

A RECENT number of the *Electro-Chemist and Metallurgist* contains an able article by Mr. W. C. D. Whetham on the present position of the theory of electrolysis. The investigations which led up to the theory of electrolytic dissociation and the modern convective views of electrolysis are traced, and it is clearly shown that a vast number of important observations are easily explained by the modern views. As the author points out, experiments on the comparison of the electrical and the osmotic values of ionisation are of little use from the point of view of the controversialist seeking arguments for or against the ionic dissociation theory. The deviations between the two values are, however, in most cases easily explainable by a consideration of the interionic forces, which probably exert an effect even at dilutions at which the intermolecular forces are negligible, and, further, of the complex ions which are so often formed in solution.

THE additions to the Zoological Society's Gardens during the past week include a Red-fronted Gazelle (*Gazella rufifrons*) from Senegal, presented by Lieut. F. P. Crozier; two Common Mynahs (*Acridotheres tristis*) from India, presented by Mr. H. Munt; a Hawk-billed Turtle (*Chelone imbricata*) from tropical seas, a Testaceous Snake (*Zamenis flagelliformis*) from South United States, deposited.

OUR ASTRONOMICAL COLUMN.

BRIGHT METEORS.—An exceedingly bright meteor was observed by Mr. W. Moss at South Kensington at about 11.15 p.m. on Saturday. Although not looking in the direction of its path, Mr. Moss's attention was directed to the meteor by its remarkable brightness, which he estimated as exceeding that of Jupiter. The part of the path that he observed was about 5° long, and commenced at a point near to the equator, and about 8° E. of δ Orionis. The same object was independently observed by Mr. Mills, who describes it as the brightest he has yet seen, and states that it first appeared about 5° due east of γ Orionis, and, travelling in a south-easterly direction, appeared to burst when approximately 8° or 10° to the N.E. of Rigel.

Several meteors, six of which were probably Leonids, were observed by Mr. W. E. Rolston at South Kensington during an intermittent watch which lasted from 10 p.m. on Saturday until 4.30 a.m. on Sunday. The brightest of the six was one which appeared at about 3.15 on Sunday morning in R.A. 7h. 10m. Dec. +6°, and disappeared at R.A. 6h. 30m., Dec. +5°, leaving behind it a green broken trail which lasted for about two seconds. The same observer also saw more than 50 Leonids during a watch from 2.15 to 3.45 on Monday morning. These meteors presented the characteristics of the November shower inasmuch as they were exceedingly swift and left broken trails of a reddish hue.

Mr. A. M. Davies, writing from Amersham, Bucks, states that about 10.45 p.m. on November 14 he saw a brilliant meteor with a train move westwards in an almost horizontal path at about the altitude of η Ursæ Majoris.

SEARCH-EPHEMERIS FOR FAYE'S COMET.—Herr E. Ström-gren publishes a further portion of his ephemeris for Faye's comet in No. 3913 of the *Astronomische Nachrichten*. This ephemeris takes the time of perihelion passage as June 3.64, and is given below:—

1903		Ephemeris 12h. (M.T. Berlin).		log r	log Δ
h.	m.	α	δ		
Nov.	15	9 42 59	+1 45'0	0.3565	0.3288
"	19	9 46 23	+1 11'5		
"	23	9 49 25	+0 39'5	0.3655	0.3180
"	27	9 52 3	+0 9'3		
Dec.	1	9 54 16	-0 19'0	0.3743	0.3067
"	5	9 56 5	-0 45'1		
"	9	9 57 29	-1 8'8	0.3830	0.2952
"	13	9 58 26	-1 30'1		
"	17	9 58 57	-1 48'7	0.3916	0.2840
"	21	9 59 1	-2 4'3		
"	25	9 58 38	-2 16'9	0.4000	0.2736

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THE SECULAR VARIATION OF STARLIGHT.—In a research on the secular variation of starlight, that is, the minute yet regular variations in magnitudes which take centuries to become evident, Mr. J. E. Gore has compared the present magnitudes of a number of stars with their respective magnitudes as recorded by Al-Sufi and Ptolemy. Recognising the important bearing of these variations on the theory of stellar evolution, he selected a number of stars having spectra of the first and second types for the comparison, and has published the details of his research in the November number of the *Observatory*, giving in each case the type of spectrum, the recently estimated magnitude, and the magnitude as recorded by Al-Sufi and Ptolemy, together with remarks on the validity of the latter. Mr. Gore has prepared two lists, one of which contains the data concerning 26 stars which are apparently decreasing in magnitude; the other deals with 20 stars which show an apparent increase. He points out in his remarks that in many cases the stars which are decreasing in magnitude have spectra of Pickering's "A" type, which, according to Sir Norman Lockyer's classification, would place them amongst those which are decreasing in temperature, and therefore, presumably, in magnitude; a well-known example of this agreement occurs in the case of β Leonis, which, according to Sir Norman Lockyer, must be placed on the descending side of his temperature curve, and, according to Mr. Gore's result, has decreased in magnitude from 1.0 in Al-Sufi's time to 2.2 at the present day.

SOLAR OBSERVATIONS AT LYONS OBSERVATORY DURING 1902.—In his annual report for 1902, M. J. Guillaume, director of the Lyons Observatory, states that the solar surface was observed on 236 days during the year, and was reported as being free from spots on 161 days. Thirty-three groups of spots were observed, their mean latitude being 21°.0, an increase of 5°.3 over last year's value. According to the Lyons observations the last sun-spot minimum took place at the end of 1901.

The observations of faculae show an increase in the number of groups, and the area covered by them, over the two preceding years; they also indicate that the mean latitudes of spots and faculae do not show a parallel variation, and from this, and the differences exhibited in their persistence and activity, M. Guillaume arrives at the conclusion that it is really the faculae which indicate the regions of principal activity, the spots being only of secondary importance in this matter. This conclusion is supported by the various tables which accompany the report in the November issue of the *Bulletin de la Société de France*.

METEOROLOGICAL OBSERVATIONS WITH KITES AT SEA.

THE following extracts from a communication to our contemporary *Science* by Mr. A. L. Rotch indicate the rapid progress which is being made in the exploration of the upper air by means of kites from ships, and a scheme for further investigation.

The first to repeat the pioneer experiments of the late Mr. Sweetland and the writer during their voyage across the North Atlantic in 1901 were Messrs. Berson and Elias, of the Prussian Meteorological Institute, who, last August, made a voyage from Germany to Spitzbergen and back, achieving satisfactory results with their kites. Meanwhile Prof. Köppen, of the Deutsche Seewarte, carried out analogous experiments on the Baltic Sea. About the same time, Mr. Dines, aided by grants from the Royal Meteorological Society and the British Association, employed a small steamer for kite-flying off the west coast of Scotland, in connection with a fixed station on land.

Meteorological kites have recently been flown from steamboats on Lake Constance by Count von Zeppelin and Prof. Hergesell on some of the term-days of the international balloon ascensions. Similar experiments upon the smaller lakes of Prussia and Russia have also shown that kites may be rendered nearly independent of the wind even in the interior of the continents.