distribution, power utilisation, and general (economics, standardisation, education, etc.), each of these being subdivided into sections, which will number twenty-one in all. The charge for membership will be 2*l* and this sum will entitle members to admission to the Exhibition during the period of the Conference, June 30–July 12; to purchase, for a nominal amount, advance copies of papers to be read; and to participate in official tours to works, hydro-electric stations, and other places of interest in Great Britain, Norway and Sweden, and on the Continent, after the Conference has ended. Applications for membership, and all inquiries, should be addressed to the secretary of the World Power Conference, 36 Kingsway, London, W.C.2.

RAINFALL of 1923 is dealt with in considerable detail in the *Times* of February 4, the article being prepared by the Superintendent of the British Rainfall Organization of the Meteorological Office, Mr. F. J. W. Whipple. A preliminary survey is made from the much fuller details which will constitute later the annual volume of " British Rainfall " with its 5000 or more stations in the British Isles. The outstanding incidents referred to are the great thunderstorms of July, and the continued rains in Lancashire and North Wales producing floods in November. In February the rainfall was three times the average over an area from Cornwall to Staffordshire. In many places it was the wettest February on record, at Ross-on-Wye the wettest for at least 105 years. May was very wet in the north-east of Scotland; at Keith in Banffshire the fall was four times the normal and the highest for a forty years' record. In the British Isles as a whole the rainfall in February was 211 per cent. of the average, while in England and Wales it was 245 per cent. of the average. There was an excess of rain over the British Isles in every month except January, March, June, and December. Statistics are given for more than 200 stations. The rainfall for the year was above the average nearly everywhere; the largest excess occurred in the west; while there was a deficiency along the east coast and in some localities in Central England. The highest totals as yet available are 238 in. at Borrowdale, The Stye, Cumberland, and 189 in. at Snowdon, Carnarvon. The least rainfall for the year was 19·5 in. at Shoeburyness. In London, at Camden Square, the rainfall for 1923 was 27·03 in., which is 2·56 in. more than the normal.

Our Astronomical Column.

THE RELATIVE VELOCITY OF BLUE AND YELLOW LIGHT.—Allusion has already been made in this column to Prof. Harlow Shapley's proof of the practically perfect identity of speed of light of all colours, based on observations of the variable stars in the globular clusters. The proof is given in detail in Proceedings of National Academy of Sciences, Nov. 1923. Inspection of the photographic and photo-visual light curves shows that the best phase to select for comparison is the passage through median magnitude on the ascending portion of the curves; the ranges of variation are different for the different colours, but the curves intersect in the middle of the ascending portion.

The photo-visual plates require an exposure of 20 minutes with a yellow screen; this is suspended for a short interval at mid-exposure, when the ordinary photographic plate is exposed; the mean epoch of both plates is therefore the same.

The final result for the difference of times to travel over an estimated distance of forty thousand light years is 10 seconds, with a probable error of 60 seconds. That is to say, the speeds do not differ by more than 1 in 20,000,000,000, though the wavelengths differ by some 25 per cent.

The result is a proof of the very small amount of absorbing matter that can exist in the intervening space. The possibility of the phases in the two colours differing by a whole period was excluded by observing several variables of different periods.

D'ARREST'S COMET. — *Popular Astronomy* for January reports another early observation of this comet by Mr. J. E. Mellish at Wilmette, Ill., on October 4 at 14^h 30^m G.M.T. He describes it as large and faint, about 12′ in diameter, without central condensation; approximate position R.A. 18^h 10^m, S. Decl. 20°; motion probably southward. Clouds prevented further observations, and unfortunately he did not communicate his discovery, which would probably have led to observations elsewhere. Prof. Van Biesbroeck, who has himself been observing D'Arrest's Comet during December at the Yerkes Observatory, noticed that Mr. Mellish's position agreed well with that comet, so there is no doubt of the identity.

All who discover undoubted comets should communicate the fact with the utmost speed; in case of doubt as to its nature one should wait until the object has moved visibly among the stars. The southern hemisphere has been left to do decidedly more than its share of cometary discovery in recent years. There should be a good prospect of success for energetic searchers in the northern hemisphere.

THE MOST DISTANT CELESTIAL OBJECT EVER MEASURED.—A Harvard Observatory Bulletin recently received contains a discussion by Prof. Harlow Shapley of the distance of the object No. 6822 of Dreyer's New General Catalogue of nebulæ. This is described as a miniature of the Magellanic Clouds, being an aggregation of faint nebulæ and stars.

Three of the methods used in the case of the globular clusters were applied :

(1) Comparison of its angular diameter with those of the Magellanic Clouds, assuming equal real dimensions, gives distance 300 to 500 kiloparsecs (this word being used for 1000 parsecs).

(2) Comparison of the size and brightness of the nebulæ with those in the Clouds; the mean magnitude is given as 15·7 in No. 6822, and 9 to 11 in the Clouds. This gives a distance of 280 to 500 kiloparsecs.

(3) The brightest stars in the object are of magnitude 18·5; assuming these to be reddish super-giants (their colour is inferred from their relative faintness on photographs) of absolute magnitude −3 to −4, the distance comes out 250 kiloparsecs.

Hence in round numbers we may take the distance as a million light-years, five times the distance found for the farthest globular cluster. It is inferred to be external to our sidereal system. The distances of the Magellanic Clouds were adopted as follows; large Cloud, distance 35, diameter 4·4 kiloparsecs; small Cloud, 25 and 1·6 kiloparsecs respectively.