanks to the courtesy of the Keeper of the Manuscripts, Dr. Jean Pelseeneer of Brussels has been permitted to print (*Isis*, xii. No. 38, May 1929) the hitherto unpublished letter. The 'find' is not only interesting in itself for the part that it played in the history of the genesis of the "Principia", but also as an earnest of more to come. Thanks to the assistance he has received from the Belgian National Fund for Scientific Research, Dr. Pelseeneer hopes to bring before the public further



documents by Newton which have not yet been published. We may add that in the *Isis* article of 16 pp. he gives his readers an excellent summary of the correspondence, with the circumstances in which it was written.

THE Meteorological Office, Air Ministry, has issued a special report upon the shortage of rain over the British Isles during the period of six months including December last and the first five months of the present year. Except to certain sections of the community who for special reasons are intimately concerned with the total amount of rain during such a long period, as for example farmers and engineers who deal with water-supply, a shortage of the kind under consideration may easily pass unnoticed. This is particularly the case when the dry spell has been marked by not infrequent periods of dull, windy and wet weather during which appearances have been misleading and the amount measured in a rain-gauge has been trifling. The official report is accompanied by a map showing the rainfall for the six months expressed as a percentage of the normal fall for the same period. This map reveals the fact that only the coastal districts of the south of Ireland and the extreme south-west of England show any considerable areas where there has not been a deficiency, and that over a considerable part of north-west Ireland, western Scotland, Wales and England, there has been less than half the usual quantity.

AMONG places mentioned in the report which show particularly low percentage amounts of rainfall are Llangurig (Montgomery), with 30 per cent; Rhyader (Radnor), with 35 per cent; Margate, 36 per cent; Fort Augustus (Inverness), 38 per cent, and Aspatria (Cumberland), 39 per cent. At Margate the remarkably low total fall of slightly less than  $2\frac{3}{4}$  inches was measured. It is interesting to note that the last month of the series—May—was the only one in which the British Isles as a whole showed a slight excess rainfall above the normal, and there seemed to be some hope that the tendency for drought had come to an end. June has, however, showed some notable dry periods, and when the figures for that month are collected and the period of seven months from last December is considered, the general shortage will probably stand out as one of the most notable, if not the most notable, of any dry period of that length in Great Britain since accurate rainfall measurement began.

THE approaching visit to South Africa of the British Association has undoubtedly stimulated interest in its many archæological and ethnological problems, not least perhaps those which centre in the prehistoric stone buildings, of which the greatest and best known is Great Zimbabwe. In addition to the expedition, of which Miss Caton-Thompson is the leader, sent out by the British Association itself, and the independent investigations being carried out under permit of the Rhodesian authorities by Dr. Leo Frobenius, an Italian expedition is in the field. It has been sent out under the auspices of the Royal University of Florence. One of the members, Dr. Lidio Cipriani,

professor of ethnology in the University of Florence, is reported in the *Times* of June 21 to have arrived at the conclusion that the Zimbabwe collectively are a native product, the work of an African people without any foreign influence. It is to be hoped that Dr. Cipriani may have an opportunity of laying his views before the Association. Dr. Cipriani is also reported to have discovered some Bushmen paintings of exceptional significance. They exhibit the feature of superposition, a painting of an Arab typically dressed having been found under a picture of a Bushman fighting Bantus. This, needless to say, confirms the relatively late date of the Bushman paintings, some of which indeed are known to be quite modern. These paintings were found in the Marandellas district. An engraving found at Mazabuka is said to be like nothing found elsewhere in Africa and to give certain indication of prehistoric man. The description, however, is too vague to give any clear idea of its character.

As was announced in our issue of June 22, p. 951, by arrangement with the Air Ministry and Messrs. Wireless Pictures (1928) Ltd., synoptic weather charts are being broadcast from the Daventry Station (5 XX) of the British Broadcasting Corporation every Tuesday and Thursday between 2 P.M. and 2.25 P.M. Reports of the reception of these charts on a Fultograph from as many different places as possible will be of the greatest value to the experimenters. Any possessor of a Fultograph can obtain a supply of prepared paper and envelopes and also full particulars of the reports required by writing to Wireless Pictures (1928) Ltd., Dorland House, 14-16 Regent Street, London. We hope that the results will demonstrate that it is possible to send in a few minutes from a central station to all parts of the country, and to airships and aeroplanes in flight, weather charts and forecasts. It will be of the greatest value for pilots to see at a glance the state of the weather in the districts to which they are flying.

THE history of Danish broadcasting is a notable example of the wisdom of State encouragement of amateur effort. In the *Wireless World* for June 19 a good account is given by P. O. Langballe of the rise of broadcasting in Denmark. In 1922 it came into existence almost accidentally. Government tests were being made with the view of establishing radio telephony between the mainland and the Island of Bornholm, using a Poulsen continuous wave transmitter. During these tests several amateurs were surprised to hear something that sounded like the scratching music made by an old gramophone. When regular reception was established, it was found impossible to prevent 'listening in'. Private transmission, however, was forbidden. This led to the formation of the Danish radio club, the members of which were anxious to secure the same privileges as radio enthusiasts in other countries. A modern valve transmitter was erected at a station just outside Copenhagen. Although the plant was supplied by the State, its operation and maintenance were entrusted to the radio club. This arrangement proving



a success, no difficulty was experienced in getting permission to erect a broadcasting station in Copenhagen itself, funds being provided by the State and a few private subscribers. The club operated this new station at first, but as the programmes became elaborate and the expenses heavy, the State assumed control and a radio bill was passed taxing all listeners. The tax is now a uniform one of ten crowns per annum. The first relay stations were fitted on the passenger steamers between Copenhagen and Jutland. They picked up the Copenhagen programmes and transmitted them. A high power station has now been built at Kalundborg on the western coast of Seeland. The ratio of licensed listeners to the total population is greater in Denmark than in any other country in the world.

AN expedition under the auspices of the German Government to study the ice-sheet of Greenland is being undertaken this year. Prof. A. Wegener, who has had previous experience in Greenland, will be in charge. This year's work will be by way of preparation for the main undertaking next year. According to the *Geographical Journal* for June, three stations will be established in the same latitude but at wide intervals. The first will be about 12 miles within the ice-sheet in the Umanak district. The second will be in the central part of the ice-sheet, and the third will be on Scoresby Sound. Wintering parties will inhabit all the stations and take the temperature of the ice at different levels. Radio and weather forecasting stations will be established at the three stations. It is proposed to use motor sledges as well as dogs and Icelandic ponies in transport.

IN his address to the Royal Geographical Society at the annual general meeting on June 24, Sir Charles Close referred to the growing value and importance of air surveys. Some attempts at aerial photography were made last century, but nothing practical in aerial survey was achieved until the aeroplane supplanted the balloon as a means of air transport. It was during the War that air photography became a recognised method of survey. Sir Charles Close went on to give some account of air surveys that have been made or are in process of completion. Perhaps the outstanding example of aerial survey is that of the difficult country in Brazilian Guayana along the Rio Negro, Rio Branco, and Rio Parima. The whole is covered with dense forest, but about 12,000 square miles were photographed in 174 hours. Then the detail was fitted into a framework of astronomically fixed positions which were made along the rivers. As a quick means of survey in new countries, aerial photography has been used in Northern Rhodesia, Iraq, Burma, and the Rio de Janeiro district in South America, the Malay States and elsewhere. Rapid improvements in the cartography of many of the less known parts of the world are thus rendered possible.

A LARGE earthquake was recorded at Kew Observatory on June 27. The first tremors reached the Observatory at 13 hr. 1 m. 38 sec. G.M.T. The epicentre is estimated to have been 7500 miles away,

but the initial impulse was too small to be any indication of the bearing.

MR. L. BELLINGHAM, of Messrs. Bellingham and Stanley Ltd., 71 Hornsey Rise, N.19, reminds us that the electrification of omnibuses described by Prof. C. V. Boys in our issue of June 29 was pointed out by him in *NATURE* of Sept. 10, 1927, p. 367. He believes the charge is the result of the friction on the brake drums rather than the rolling of the tyres on the asphalt, because he has noticed it particularly on the buses descending Crouch Hill on the portion of the road which is paved with granite setts. These small electric shocks are well known to the conductors, but they attribute it to a slight leakage from the magneto.

IT is probably known to our astronomical readers that for the measurement of positions and areas of sunspots a collection of solar photographs for each day of the year is made at Greenwich with the co-operation of the observatories of the Cape and Kodaikanal. In most cases there are two or more photographs for each day. One complete set is preserved at the Royal Observatory, and we are informed that arrangements have recently been made for a duplicate set to be stored at the Science Museum, South Kensington. This has the great advantage of housing two complete sets at different places, in case of accident; also the set at the Science Museum is easily accessible to students of astronomy and magnetism who may wish to consult the negatives.

AT the meeting of the Geological Society held on June 26, the following foreign members were elected: Prof. Charles Schuchert, of Yale University, New Haven, Connecticut; Prof. Pierre Termier, Directeur des Services de la Carte Géologique de France, Paris; Dr. Edward Oscar Ulrich, U.S. Geological Survey, Washington, D.C.; and Dr. Thomas Wayland Vaughan, Director of the Scripps Institution of Oceanography, University of California. Foreign Correspondents were also elected as follow: Prof. Othenio Abel, of Vienna; Dr. Clarence N. Fenner, of Washington, D.C.; Prof. Olaf Høltedahl, of Oslo, Norway; Dr. Rudolf Staub, of Berne, Switzerland; Dr. V. K. Ting, of Peking, China; and Prof. Carl Wiman, of Upsala, Sweden.

IN the Calendar of Patent Records which appeared in the issue of *NATURE* for June 1, the entry relating to the invention of vaseline referred to the provision of the law which denies registration as a trade-mark to a commonly-used descriptive word, and cited 'vaseline' as a case to which this provision had been applied by the British Courts. Mr. R. F. Kennedy, 12 Church Street, Liverpool, has pointed out, however, that although the lower Court ordered the removal of the mark 'vaseline' from the register on the grounds stated, this decision was afterwards reversed by the Court of Appeal, and the registration of the word as a trade-mark, first effected in 1877, remained in force.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A scientific officer and a junior scientific officer on



the Air Ministry Scientific Research Staff, primarily for duty at the Royal Aircraft Establishment, South Farnborough—The Chief Superintendent, Royal Aircraft Establishment, South Farnborough, Hants (July 6). An engineer for the Fruit Storage Research Station, East Malling—The Secretary, Department of Scientific and Industrial Research, 16 Old Queen Street, S.W.1 (July 6). A lecturer in pharmaceuticals at the Chelsea School of Pharmacy—The Principal, Chelsea Polytechnic, Manresa Road, S.W.3 (July 6). A whole-time assistant (male) to the Public Analyst—The Secretary, Health Department, Grey Friars, Leicester (July 6). An assistant lecturer in mechanical engineering—The Principal, Municipal College of Technology, Manchester (July 8). An assistant lecturer in mechanical engineering at the Bath Municipal Technical College—The Director of Education, Sawclose, Bath (July 8). A resident engineer in connexion with the Sea Wall and Embankment Scheme—The Town Clerk, Municipal Offices, Liverpool (July 9). An assistant lecturer in electrical engineering at the Technical College, Bradford—The Director of Education, Town Hall, Bradford (July 10). A headmaster for the Sandown County Secondary School—The Director of Education, County Hall, Newport, I. of W. (July 11). A full-time assistant to take charge of the electrical engineering National Certificate courses—The Principal, Technical College, Wolverton, Bucks (July 12). A resident lecturer in mathematics with subsidiary science—The Principal, Saltley Training College, Birmingham (July 12). An assistant water engineer—The Town Clerk, Town Hall, Bexhill (July 12). An honours graduate as demonstrator in zoology

—The Secretary, Queen's University, Belfast (July 13). A lecturer and demonstrator in pharmacy—The Principal, Central Technical College, Suffolk Street, Birmingham (July 13). An engineering assistant in the Highways and Bridges Department of the Surrey County Council—The Clerk to the Council, County Hall, Kingston-on-Thames (July 13). A professor of municipal engineering and town planning and a professor of railway and road engineering at the Royal School of Engineering, Giza, Cairo—The Director, Egyptian Education Office, 39 Victoria Street, S.W.1 (July 15). A full-time teacher for the Marine Engineering Department at the L.C.C. School of Engineering and Navigation, High Street, Poplar, E.14—Education Officer (T.1a), The County Hall, Westminster Bridge, S.E.1 (July 15). A part-time instructor in mechanical engineering—The Principal, Technical School, Watford. A principal of the Kenrick Technical College—The Director of Education, Education Offices, Highfields, West Bromwich. A test assistant to assist in chemical analysis of metals and alloys—The Chief Superintendent (quoting A.355), Royal Aircraft Establishment, South Farnborough, Hants. An assistant mechanical engineer for the Railway Department of the Government of Ceylon—The Crown Agents for the Colonies (quoting M/1581), 4 Millbank, S.W.1. A mechanical engineer in the Ministry of Public Works, Cairo—The Chief Inspecting Engineer, Egyptian Government, 41 Tott-hill Street, S.W.1. An assistant experimental officer for design duties for Government Establishment at Biggin Hill, Kent—The Secretary, R. E. Board, 14 Grosvenor Gardens, S.W.1.

### Our Astronomical Column.

**Origin of the Planetary System.**—The May issue of *Mon. Not. R.A.S.* contains a paper on this subject by Dr. H. Jeffreys. He gives a résumé of various theories, starting with that of Buffon, who suggested that a massive comet struck the sun. Many subsequent theories supposed that the near approach of another star to the sun caused the outrush of a stream of matter from it by tidal action. The rotations of the sun and planets were explained as due to the return of a portion of the expelled matter to them after it had received a transverse deflection, from the attraction of the star in the case of the solar matter, or of the sun in the case of that returning to the planets. He examines this suggestion numerically, and finds that it does not give rotations of the right order for the large planets. He then examines the suggestion that the other star actually collided with the sun, and that as they separated a long filament of matter was drawn out between them; this, like the tidal filament in the theory of approach without collision, is supposed to have broken up into the planets. It would also receive a rotational motion by the pull of the other star. On certain assumptions, Jeffreys finds that the mass of the filament might be 1/500 of the sun's, and that the periods of rotation of the resulting planets would be of the order of 8 hours, in good agreement with the actual values for the large planets.

Objections had been made to the tidal theory on the ground that close approaches of stars would be extremely rare; obviously actual collisions would be rarer still, so the adoption of the theory would seem

to imply that planetary systems are excessively rare in the universe.

**Periodic Comets.**—*L'Astronomie* for May contains an article by M. F. Baldet in which he gives a useful table of elements of all the comets known to have periods less than 170 years. It is quite up-to-date and includes the two most recent discoveries, Pons-Forbes and Schwassmann-Wachmann II. There are two lists, the first consisting of thirty-one comets observed at more than one apparition. Three of these are marked with an asterisk, indicating that the identity of the objects seen at the two returns is not absolutely certain; twenty-two of them belong to Jupiter's family, one to Saturn's, two to Uranus's, five to Neptune's, and one has a period of 164 years (seen in 1742 and 1907). The second list contains those seen at only one apparition; it contains thirty-five comets, twenty-two of which belong to Jupiter's family; of the others, five have periods between 11 years and 18 years, two between 40 years and 46 years, three between 64 years and 80 years, and three exceeding a century. Two comets of the second list are due at perihelion in the present year. Mr. F. R. Cripps has computed the perturbations by Jupiter of Giacobini's comet 1896V from its discovery to the present time; he finds perihelion occurs next September and gives a search ephemeris in the *B.A.A. Journal*, No. 7. The *B.A.A. Handbook* gives ephemerides for Perrine's and Metcalf's comets, both of which are due at perihelion this year.