reports of the sections, the only two papers are concerned with literary subjects. The report of the council contains an announcement that the society has decided to publish a book on the Trias by Mr. T. O. Bosworth, a member of the geological section of the society, which should be of great assistance to students of the geology of the county.

A WELL-ARRANGED and excellently illustrated catalogue of their electrical specialities has been received from Messrs. F. Darton and Co., 142 St. John Street, Clerkenwell, E.C. Special attention may be directed to the large number of designs of small electric motors and dynamos this firm is able to supply. In addition, the catalogue gives particulars of a great variety of electrical appliances and accessories.

OUR ASTRONOMICAL COLUMN.

THE IDENTITY OF SCHAUMASSE'S AND TUTTLE'S COMETS (1912*b*).—Using new observations made by M. Schaumasse, and extending over the period October 18 to November 1, MM. Fayet and Schaumasse have derived a set of elements for comet 1912*b* which, when compared with the elements for Tuttle's comet, taking into account the approximate perturbations of Jupiter during the period 1900–01, show that the comets are undoubtedly identical. The comet is now too low to be observed in these latitudes, its positions for November 21 and 23 being $\alpha = 11h.\ 43m.$, $\delta = -37^\circ\ 14'7$, and $\alpha = 11h.\ 50\ m.$, $\delta = -39^\circ\ 6'8$, respectively. (*Astronomische Nachrichten*, No. 4612.)

BORRELLY'S COMET 1912*c*.—A number of observations of comet 1912*c* are published in No. 4612 of the *Astronomische Nachrichten*, where elements and an ephemeris, extending to December 9, are also given. An observation made at the Bergedorf Observatory on November 3 gave the magnitude as 7·5, and showed that the comet was a round nebulous body with a nucleus but no tail; other observations made between November 3 and 6 gave the magnitude as 9·5, while the calculated magnitude for November 7 was 8·3. Dr. Kobold's ephemeris gives the following positions:—

Ephemeris 12h. Berlin M.T.

1912	α	δ	1912	α	δ
	h. m.	° ′		h. m.	° ′
Nov. 21...19	30·2...+11	50·1	Nov. 29...19	53·1...+4	40·2
23...19	36·5...+9	49·9	Dec. 1...19	57·9...+3	11·6
25...19	42·4...+7	58·7	3...20	2·5...+1	49·4
27...19	47·9...+6	15·7	5...20	6·9...+0	33·1

It will be seen that between November 22 and 27 the comet apparently travels along a line nearly parallel to, and about 3m. west of, that joining γ, α, and β Aquilæ; its calculated magnitude is now 9·0, and sinks to 9·5 by December 1.

OBSERVATIONS OF GALE'S COMET 1912*a*.—A number of observations, and some excellent photographs, taken by M. Quénisset at Juvisy, of comet 1912*a* are published in the November number of *L'Astronomie*. On October 16 the principal tail (p.a. = 65°) extended beyond the edge of the plate, and was at least 6° in length. The secondary tail (p.a. = 138°) was strongly curved towards the south, having the appearance of a cock's spur, and was 1° long; the successive photographs, October 6 to 16, showed that the angle between these two tails was increasing by nearly 1° per day. A third tail, near to and north of the principal, was photographed on October 14, and showed a marked dislocation at a distance of 33′ from the head. Several good spectra were secured with the Baume-Pluvinel prismatic camera, and will be reduced at M. de la Baume-Pluvinel's laboratory. They show a strong continuous spectrum, in which the usual cometary bands are shown as well-marked condensations, and the spectrum somewhat resembles that of Brooks's comet (1911*c*) at the end of October, 1911.

On November 1 the comet was still just visible to the naked eye, and photographs showed the principal tail to be 6° long with extremely undulating borders; the angle (86°) between the two tails had still further increased to the extent of 13° since October 16. Other observations of this comet are published in No. 4612 of the *Astronomische Nachrichten*.

NEBULÆ AND CLUSTERS PHOTOGRAPHED WITH THE CROSSLEY REFLECTOR.—Lick Observatory Bulletin No. 219 contains descriptions of 132 nebulæ and star clusters that have been photographed with the Crossley reflector. The descriptions in many cases are extremely interesting, and are written by Dr. H. D. Curtis, who states that the modern photographic studies of nebular structure show that the visual observations made in the past are almost valueless, in comparison, even when made with powerful instruments by skilful observers. For example, in the case of N.G.C. 83, the catalogue gives thirteen nebulæ in this region, while in reality there are at least fifty small nebulæ and nebulous stars.

One or two examples must serve to illustrate the importance of the present publication. N.G.C. 1300 shows a two-branched spiral, 6′ long, where the whorls start from the extremities of straight extensions on each side of the nucleus. Nova Aurigæ on November 16, 1901, Nova Geminorum on April 23, 1903, and Nova Lacertæ on September 13, 1912, showed no traces of nebulosity, although long exposures were given in each case. With two hours' exposure the stars of Præsepe show no signs of being nebulous. N.G.C. 5921 is a very interesting spiral, with a strong oval nucleus 1·8′ long, crossed by a straight lane of matter. N.G.C. 6960 is a wonderful object, more than 1° in length, made up of bright filaments like the "Network" nebula. N.G.C. 6914 is a very irregular diffuse nebulosity about 4′ across. The neighbouring stars, BD. +41°3731 and 3737, are surrounded by bright nebulosity not noted in the N.G.C., although that around the second star is brighter than N.G.C. 6914.

CAPTAIN AMUNDSEN'S JOURNEY TO THE SOUTH POLE.

CAPTAIN ROALD AMUNDSEN communicated the results of his journey to the south pole at a meeting of the Royal Geographical Society on November 15, in the Queen's Hall. His expedition "landed" on the ice-barrier in the Bay of Whales, which, he observes, was charted by Ross in 1841; it is therefore to be considered, not as a casual formation of the ice, but as a permanent feature, owing its existence to shallow banks or to land beneath the ice but above sea-level. This view was confirmed by the discovery, on landing, of a surface broken by steep hills and ridges, instead of one approximately level and unbroken. The work of the expedition in laying depôts for the march to the south pole was completed in April, 1911, and it may be said at once that it was thoroughly successful, for when we follow Captain Amundsen on the journey itself it would appear (however thickly he glosses its dangers) to have been carried through with less difficulty than any of a similar character preceding it, so far as concerned food supply, the health of the party, and the condition of the sledge-dogs; there is here no tale of suffering from hunger or exhaustion, and on the return march from 86° S., the party had not even to go on fixed