what is given will aid commanders materially in drawing for themselves special weather charts from wireless information, enabling them to know the weather conditions in which they are situated. An article is given on South Pacific hurricanes, prepared by Mr. H. Keeton of the Marine Division. The frequency and season of the hurricanes are dealt with, together with the tracks, rate of travel, and useful information with respect to neighbouring "hurricane warning stations." An illustration appears of the memorable escape of H.M.S. *Calliope* from Apia Harbour, Samoa, during a severe hurricane on March 16, 1889.

A BOOK of topical interest is announced for publication early in the new year by Messrs. Ernest Benn, Ltd., namely, "Radio: Beam and Broadcast, its story and patents." It is by A. H. Morse, late of the Marconi Wireless Telegraphy Co. of Canada, and purports to be the first published critical and constructive history of the development of wireless telegraphy and telephony. A feature of the work is the attention given to British and American patents.

MESSRS. Henry Sotheran and Co., 140 Strand, W.C.2, have just issued a new part of their "Catalogue of Science and Technology," namely, Part V., including VI., Physics, covering the letters S to Z, and containing a Supplement. This special catalogue of Messrs. Sotheran needs no recommendation, being well known for its valuable bibliographic notes, and the number of choice and rare books offered for sale. The new section is no exception. Copies of the catalogue are obtainable upon application.

MESSRS. Baird and Tatlock (London) Ltd., 14-15 Cross Street, Hatton Garden, London, E.C.1, have issued volume 4 of their Standard Catalogue. It is a quarto volume of 640 pages, well printed and illustrated, and covers the subjects of mechanics from hydraulics to aeronautics, heat including steam and internal combustion engines, light including radiology, sound and magnetism and electricity with their applications in industry. In order to give the users of the catalogue more liberty of choice, apparatus has been included which, although not made by Messrs. Baird and Tatlock, is guaranteed by the firm. The prices quoted represent present-day costs, and it is hoped that reductions in the cost of materials and labour will admit of their reduction in the near future; if this should be so, clients will reap the benefit. Amongst the newer apparatus catalogued we notice a universal bosshead clamp, a Langmuir condensation pump, a Duddell oscillograph, and a considerable range of wireless and X-ray apparatus.

Our Astronomical Column.

FIREBALLS.—Mr. W. F. Denning writes that a very brilliant fireball was observed from many places in Cornwall and Devonshire on Sunday, November 2, at about 10.55 P.M. A loud detonation was heard by various persons at about the same time, and the inference is that the noise was connected with the meteor. Observations are coming to hand which will enable a suitable investigation to be made and the real path of the meteor to be determined. It lit up the countryside with dazzling effect, and must have been one of the finest objects of its class.

Another object of similar kind was witnessed from the north-east region of Ireland on Tuesday, November 11, at 5.40 P.M. This fireball was remarkable for the length of its flight and its long duration. It traversed a path of about 124°, from the southern limits of Aries to near the star Cor Caroli, in about 20 or 25 seconds. The apparent size of the fireball was estimated to be about half that of the moon.

Mr. E. G. Fenton writes to say that he observed this meteor at Corbally, Limerick. It appeared in the eastern sky and moved slowly in a horizontal course from south to north. It was about four times as bright as Venus when at its brightest and of a bluish colour.

THE EFFECT OF SECULAR DIMINUTION OF MASS.—Dr. J. H. Jeans read a paper on this subject at the November meeting of the Royal Astronomical Society. It was based on Prof. Eddington's paper of last March, in which the conclusion was drawn that the luminosity of a star is simply a function of its mass, so that as the luminosity declines the mass does so likewise, through the conversion of part of it into radiant energy. Applying this to the sun, it was shown that its mass must be diminishing by millions of tons every second. This has an effect on the orbits of planets, the major axis of an orbit being inversely proportional to the mass of the central body. Dr. Jeans applied this principle to the development of the double-star systems, and found on certain hypotheses that the indicated age of the sidereal universe is of the order of 10^{14} years. This much exceeds previous estimates, and on the assumption that planetary systems arise from the close appulse of two suns, it is no longer necessary to assume that such systems are extremely rare. On the greater time-scale they might be expected in a large percentage of cases, especially as the stars were presumably closer to each other in early days.

Dr. Jeans further showed that motion in equiangular spirals would arise if the central body were losing mass very rapidly. This would, however, imply much higher brilliance in the central regions than that found in the spiral nebulæ.

THE DOMINION ASTROPHYSICAL OBSERVATORY, VICTORIA, B.C.—The output of work from this observatory has been of such interest and importance that many will welcome the detailed description of the 72-inch reflector that appears in the *Observatory* for November. There was great good fortune in the safe arrival of the disc from the St. Gobain factory, as it left Antwerp only a week before the outbreak of War. It has a central aperture 10 inches in diameter for use with the Cassegrain mirror. The principal focal length is 30 feet, that with the Cassegrain mirror 108 feet.

The arrangements for mounting and supporting the mirror, for keeping the temperature constant, and for giving the telescope large and small motions (which are effected by electric motors) are fully described and appear to be admirably efficient. There is a special car for removing the mirror for resilvering, which is done about three times a year.

The spectroscope is attached below the mirror, being used with the Cassegrain mirror. One, two, or three prisms can be used. When three are in use, the star spectrum is about 4 inches long.

Some important results on radial velocities, spectroscopic parallaxes, and the O type stars have already been obtained and published.