

News and Views.

THE Gold Medal of the Royal Astronomical Society has been awarded to Prof. Ejnar Hertzsprung, of Leyden Observatory, for his determination of the distance of the Magellanic Clouds and other pioneering work in stellar astronomy. Prof. Hertzsprung's work is characterised by definiteness and originality; it includes researches in photometry; study of change of period in variable stars; investigations of the spacial distribution of Cepheids and other bodies; special studies of clusters; and researches in celestial spectroscopy. He was the first (1906) to emphasise the evidence for distinction between giant and dwarf stars. His work on the relation between colour, proper motion, and apparent magnitudes of stars has been a noteworthy contribution. His early application (1906) of the theory of radiation to considerations of stellar temperatures led him to be among the first to estimate the angular diameters of stars. He found the key by which Cepheid variables can be used to determine stellar distances. Miss Leavitt at Harvard had found a relationship between the apparent magnitude and period of Cepheid variables in the lesser Magellanic Cloud. Hertzsprung saw that this implied a relationship between actual luminosity and period. He then by means of solar motion deduced the parallax of thirteen bright Cepheids and thus their absolute luminosity, and the constant of the period luminosity relation. He derived the distance of the lesser Magellanic Cloud as 10,000 parsecs. This work was published in 1913, and the method has since been extensively employed by Shapley, Hubble, and others in the determination of the distances of remote clusters and nebulae.

SCOTLAND has been slow in developing the bird-sanctuary movement. Apart from the fine enclosure of some 40 acres at Duddingston Loch, near Edinburgh, there is no considerable reserve in the country, although the vast areas of the deer-forests have acted in many ways as real reservations. A welcome announcement, therefore, is contained in a leading article in the *Scottish Naturalist* (p. 166, 1928), that a new sanctuary of 70 acres is to be created at Possil Loch, in the neighbourhood of Glasgow. The area is well known to naturalists on account of its wealth of plant and insect life, and the use made of the Loch by birds as a resting-place on their migrations. The extension of Glasgow and the increasing presence of irresponsible marauders, egg-collectors, and bird-nesters has threatened the existence of the marsh as a nature-lover's paradise, so that the natural history societies of Glasgow and related bodies have been compelled to acquire the ground in order to preserve its amenity. They have been generously met by the owners of the estate, and propose to administer the area so that its natural beauty and wild life may best be preserved, while reasonable access will be secured to the public for all time. It is estimated that a sum of £2000 will be required for the purchase and maintenance of this bird and botanical sanctuary, and the Committee appeals for donations, which should be sent to Mr. J. M. Crosthwaite at 207 West George Street, Glasgow.

WE are informed that the appeal for subscriptions to a memorial to the late Sir William M. Bayliss and Prof. Ernest H. Starling has up to the present resulted in a sum which, with interest, and apart from subscriptions which are still arriving, will amount to above £2600. The sum has been contributed principally by personal friends, relations, and pupils of these distinguished physiologists, but very liberal subscriptions have also been received from their admirers in America, various European countries, chiefly Germany, from learned societies, and from various physiologists and members of the medical profession from all parts of the world. A small part of the fund has been employed for the provision of a simple memorial tablet designed by Prof. A. E. Richardson, F.R.I.B.A., bearing their names, which will be erected in the entrance hall of the department of physiology and biochemistry, where it will occupy a suitable place over the bust of Sharpey. A material memorial or an annual lecture would, however, have seemed a smaller thing to Bayliss and Starling than the provision of means whereby young workers of suitable training and ability might be attracted into their chosen subject. The bulk of the sum, therefore, will be used for the creation at University College, London, of a Bayliss and Starling Studentship, which will be open to any graduate in science of any university, or any graduate or undergraduate in medicine of suitable standing, to enable him to spend a year or more in such training in physiology and biochemistry as would fit him for research. For this purpose the sum of £2500 will shortly be transferred to the University of London to be held in trust for the creation of such a studentship. The governing body of University College has agreed to assist this scholarship in a very material way by remitting all fees for instruction and ordinary expenses payable by the selected candidate. It is hoped to make the first award of the scholarship in June of the present year.

THE Zoological Society of London has for a hundred years been a force working for the diffusion of Nature knowledge amongst the people, and during the last quarter of a century its progress has been extraordinary. It is fitting, therefore, that the centenary of the granting of its Royal Charter, which followed three years after the founding of the Society in 1826, should be properly commemorated. It will be celebrated during the present year by a representative gathering of fellows and of delegates of other societies at the annual general meeting on April 29, by an evening reception for the 8000 fellows and their guests in the Gardens during the summer, and by the publication of two interesting memoirs. The first of these is a historical account of the origin and development of the Society and of its general and scientific work, written by Dr. P. Chalmers Mitchell; the second, a list of every species of mammal, bird, reptile, batrachian, and fish that has been exhibited alive in the Gardens since their foundation. The list will include popular and scientific names, as well as a certain amount of synonymy and references to descriptions and figures. Anyone who has regularly used P. L.

Slater's "List" of 1896 will appreciate the labour involved in the new venture, and its potential value for the creation of a common standard of English specific nomenclature.

BOUVET Island and Thompson Island, in the South Atlantic, have been much discussed lately owing to rival political claims and the uncertainty as to the existence of Thompson Island. This island has been searched for several times unsuccessfully since Capt. Norris reported it in 1825. Com. R. T. Gould recently showed that to the north-east of Bouvet Island, centring about lat. 54° S., long. $4^{\circ} 35'$ E., there is an unexplored area of the ocean in which Thompson Island probably lies. The whole problem is reviewed in an editorial article in the *Geographical Journal* for December, which is accompanied by reproductions of Norris's sketches, or copies of his original sketches, now preserved in the Admiralty Library. From the evidence available, the suggestion is made that the land first sighted in 1739 by Captain Lozière-Bouvet and named by him Cap de la Circoncision was not the Bouvet Island of to-day but Thompson Island. Bouvet placed his cape in lat. $54^{\circ} 6'$ S. and he cruised so far as $54^{\circ} 40'$ S. These positions agree reasonably well with the probable position of the two islands. Bouvet estimated that the extent of land which he saw was forty-five miles, but his sight was continually hampered by mist and ice. It is therefore possible that Bouvet really sighted both islands. Furthermore, it is now clear, as has been previously supposed, that the Liverpool Island of Norris is the same as Bouvet Island. Lindsay Island of Lindsay (1808) is the same island. The problem of Thompson Island is further complicated by the failure of the *Norvegia* to find the island in a recent lengthy search in the area of sea indicated above.

DURING the War, when coal was scarce and its price very high, surplus electrical energy was used to heat boilers. It was found that this not only effected savings in the coal bill but also could be used economically in working electric plant. Two applications of the principle have come into practical use. Small thermal accumulators are used for domestic purposes and boilers are regulated electrically so that they can supply a sudden demand for steam. For heavy loads and voltages exceeding 500, the water itself is used as the resistance when alternating current is available. If the frequency of the supply exceed 15, there is no risk of explosive gases being generated in appreciable quantity. In *Engineering* for Jan. 4, a complete description is given of the electrically heated plant which is made by Messrs. Sulzer Bros. of Winterthur. Pressures up to 16,000 volts can be utilised and so the expense of transformers can be saved. Water containing salts conducts electricity much better than soft water. Water at 59° F. has an average resistance of from 1800 to 6000 ohms per cubic centimetre. At 212° F. its resistance varies from about 500 to 2000 ohms per c.c. and it is about 15 per cent. less at 400° F. Boilers should be constructed with their electrodes completely immersed and connected with the top of the boiler by an insulating tube. If this

is not done, sparking occurs to the surface of the water when the voltage exceeds 1000, and this causes the load on the boiler to fluctuate and the electrodes to wear away rapidly. Tests prove that the efficiency of large electric boilers is exceedingly high. For domestic purposes, electric thermal storage presents many advantages. The whole of the heat supply in spring and autumn can be supplied by electrical energy, the coal fire being used only during periods of severe cold.

A FEW years ago broadcast listeners were greatly interested in the technical side of the service, and so were not very critical of its quality. The more one listens the less tolerant one becomes of interruptions and of poor quality service. In continental areas the number of available wave-lengths is rapidly diminishing. The number of high-power stations is being reduced, and the other stations are using wave-lengths which are continually getting shorter in order to prevent being interfered with by other waves. In some countries the broadcasting is being carried out in a haphazard way, and their listeners therefore have not been educated to expect a good service. Hence their broadcast radiations interfere with the high-quality reception demanded by residents in other countries. In a paper read to the Institution of Electrical Engineers by P. P. Eckersley, T. L. Eckersley, and H. L. Kirke, on Jan. 2, this aspect of the broadcasting problem was emphasised. They consider it most unfortunate that the broadcasting problem should be discussed by many as if it were a political and not a scientific problem. In their opinion, the best way of attacking it is to attempt to design an aerial so as to make it a radiator which practically emits only rays which are initially parallel to the surface of the earth. It is the existence of the other rays that are so detrimental to a good broadcasting service. These rays interfere with the service from very distant stations and intensify fading and bad service in the local service area. To obtain horizontal radiation high aeriels are necessary. Radio engineers in the past have been chary about using wave-lengths less than 300 metres, as they were afraid that this would in practice seriously limit the service area. As the authors point out, however, it has to be remembered that limitations are inevitable, and it is far better to have a limited service than one which suffers continually from interference.

TRINITY COLLEGE, Hartford, Connecticut, does an interesting thing in the way of encouraging good general reading among its students, who are, one may suppose, roughly of what we call 'university status' in England. A list of recommended books is drawn up in ten classes, ranging from natural science, which is put first, through various types of history, on to various types of literature. These books are actually grouped in one bookcase in the College Library. "Students are expected to do one hundred points of reading in a year, and write up each point on at least half a typewritten page. . . . One hundred pages of ordinary novel reading is credited as one

point," and extra credit is allowed for more difficult subject matter. They must select at least one title from each of eight of the ten classes of book mentioned. Not more than a fifth may be fiction. One would like to know how the plan really works, what the students think of it, and how much they retain of the books thus read. Independent reports from the professorial and the student side would be welcome before we embark on the experiment on any large scale in England, where undergraduates are more mature, less *in statu pupillari* than they are in the United States. For the list itself, one can have nothing but praise. It is admirable alike for what it includes and what it leaves out. It is clearly the work of humane and philosophically minded persons who agree with Comte in putting first in their library 'les œuvres de synthèse,' books on the history and the philosophy of science. But when they mention by name in their preface some of the 'muck-raking' novels which they refuse to include in their list, one might be afraid that they would increase the circulation of the proscribed books in any less well-ordered institution than Trinity College, Hartford.

OPERATIONS at Ur were resumed by the British Museum Expedition in November. The results of the first month's excavation, which were described by Mr. Leonard Woolley in the *Times* of Jan. 11, if less spectacular than those which opened the season last year, are none the less remarkable for the fresh light they throw on the funerary customs of the early Sumerians and the promise they hold out for the immediate future. Last year's work recovered the plan of a king's grave. Now a similar grave has been seen in section, which, as Mr. Woolley points out, is scarcely less illuminating. The first indication of the nature of the evidence which was being brought to light was a layer of reeds extending up to the walls of what appeared to be a small room of mud bricks. Under the reeds were innumerable fragments of clay pots, animal bones, and several human skeletons which lay on a floor of beaten clay. This was clearly a subterranean building, of which the contents were in the nature of a votive deposit. Further examination showed that it lay in a vertical shaft, and was an element in a new form of ritual in which, after the burial of the king and the slaughter of his retainers, votive offerings were placed in the earth at intervals as the shaft was filled in, until finally it was stopped with a subterranean chamber containing offerings. This in turn was covered with earth, and perhaps the whole completed with a funerary chapel as a superstructure.

In another shaft at Ur, which appears to be that of a queen's tomb, a remarkable series of offerings included a coffin burial, and concluded after a considerable interval in the remains of a funeral feast immediately above the dome-shaped roof of a burial chamber in which were six bodies, four men servants, a maid servant, and the queen in whose honour the tomb had been built. Beside the conventional gold head-dress, the funerary appointments included a pin of unusual type and a gold enamel cylinder seal

with scenes of feasting and musicians. The tomb of a small girl had a miniature replica of the conventional gold head-dress.

MR. L. S. B. LEAKEY, who returned to Africa in September last to resume excavations in Kenya with the assistance of a grant from the Royal Society, has made a discovery relating to early man which, if the conditions are as reported in the *Times* of Jan. 12, is of great importance. Mr. Leakey is excavating in a cave known as 'the Gambles' in the Elmenteita district, one of the districts in which his discoveries of previous seasons were made (see *NATURE*, July 16, 1927, p. 85). This cave shows a stratification of fourteen chronological layers extending from the earliest times down to its modern occupation by the N'dorobo. In the stratum of the second of the African pluvial periods into which the early deposits have been classified, Mr. Leakey has found a complete human skeleton, which is said to have been removed undamaged except for a pickaxe hole in the skull. The skeleton, which was associated with a rich industrial development of tools, was found with the knees under the chin. The type is definitely that of *Homo sapiens*. It is stated that Mr. Leakey believes that this is the earliest predecessor of Aurignacian man yet found, his opinion being based upon the view that the various pluvial periods of East Africa are to be equated with the glacial epochs of Europe. In the stratification of the cave a relatively brief Mousterian occupation follows the second pluvial period, and in the third pluvial period the cave was occupied by a people of an Aurignacian culture, who, however, made pottery. The occurrence of pottery with early types of culture in Kenya had already been recorded by Mr. Leakey; but it suggests caution in accepting a high dating. Nowhere else does pottery occur at so remote a period. Neither here nor in any other area do known conditions suggest why East Africa should be exceptional in this respect.

ON Jan. 15, Dr. F. A. Freeth delivered the first of a course of two lectures which he is giving at the Royal Institution on "Critical Phenomena in Saturated Solutions." Dr. Freeth pointed out that the ordinary 'commonsense' view of solutions is apt to be disturbed at high temperatures and pressures near the critical state. For example, it is generally assumed that pressure will cause a vapour to condense; the reverse phenomenon, namely, the turning of a liquid into a vapour by means of increased pressure, is, however, almost a universal phenomenon, although the conditions under which it occurs are sufficiently remote from those of ordinary life to make it appear singular. If we take a saturated solution of a substance and heat it in a closed space, it may just boil, as does a solution of common salt in water; and it is possible to have two solutions which boil at ordinary temperature, one a solution of, say, sodium nitrate and water, the other a solution of water and the salt. There may be a considerable range of temperature, however, in which it is impossible to obtain a solution of any kind, the best known example being that of anthraquinone in ether. This state of affairs holds

for a very large number of salts and water. It has not received much experimental attention on account of the great practical difficulties of realising the conditions. Finally, it was pointed out that just as a liquid should be caused to vaporise by increase of pressure, so in certain circumstances could a solid.

At a meeting held in New York on Dec. 27, a new scientific society, the Acoustical Society of America, was formed, to bring together workers in all branches of pure and applied acoustics. Among its activities will be the provision of a medium of publication for papers on acoustics, for which there is acute need; such papers have hitherto been widely scattered. Elected to temporary office were: *President*, Dr. Harvey Fletcher, of Bell Telephone Laboratories; *Vice-President*, Prof. V. O. Knudsen, of the University of California; *Secretary*, Mr. Wallace Waterfall, of the Celotex Company; *Treasurer*, Mr. C. F. Stoddard, of the American Piano Company. A committee was appointed by Dr. Fletcher to consider the details of organisation, and the first regular meeting was arranged for some time in April at Bell Telephone Laboratories.

SIR HUBERT WILKINS, in a dispatch to the *Times* announces that he made a second flight from Deception Island on Jan. 10. He passed southward for about 250 miles looking for an advanced base that would be more favourable than Deception Island. Fog, however, prevented him finding one and forced him to return without adding to his discoveries. He has decided to postpone further efforts until next season, when he hopes to find a base on the continent to the south of the group of islands of which he has proved Graham Land forms part. If he is successful in reaching such a base by ship, Sir Hubert Wilkins will be in a position to try a flight along the edge of the continent towards South Victoria Land. Continuity of land below his line of flight will ensure some possibility of return to his base if engine trouble or other causes should force him to descend.

OWING to various developments which have taken place in connexion with the fertiliser interests of Imperial Chemical Industries, Limited (particularly the formation of Scottish Agricultural Industries, Limited), and to the inauguration by the Government of the agricultural credits scheme, the project which the company had in mind for the inauguration and support of a special Imperial Grassland Association has proved unnecessary and incapable of complete realisation without duplication and overlapping of effort. Lord Bledisloe, who had been invited to become the chief of this new organisation (and who, it will be remembered, relinquished his membership of the Government with that object in view) has retired from his association with the project. While acknowledging Lord Bledisloe's willingness and ability to undertake the work which would have been entailed had the scheme been proceeded with, Imperial Chemical Industries, Limited, realised that it had no alternative but to release Lord Bledisloe, who will continue, however, to act in an advisory and consultative capacity on agricultural questions generally.

AN admirable account of the proceedings of the ninth annual conference of the Apis Club, which was held at Geneva and Berne on Aug. 12-16 last, under the presidency of Dr. Otto Morgenthaler, appears in the *Bee World* for November and December last. The meetings were attended by a number of distinguished workers, of several nations, representing both the practical and research sides of apiculture. Among the various papers read at the conference and published in this journal, Dr. E. Elser's account of the micro-technique involved in investigating the brood food over the last forty years is of special interest to biologists. After discussing the now well-known remarkable work of von Planta, modern methods of determining the constituents of the larval food are described. The next conference will be held in Berlin in 1929, under the presidency of Prof. Ambruster.

THE Council of the Geological Society has this year made the following awards: Wollaston Medal to Prof. F. J. Becke, of Vienna, in recognition of the value of his researches in petrology; Murchison Medal to Dr. C. A. Matley, in recognition of the value of his researches on stratigraphical geology in various parts of the British Empire; Lyell Medal to Dr. A. Morley Davies, in recognition of the value of his researches in invertebrate palæontology; Bigsby Medal to Prof. P. G. H. Boswell, for his valuable researches in sedimentary petrology and stratigraphy; Wollaston Donation Fund to Dr. R. Campbell, in recognition of the value of his researches in Scottish petrology and stratigraphy; Murchison Geological Fund to Mr. L. R. Cox, for his valuable researches in invertebrate palæontology, especially in connexion with the Lamellibranchiata; a Lyell Geological Fund to Mr. C. Edmonds, in recognition of the value of his researches on the Lower Carboniferous rocks of the Whitehaven district; a second Lyell Geological Fund to Dr. E. O. Teale, for his contributions to the geology of Victoria and of Africa.

At the meeting of the London Mathematical Society, to be held on Feb. 14, at 5 P.M., at Burlington House, Prof. O. Veblen, of Princeton University, will deliver a lecture on "Generalised Projective Geometry." Members of other scientific societies who may be interested are invited to attend.

A VIOLENT earthquake was registered at seismological observatories on Sunday, Jan. 13. The record at Kew Observatory, where the first tremors were received at 0 hr. 14 min. 49 sec. G.M.T., indicates that the epicentre was near the Kurile Islands, Lat. 50° N., Long. 150° E. This location is confirmed by the information received from Bombay, Helwan, and Stonyhurst.

THE Annual Report for the year 1927 of the South African Institute for Medical Research, Johannesburg, by the Director, Sir Spencer Lister, has recently been issued. The work of the Institute comprises routine examinations of material for medical practitioners, as aids to diagnosis, and research work. The last-named included during the year field-work on plague, determination of the types of the tubercle bacillus among

South African natives, investigations on pneumonia, cerebro-spinal fever, effects of dust inhalation, and the estimation and elimination of dust in 'dusty' occupations, and a mosquito survey in Zululand.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—An assistant in the technical education branch of the department of the West Riding Education Committee—The Education Department, County Hall, Wakefield (Jan 28). A public analyst and agricultural analyst for the City of Cardiff—The Medical Officer of Health, City Hall, Cardiff (Jan. 31). An agricultural economist at the West of Scotland Agricultural College—The Secretary, West of Scotland Agricultural College, 6 Blythwood Square, Glasgow (Jan. 31). A technician in the department of zoology of the University of Edinburgh, for assistance in research and the preparation of microscopic slides for class use; also a museum curator in the same department—The Secretary, The University, Edinburgh (Feb. 1). A research assistant in the Leather Industries Department of the University of Leeds—The Registrar, The University, Leeds (Feb. 4). A bio-chemist at the antitoxin establishment of the Metropolitan Asylums Board—The Clerk, Metropolitan Asylums Board, Victoria Embankment, E.C.4 (Feb. 6). A principal of the Dundee Technical College and School

of Art—The Secretary, Technical College, Bell Street, Dundee (Feb. 8). A head of the mechanical and civil engineering department of the Sunderland Technical College—The Chief Education Officer, 15 John Street, Sunderland (Feb. 9). Two appointments in the Forest Service of Burma—The Secretary to the High Commissioner for India, General Department, 42 Grosvenor Gardens, S.W.1 (April 6). A full-time teacher of engineering at the Verdin Technical School, Northwick—The Director of Education, Dept. 'C,' County Education Offices, City Road, Chester. Two junior assistants (male) under the directorate of ballistics research, Research Department, Woolwich—The Chief Superintendent, Research Department, Woolwich, S.E.18. A secretary to the Pharmacopœia Commission of the General Medical Council—The Acting Secretary, British Pharmacopœia Commission, General Medical Council, 44 Hallam Street, W.1. A junior professional assistant in the Meteorological Office—The Secretary (S.1), Air Ministry, Adastral House, Kingsway, W.C.2. An assistant physicist in the experimental department of the Fine Cotton Spinners' and Doublers' Association, Ltd.—The Chief of the Experimental Department of the Association, Rock Bank, Bollington, near Macclesfield. A physicist for research work in the laboratories of the British Boot, Shoe, and Allied Trades Research Association—The Secretary of the Association, 19 Bedford Square, W.C.1.

Our Astronomical Column.

FORBES'S COMET.—The following observations of this comet were obtained by Dr. H. E. Wood at the Union Observatory, Johannesburg:

	J.U.T.	R.A. 1928-0.	S. Decl. 1928-0.
Nov.	21-07734	12 ^h 8 ^m 29-31 ^s	21° 43' 44-5"
	26-07167	12 22 3-48	25 12 47-4
	30-07286	12 32 45-00	27 38 48-3
Dec.	1-06356	12 35 22-30	28 12 20-4

Using these in combination with positions obtained at Algiers, Lick, and Yerkes Observatories, Dr. A. C. D. Crommelin has deduced the following elliptical elements:

T	1928 Nov. 5-02378 U.T.
ω	196° 0' 13-6"
Ω	250 5 19-1
i	28 54 6-1
ϕ	67 48 54-2
log q	9-8723448
Period	31-9448 years.

The identity with comets 1818 I. (Pons) and 1873 VII. (Coggia-Winnecke) may now be looked on as established. The identity of these two was already considered probable by Weiss and Schulhof, but the observed arcs in 1818 and 1873 were only 4 and 5 days, so the matter remained conjectural. The fact that the period found is much closer to $27\frac{1}{2}$ than to 55 years makes it likely that the comet has made four revolutions since 1818, which would give a mean period of 27-69 years. If this is correct, then the comet 1457 I. (observed by Toscanelli and also in China) is probably the same comet, there being thirteen revolutions between 1457 and 1818, with a mean duration of each of 27-77 years. The following are the elements of this comet, necessarily somewhat

uncertain owing to the want of precision of observations at that date:

$$T \ 1457 \ \text{Jan. } 18-0, \ \omega \ 194-9^\circ, \ \Omega \ 249-7^\circ, \\ i \ 13-3^\circ, \ \log q \ 9-847.$$

The discoverer of the comet at this apparition is Mr. A. F. J. Forbes, of Rosebank, Cape Town, who is an architect by profession, and treasurer and librarian of the Cape centre of the Astronomical Society of South Africa. He has been engaged for some months in sweeping for comets, using an 8-inch reflector which he constructed himself.

The comet is now in south declination 42°, so it is out of reach of most northern observatories. It is to be hoped that it will be observed over a sufficiently long arc to determine the elements, especially the period, with great precision.

ARGON IN THE SOLAR CORONA.—In NATURE for Feb. 4, 1928, a letter by I. M. Freeman appeared, stating that a number of hitherto unidentified lines in the coronal spectrum had been attributed to argon, and promising further details in a forthcoming paper. This paper has now appeared in the *Astrophysical Journal*, vol. 68, p. 177. The investigation of argon was suggested by the fact that three recurring differences of wave-number between pairs of coronal lines agreed with the three chief term differences in the argon spectrum as investigated by Meissner. Twenty-two unknown lines of the corona are attributed with great plausibility to well-known argon lines, while combination lines of argon account for a further ten. Transitions from metastable states are not involved in these identifications, which is in accord with Eddington's theories. A possible test of these results lies in the fact that two different combinations give a line very close to the bright green coronal line, the separation being about 0-1 Å., so that it should be possible at future eclipses to detect the doublet structure of this line.