the Mesozoic flora of Portugal;[1] this work marks an important advance in our knowledge of Lower Cretaceous and Upper Jurassic vegetation; and of special interest are the various forms of "archetypal angiosperms" closely resembling similar fossils from the Potomac beds of North America. This last monograph, full of elaborate botanical and stratigraphical work, affords a striking proof of the energy and youthful enthusiasm of the veteran student. Saporta's name will ever be held in respect by succeeding generations as that of a pioneer of palæobotanical science; and by those who were privileged to know him personally, or as a correspondent ever ready to render assistance to younger workers, the death of the Marquis of Saporta must be felt not merely as the termination of the labours of one of the foremost palæobotanists, but as the removal of a generous friend and colleague, whose wide knowledge and untiring devotion to science will stimulate younger investigators to more vigorous efforts in the rich field of palæobotanical study.

A. C. SEWARD.

SIR GEORGE BUCHANAN.

THE death of Sir George Buchanan removes from our midst a leader in that branch of medical science which concerns itself with the prevention of disease. His death came very unexpectedly, for the circumstances of his ill-health were known only to a circle of intimate friends; and his great desire to go on working as long as work was practicable, made him sufficiently cheerful to disguise the suffering which he at times experienced. It is some three years since he resigned the post of medical officer to the Local Government Board, this step having been taken by him on account of failing health. But he still found plenty of pleasurable occupation in connection with the various learned and scientific bodies with which he was associated, and he also served on the Royal Commission on Tuberculosis, of which he became chairman on Lord Basing's death. He was a pupil of University College, of which body he became a Fellow; he graduated B.A. and M.D. at the University of London, and at his second M.B. he distinguished himself by carrying off several gold medals and scholarships. Later on he became medical officer of health to the district of St. Giles, where he laboured hard for years to improve the conditions of public health and to amend the then terribly faulty circumstances under which the people lived. It was here that he attracted the attention of Sir John Simon, then medical officer of the Privy Council, and under him he served both as a temporary and, later on, as a permanent medical inspector. During this period, and subsequently when he himself directed the public health department of the State, the investigations which he carried out, and the reports which he presented to Parliament, embodied the results of work of which England may feel proud. As a type of the class of work we refer to, we may instance his prolonged investigations into the influence on health of large public works, of water-supply and sewerage, and his discovery of the lessening of mortality from pulmonary consumption wherever the construction of sewers had led to a lowering of the sub-soil water. Some of his papers on the subject of vaccination in relation to small-pox are also of the greatest value; they were the result of most careful labour, as well as of an earnest desire to eliminate all possible sources of error, and to arrive at the truth alone; and the more he studied the subject, the more convinced he became of the value of vaccination as a measure of public health. He sought to secure for all the work he did or supervised a truly scientific basis; and he always attached the greatest importance to the auxiliary scientific work for which a special, but only a small, grant is annually made to the medical department of the Local Government Board. He had a marked literary talent, and a conspicuous power of setting out the salient points of the work done by his inspectorial staff; with the result that his annual reports have gradually come into great demand by sanitarians and public health authorities in almost every part of the world. The result of all his labours is by no means accomplished, in some places work on the lines he has indicated has hardly commenced, and it must almost necessarily be that much that he has taught, will, in the lapse of time, fail to be associated with his name. But those who know the nature of his work, and who appreciate the thoroughness which always characterised it, will readily understand how far-reaching and beneficial the results must in the end be. In 1882 he was elected to the Senate of the University of London, and in the same year he was made a Fellow of the Royal Society; but otherwise distinctions came to him mainly at the close of his official career. This was doubtless largely due to all absence of self-seeking in his character. As head of a department he was always trying to promote the welfare of those under him, and it was only when he retired on a comparatively small pension that he asked for some consideration in view of the long services he had rendered to the State before he gave his whole time to his official duties. But the Treasury gave their usual answer, and he said no more. At this date he was made a Knight Bachelor, and in 1893 he received the honorary degree of LL.D. of the University of Edinburgh. He was a past President of the Epidemiological Society, a Censor of the Royal College of Physicians of London, and he acted as adviser in scientific and other matters to several other bodies. If such a characteristic can be deemed a fault, Sir George Buchanan's most prominent failing was an inability to conceal his sense of those who, as he thought, sacrificed principles and, at times, the truth itself in matters relating to the advancement of public health, for purposes of notoriety or of policy. But, on the other hand, no chief of a public department ever won the affection as well as the esteem of his staff better than Sir George Buchanan did; and he made it no secret that in regard to this he was always desirous to recall the example of his own former chief, who, happily, still lives, and to whom he was devotedly attached.

[1] "Flore fossile du Portugal (Direction des travaux géologiques du Portugal)." Lisbon, 1894.

NOTES.

OUR readers will be glad to know that Prof. Huxley continues to improve in health. A telegram received from Eastbourne as we go to press states that he is progressing favourably, and is able to get up daily, but is hardly strong enough yet to leave his room.

THE Bill, which was introduced into the House of Lords on Thursday last by Lord Playfair, on behalf of the Government, may be fairly said to bring the reconstruction of the University of London on the lines of the Gresham Commissioners' Report within the sphere of practical politics. The exact terms of the Bill have not yet transpired, but it is understood that the four Commissioners appointed to administer the Act are, in the first place, empowered to make modifications in the scheme if deemed expedient after consultation with the Senate and Convocation of the University of London, and other bodies affected; and in the second, enjoined to adequately safeguard the interests of the external or non-collegiate students. The Government having at last taken action on this question, it is the more satisfactory to note that the attempt made in Convocation on Tuesday last to rescind the resolutions passed at the January meeting (vol. li. p. 298), has completely failed, a resolution to the effect that "if a local Teaching University for London be desirable, it ought to be constituted apart from the existing University of London," being rejected by 238 against 117, or by a majority of 121 votes.

THE unveiling of a memorial tablet to the late Prof. J. C. Adams at Westminster Abbey, on Thursday last, was an event in which all men of science are interested. It might have been made a great occasion, for Adams' name is esteemed throughout the scientific world, instead of which the meeting seems chiefly to have represented the University of Cambridge. The tablet has been placed in the north aisle, close to the graves of Newton, Herschel, and Darwin. It is the work of Mr. Bruce Joy, and bears the following inscription:—"Johannes Couch Adams, Planetam Neptunum Calculo Monstravit. MDCCCXLV."

A BILL incorporating the New York Zoological Society, and providing for the establishment of a zoological garden in New York, has just been approved by Governor Morton. The Act provides that the corporation shall have power to establish and maintain in New York City a zoological garden for the purpose of encouraging and advancing the study of zoology, original researches in the same, and kindred subjects, and of furnishing instruction and recreation to the people.

ON April 26, the Linnean Society of Bordeaux held a meeting devoted to the question of bibliographical reform. The prospectus of the new Bibliographical Bureau for Zoology was approved by all the members present, and the wish was expressed that a similar organisation be at once attempted for the other branches of natural science. In accordance with this wish, it was decided to elaborate a project for the establishment of a Central Bureau for Botany. This project will be presented to the Association Française at its next meeting, by the President of the Botanical Section. M. Mourlan, the Director of the Académie des Sciences of Belgium, proposes similar action for geology. It is hoped that, by the establishment of several federated bureaus, the plan of the Royal Society may be fully realised and without great difficulty. Meantime, the organisation of the Zoological Bureau has made considerable progress, the circular of the French Commission has already appeared, and has been widely distributed by the French Zoological Society; the American Commission has completed its preliminary study, and will soon send its circular to press. In other countries, notably in Russia, similar progress is reported.

THE programme of arrangements for the Ipswich meeting of the British Association has just been issued. The first general meeting will be held on Wednesday, September 11, when the Marquis of Salisbury will resign the chair, and Sir Douglas Galton, President elect, will assume the presidency, and deliver an address; on Thursday evening, September 12, a soirée will be held; on the following evening a discourse will be delivered by Prof. Silvanus P. Thompson on magnetism in rotation; on Monday evening, September 16, there will be a discourse by Prof. Percy F. Frankland on the work of Pasteur and its various developments; a second soirée will take place on Tuesday evening, September 17, and the concluding general meeting will be held on Wednesday, September 18. The Sections and their Presidents are as follows:—(*a*) Mathematical and Physical Science—President, Prof. W. M. Hicks, F.R.S. (*b*) Chemistry—President, Prof. R. Meldola, F.R.S. (*c*) Geology—President, W. Whitaker, F.R.S. (*d*) Zoology (including Animal Physiology)—President, Prof. W. A. Herdman, F.R.S. (*e*) Geography—President, H. J. Mackinder. (*f*) Economic Science and Statistics—President, L. L. Price. (*g*) Mechanical Science—President, Prof. L. F. Vernon Harcourt. (*h*) Anthropology—President, Prof. W. M. Flinders Petrie. (*k*) Botany—President, W. T. Thiselton-Dyer, C.M.G., F.R.S. Section I (Physiology) will not meet at Ipswich, but papers on animal physiology will be read in Section D. The delegates of corresponding Societies will meet on Thursday, September 12, and Tuesday, September 17, under the presidency of Mr. G. J. Symons, F.R.S. The acceptance of papers is, as far as possible, determined by organising committees for the several Sections, before the beginning of the meeting. It has, therefore, become necessary, in order to give an opportunity to the Committees of doing justice to the communications, that each author should forward his paper, together with an abstract, on or before August 12, to the General Secretaries of the Association.

SEVERAL summer schools for the practical study of botany will be held during the coming season in the United States—one in connection with Cornell University, and one in connection with the University of Wisconsin, both from July 8 to August 16; also one in connection with the Cambridge Botanical Supply Co., Cambridge, Mass., from July 5 for five weeks.

THE *Sitzungsberichte* of the Vienna Academy of Sciences (vol. civ.) contains a discussion of the observations of atmospherical electricity and St. Elmo's Fire on the Sonnblick by Messrs. J. Elster and H. Geitel, being a continuation of the observations to the time of the change of the former observer. The results confirm those previously obtained, and show that the yearly variation of the electrical energy at the summit is small, compared to that at the base, and that the summit of the mountain projects above those strata of the atmosphere in which electrical processes mostly occur. During the fall of fine snow the St. Elmo's Fire is mostly negative, but positive when large flakes of snow and hail are falling.

FROM a paper on early agriculture in Palestine, by Dr. H. Vogelstein, we learn the interesting fact that in the first two centuries of the Christian era, rainfall was measured by means of a receptacle. The Jewish *Mishnah* refers to two seasons, one wet and the other dry. In normal years the early rain fell soon after the autumnal equinox, and its importance to agriculture is frequently referred to in that document. The amount which fell at this season was about 21 inches, which agrees fairly well with the present measurements at Jerusalem, but the total annual fall is not stated by Dr. Vogelstein, Further particulars of this interesting communication will be found in the *Meteorologische Zeitschrift* for April.

PROF. L. H. BAILEY, of Cornell University, Ithaca, N.Y., has recently read before the Biological Society of Washington a paper entitled the "Plant-individual in the Light of Evolution." In this paper, according to the *American Naturalist*, he suggests the idea that both Lamarckism and Darwinism are true, the former finding its expression best in animals, the latter in plants. The plant is, according to him, not a simple autonomy, in the sense in which the animal is, and the parts of the plant are independent in respect to propagation, struggle for existence, and transmission of characters. According to this view there can be no localisation or continuity of germ-plasm in plants, in the sense in which these conceptions are applied to animals.

THE *El Universal* reports that the cold spell in February extended right down the Gulf of Mexico to Vera Cruz. On the 15th and 16th it was freezing over a distance of 80 leagues from Monterey to Ciudad Victoria and Tula in Tamaulipas, and the mountains were covered with snow. In the district of Tancanhuitz, State of San Luis Potosi, the sugar-canes and coffee-trees were all killed, the value of the coffee crop destroyed being estimated at a million dollars. In the Huasteca, State of Vera Cruz, sugar-canes, coffee, and tobacco were similarly killed—a loss of several million dollars—while cattle were dying by hundreds on the frost-bitten pasture lands. Owing to the frost having followed a prolonged drought, prices had risen to famine rates, and there was much sickness, especially croup and small-pox. In the district round Altotonga a very hot south wind set in on February 13, which suddenly cooled, and grew in intensity and cold. On the 14th, snow began to fall and did not cease till the 17th. Ten parishes in the temperate zone were snow-covered

for eighty-four hours, resulting in the destruction of all fruit, vegetables, coffee, and tobacco. The sugar-canes were so ruined as to be unfit even for forage. The twelve parishes of the district situated in the *terra fria* lost everything; the maize had not yet been planted, and would not be ripe till November or December. At Papantla, the vanilla centre, it was snowing on February 17, and the temperature had fallen from 30° C. to freezing point. At Misantla snow fell all night, and many fowls, animals, and cattle died from the cold.

UNDER the title, "Illustrations of Darwinism, and other Papers," Sir Walter L. Buller, F.R.S., has sent us a reprint of his presidential address to the Wellington Philosophical Society in 1894. Its main subject-matter is a discussion of the various ways in which the peculiarities of structure, colour, distribution and habits of New Zealand birds, serve to illustrate the theory of Natural Selection, and often to afford very strong arguments in its favour. The address is very clear and forcible, full of interesting facts and suggestive observations, and will be read with interest by all naturalists. One or two points only call for any critical observation. Sir W. Buller objects to the Apteryx being classed by Mr. Wallace as among "the lowest birds," because, he says, it is really "an extremely specialised form." But surely the Ratitæ are lower than the Carinatæ; and the Apteryx is specialised so as to be almost the least bird-like of the Ratitæ. If it is not to be classed among the lowest existing birds, where are these to be found? Again, the statement that the larger forms of animals have universally preceded the smaller in geological time (p. 101), is only a half-truth, if so much, since all these large forms have been developed from smaller ones, as shown in the case of the horse, as well as that of the early marsupials of the Meszoic period. Even more open to objection is the statement (p. 102), that the Siberian mammoth "would clearly have required a growth of tropical luxuriance to satisfy the wants of its capacious stomach"; and that its being found by thousands embedded in ice or frozen soil implies "a revolutionary change of climate." A sufficient answer to which theory is the fact that leaves and cones of firs have been found in the stomach, showing that it fed only a few degrees south of the places where it is now embedded.

A VALUABLE addition to the various suggestions for the measurement of geological time is made by Dr. G. K. Gilbert in the *Journal of Geology* (vol. iii. No. 2). He has been struck with the regular, rhythmical cycles of sedimentation displayed over and over again by the shaly beds of the Cretaceous of Colorado (Benton, Niobrara, and Pierre groups). Such regularity, he suggests, can only be due to causal variations of a periodic character, and only astronomical changes have the regularity required. There seem to be only three astronomical cycles that can be reasonably appealed to for an explanation of rhythm in sedimentation: the periods of the earth's revolution around the sun, of the precession of the equinoxes, and of the variation in eccentricity of the earth's orbit. Dismissing the first as too short, and the last as too irregular, Prof. Gilbert considers there are three ways in which the second cycle might influence local sedimentation: (1) By periodic changes in winds, and therefore in marine currents; (2) by alternate glaciation of the two hemispheres, resulting in periodic advance and recession of coast-lines, and hence of sedimentation-boundaries; (3) alternation in terrestrial climates of moist periods—when, through the abundance of vegetation, chemical denudation would be at a maximum, and mechanical at a minimum—and dry periods, when the reverse would be the case. Assuming the rhythm of sedimentation in the case considered to coincide with the rhythm of the equinoxes, Dr. Gilbert estimates the time represented by the Benton, Niobrara, and Pierre epochs as 20,000,000 years, or, allowing the number 2 as a factor of safety, between 10,000,000 and 40,000,000 years.

We have received the Supplement to the Calendar of the Royal University of Ireland for 1895, containing examination papers set last year.

So little attention is generally paid in public libraries to the wants of students of science, that we are glad to give a word of praise to a catalogue of books on mathematics, mathematical physics, engineering and architecture, contained in the two public libraries at Halifax. The list has been compiled by the librarian, Mr. J. Whiteley, and it should be found a useful guide to the scientific literature in the two libraries.

THE *Bulletin* of the American Museum of Natural History (vol. vi.) has been received. Among the articles in the volume, we notice one "On the Birds of the Island of Trinidad," by F. M. Chapman; "On the Seasonal Change of Colour in the Varying Hare (Lepus Americanus)" by J. A. Allen; "Fossil Mammals of the Lower Miocene White River Beds," by H. F. Osborn and J. L. Wortman. There are also papers on North American Orthoptera and Moths, by W. Beutenmüller; on some North American Mammals, by J. A. Allen, and by F. M. Chapman; and on new forms of marine algæ from the Trenton limestone; by R. P. Whitfield.

THE authorities of the Royal Gardens, Kew, publish a "Hand-list of Ferns and Fern-allies cultivated in the Gardens." This remarkably rich collection consists of 802 species and varieties of ferns, and 48 of fern-allies and natives of this country; besides no less than 586 varieties of British ferns. This latter collection is due to the bequest of Mr. W. C. Carbonell, who left it to the Gardens. It consists of 4261 specimens, found by him at Rhiew Castel, Usk, Monmouthshire. The rest of the collection owes its completeness largely to the zeal and assiduity of the late Mr. John Smith, curator of the Gardens from 1841 to 1863.

THE text of a series of six Lowell lectures, by Prof. Gantano Lanza, on "Engineering Practice and Education," which has been appearing in the *Journal* of the Franklin Institute since May 1894, is now concluded. Some interesting examples are given of the engineering works of the world, and the functions of the engineer are passed in review. Prof. Lanza holds sound ideas as to the education of an engineer. "There are two things," he says, "which are absolutely necessary to make a successful engineer: first, a knowledge of scientific principles and of the experience of the past; and second, his own experience. . . . The two fundamental sciences upon which the scientific principles of engineering are especially dependent are mathematics and physics, and no proper course in engineering can be arranged without insisting upon these as fundamentals." He shares the general opinion that the education of the engineer should include some knowledge of the differential and integral calculus, if not of higher mathematics.

WE have often found occasion to express satisfaction at the work carried on by many local scientific societies. Labourers in the field of science are not wanting, but their work frequently needs direction. Wisely organised, the multitude of willing amateur observers can greatly assist the growth of natural knowledge. A programme just received from the Yorkshire Naturalists' Union, showing the excursions, meetings, and committees of research for 1895, is a sufficient proof that the operations of the Union are conducted with definite objects in view. There is a boulder committee, appointed to collect information as to the distribution of erratic blocks in the county of York; a committee to observe the present changes and past condition of the sea-coast, in order to determine the rate of erosion; a fossil flora committee, which aims particularly at determining the vertical range of the genera and species of the various formations; a geological photographs committee; a

committee to promote the investigation of the marine zoology of the Yorkshire Coast; a micro-zoology and micro-botany committee; a committee to consider proposals for the legislative protection of wild birds' eggs; and a committee having for its object the investigation of the mycological flora of Yorkshire. Upon each of the committees we notice the names of numerous well-known scientific workers; and, as the committees co-operate, when possible, with British Association committees, the Union forms the connecting link between the local societies and the Association. This kind of organisation seems to be the one calculated to produce the greatest amount of useful work. While referring to natural history societies, we may mention that the West Kent Natural History, Microscopical, and Photographic Society has sent us their report for 1894-95. The report contains an address by the President, Mr. H. J. Adams, on "Colour Photography," and a paper on "The Birds of Blackheath," by Mr. H. F. Witherby.

H. MOISSAN has attempted to produce argon compounds by acting on argon, under various conditions, with some of the rarer elements which unite more or less readily with nitrogen (*Comptes rendus*, May 6). 100 c.c. of the new gas were placed at his disposal by Prof. Ramsay. In a part of this, titanium, boron, and lithium were strongly heated without apparent change. Similarly, uranium (containing $3\frac{1}{2}$ per cent. of carbon) did not absorb an appreciable amount of the gas when heated with it for twenty minutes. A quantity of the gas was conducted into a platinum tube of special construction, and there exposed to the action of pure fluorine, both at the ordinary temperature and in presence of induction sparks; in neither case could any reaction be observed whatever the proportion of argon present. The difficulty of manipulating fluorine has not allowed of the effect of long-continued sparking being observed. The results were entirely negative; under the conditions of these experiments, no compounds of argon have been produced.

BY saturating an ethereal solution of ferric chloride with nitric oxide, and concentrating the product at the ordinary temperature in the vacuum desiccator, V. Thomas has succeeded in obtaining crystals of the composition $FeCl_2.NO.2H_2O$. (*Bull. Soc. Chim.* [3], xiii.-xiv. No. 8). The anhydrous compound may be obtained in smaller yellow crystals by crystallisation at 60° on a porcelain plate. Peligot found that nitric oxide dissolved in ferrous chloride solution in the proportion required to form a compound $2FeCl_2.NO$, and this solution lost all its gas on heating. It is interesting and significant that the new crystalline product dissolves completely in cold water without evolution of gas to form a pale yellow solution, and that the solid compound is quite stable in vacuo at the ordinary temperature. Of considerable interest also is the observation by the same author, that nitric oxide gives abundant crystalline precipitates when passed through solutions of antimony tribromide or antimony trichloride.

A NEW series of iron nitrosocompounds have been discovered, by K. A. Hofmann and O. F. Wiede, which possess interest both from the point of view of the gas-analyst and in consequence of the example they afford of the synthetical production of complex inorganic substances. A current of nitric oxide is passed through a concentrated solution of 200 grams ferrous sulphate and 300 grams of potassium thiosulphate. A compound is precipitated in red-brown leaflets, which has the composition $Fe(NO)_2S_2O_3K.H_2O$. This substance may be dried in the vacuum desiccator without change. It is difficultly soluble in water, and dissolves in concentrated sulphuric acid without decomposition, giving an intensely greenish yellow coloured solution. Ammonium and sodium salts of similar composition and properties have also been prepared. The formation of the new acid, dinitrosoferrothiosulphuric acid, of which these salts are derivatives, is facilitated by the presence of an excess of ferrous salt. It may be considered that the essential reaction in its formation consists of a replacement of the group (KS_2O_3) by NO in ferrous potassium thiosulphate, viewing the latter as $KO_3S_2.Fe.S_2O_3K$. The displaced radical probably forms potassium tetrathionate which does not react further. Cobalt compounds, in which the cobalt replaces the iron in this series, can be obtained, though with much greater difficulty. The connection of these new substances with the tetra- and hepta-nitroso compounds of Pawel and Marchlewski and Sachs is yet under investigation.

THE additions to the Zoological Society's Gardens during the past week include two Arabian Baboons (*Cynocephalus hamadryas*, ♂ ♀) from Somaliland, presented respectively by Mr. Francis G. Gunnis and Mrs. E. Lort Phillips; a Japanese Ape (*Macacus speciosus*, ♂) from Japan, presented by Dr. G. L. Johnston; a Rhesus Monkey (*Macacus rhesus*, ♂) from India, presented by Messrs. A. S. and E. Boatfield; a Naked-footed Owlet (*Athene noctua*), European, presented by Mr. Walter Chamberlain; a Black Tanager (*Tachyhonus melaleucus*) from Brazil, presented by Mr. Edward Hawkins; a Hawfinch (*Coccothraustes vulgaris*), British, presented by Mr. H. G. Devas; two Common Peafowl (*Pavo cristatus*, ♂ ♀) from India, presented by Mr. L. G. Whatman; two Pyrenean Newts (*Molge aspera*) from Lac d. Oncet, Pyrenes, presented by Dr. Jacques de Bedriaga; two Indian Pythons (*Python molurus*) from India, presented by Mr. G. Stephen; a Koodoo (*Strepsiceros kudu*, ♀) from Somaliland, a Kinkajou (*Cercoleptes caudivolvulus*, ♀), a Ring-tailed-Coati (*Nasua rufa*) from Brazil, a Dusky Bulbul (*Pycnonotus obscurus*) from Morocco, deposited; two Ruddy Sheldrakes (*Tadorna casarca*, ♂ ♀), European, a Red-fronted Amazon (*Chrysotis vittata*) from Porto Rico, a Yellow-fronted Amazon (*Chrysotis ochrocephala*) from Guiana, purchased; a Large Red Flying Squirrel (*Pteromys inornatus*) from India, received in exchange; two Japanese Deer (*Cervus sika*, ♂ ♀), a Barbary Sheep (*Ovis tragelaphus*, ♂), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

ALGOL.—The periodic variations in the intervals between the minima of Algol have been explained by Dr. Chandler by supposing that the bright star, with its eclipsing companion, revolves round a distant centre of gravity determined by its relation to another dark body. M. Tisserand, however, considers that the phenomena may be produced by the changes in the line of apsides due to a polar compression of Algol (NATURE, vol. li. p. 328). The latter hypothesis requires that considerable variations in the duration of the minima should be observed; while, on Dr. Chandler's hypothesis, there should be a periodic inequality of the proper motion of Algol. Prof. Lewis Boss has recently discussed the question from the point of view of the proper motion of the star; but since the coefficient is probably less than 0″·7, the investigation is a very delicate one. Taking the result of his computation, apart from any considerations of the behaviour of Algol as a variable star, Prof. Boss is of opinion that there is a preponderance of probability in favour of the real existence of a periodic element in the proper motion, such as is required by Dr. Chandler's hypothesis. Supposing them to be real, they indicate that the apparent motion is in an ellipse, the semi-axis major of which is $0''\cdot522 \pm 0''\cdot103$ and the semi-axis minor 0″·224; the position angle of the northern end of the major axis is 34°, and the inclination of the real orbit to our line of sight is 23°. The computation further indicates that the star passed the major axis of the apparent orbit within three or four years of the most probable date derived from the observated light-changes. Prof. Boss considers the evidence in favour of Dr. Chandler's hypothesis to be sufficient to justify a very thorough investigation of the meridian observations, as well as continued determinations of position. (*Astronomical Journal*, No. 343.)

PARALLAX AND ORBIT OF η CASSIOPEIÆ.—Twenty-seven photographs of the region round this star, taken by Dr. Rutherford