and the models towed represented those ships now in service as well as a yet unbuilt craft 1000 ft. long. Suction was investigated by means of floating models and submerged buoys. The movements of these during each run of the towed model were recorded by use of moving-picture cameras, so situated that every essential movement could be caught. An index finger moving over a dial on the towing carriage showed the position of the model at every instant. While the full results are not yet published, it may be noted that the Government authorities have again refused permission for the temporary pier extensions to be made permanent.

UNDER the title of "The Land of the Blue Poppy," the Cambridge University Press will shortly publish Mr. F. Kingdon Ward's record of his experiences and observations while engaged in plant-collecting in western China and south-eastern Tibet during the year 1911. The book is dedicated to the memory of the author's father, Prof. H. Marshall Ward.

MESSRS. WITHERBY AND CO. have been appointed European agents for *The Emu*, the organ of the Royal Australasian Ornithologists' Union, and copies of that publication can now be obtained at 326 High Holborn, London, W.C.

OUR ASTRONOMICAL COLUMN.

COMET GALE (1912*a*).—An ephemeris for Gale's comet (1912*a*) is given in the *Astronomische Nachrichten*, No. 4651, by Herr M. Ebell, of Kiel, but the object is very dim, being fainter than magnitude twelve. It was observed on April 26 in Uccle by G. van Biesbroeck, and in Bothkamp by Dr. H. H. Kritzinger, and, according to the former, the ephemeris was in error by −3s. and +1·5′. Dr. Kritzinger describes the comet as an elliptical nebula 1′ and 0·7′ diameter, the brightness of the nucleus being 12·8 mag., the total brightness amounting to 12·5 mag. In answer to a telegram sent to Algiers, Herr F. Gonnessiat reports that on May 2 the comet was on the extreme limit of visibility.

The ephemeris up to the end of this month is as follows:—

	α true h. m. s.	δ true ° ′ ″	Mag.
May 22 ...	6 53 30 ...	+45 44·5 ...	—
24 ...	6 55 59 ...	45 27·7 ...	12·6
26 ...	6 58 26 ...	45 11·2 ...	—
28 ...	7 0 53 ...	44 55·1 ...	—
30 ...	7 3 18 ...	44 39·3 ...	—

THE SPECTRA OF SPIRAL NEBULÆ AND GLOBULAR STAR CLUSTERS.—Dr. E. A. Fath has been continuing his discussion of the spectra of spiral nebulæ and globular star clusters secured with spectroscopes attached to the 60-in. reflector of the Mount Wilson Observatory; his latest results appear in the April number of *The Astrophysical Journal* (vol. xxxvii., No. 3, p. 198). The spiral nebulæ here investigated are seven in number, the exposures ranging from 7h. 40m. to 38h. 14m., while the total exposures for each of the four clusters ranged from 13h. 5m. to 16h. 17m. In the case of the nebulæ they for the most part exhibit the spectra of solar type stars, but he refers to two, namely N.G.C. 1068 and 4736, as peculiar, giving evidence of "gaseous" radiation. Up to the present he has investigated altogether twelve globular clusters, and the result so far shows that as a whole the brighter stars of the globular clusters have spectra ranging only from the F- to the G-type. Dr. Fath hopes that as the clusters observed are nearly all readily reached in latitude 34° north, some southern observatory will undertake the investigation of those south of −20°, to find out whether they also exhibit this small range of spectral type so striking a feature of the northern clusters.

REPORTS ON INDIAN OBSERVATORIES.—Dr. G. T. Walker, the Director-General of Indian Observatories, has just forwarded his reports for 1912 on the observatories of Kodaikanal, Madras, Bombay, and Alibag, accompanied by the reports of the several directors. In the case of the first-named, he directs attention to the energies of Mr. Evershed, to the transfer of the Poona instruments to Kodaikanal, and to the appointment of Mr. Royds. He states that a serious effort is going to be made to teach the assistants to undertake the measuring of the numerous photographs, which up to the present has only been done by the gazetted officers. He hopes further to make the observatory an ordinary second-class instead of a first-class meteorological station in order to free the fourth assistant for solar work. The transit instrument at Madras in the beginning of 1910 suddenly changed its level, and the occurrence was repeated in 1911 and 1912. As this had never taken place before, it was thought that underground water currents had affected the earth neighbouring the concrete foundation. This is now going to be investigated, and in the meantime the Madras clock will be rated by wire from Kodaikanal. No special features are mentioned regarding the other two observatories, unless the reference to the absence of trouble from white ants at the Colaba Observatory be noted.

"L'ASTRONOMIE" FOR MAY.—The current number of the *Bulletin de la Société Astronomique de France* contains the address delivered by M. Camille Flammarion on the occasion of the twenty-seventh year of the existence of the French Astronomical Society. The subject of his discourse was confined to the progress of the society, and the success that the society has achieved is well known this side of the Channel. A very valuable feature in the journal is a series of reproductions of all the past presidents of the society. On the same occasion M. Puiseux summarised the advances made in solar studies during the past year, and this will be found useful to those not closely following the progress of solar physics. Other contents to which attention may be directed are "Les Photographies à poses variées," "Les Céphéides considérées comme Etoiles Doubles," "Comparaison d'un Chronomètre aux signaux rythmés," &c.

THE PARALLAX OF THE NEBULA G.C. 117=N.G.C. 221.—Dr. Gustaf Strömberg communicates to *Astronomische Nachrichten*, No. 4650, his results of the determination of the parallax of the nebula G.C. 117, or N.G.C. 221, which he secured at the Stockholm Observatory. This nebula lies in the region of the Andromeda nebula, like a satellite to it, and is much easier to measure than the nucleus of the large nebula. The plates which Dr. Strömberg measured were those that were used by Prof. Karl Bohlin for his determination of the parallax of the Andromeda nebula. In his measures Dr. Strömberg employed a comparison star in the neighbourhood of the nebula, the coordinates being Neb. (G.C. 117)−* : $\Delta\alpha$ = −11·56s., $\Delta\delta$ = −18·3″. The investigation embodied fifty determination of differences of R.A. and forty-six of differences of declination, and the parallax he secured was +0·073″±0·055″. Details of the research will be published later in the publications of the observatory.

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