graphy within the faculty of arts. The exhibition, arranged jointly by the Manchester Geographical Society and the University, was opened by Sir Frederick Lugard, and the occasion was taken to bring before the public the appeal for funds which the Society is making to endow a chair of geography in the new honours school. The collections of maps, which have been placed on loan at the University by Col. D. Mills and Mrs. Booker, include facsimiles of such maps as the Madaba Mosaic, the Peutinger Table, the St. Sever copy of the Beatus map, 14th and 15th c. portolani, the Catalan world map of 1375, and the series of maps reproduced principally under the direction of Prof. E. L. Stevenson, illustrative of geographical discovery in the period between the time of Juan de la Cosa's portolan (1500) and the world map of Hondius (1611). The Booker collection contains many typical country and county maps from Norden and Saxton to Cary, Greenwood, and Bryant, while the reproductions of London and Paris views and maps (Mills collection), made by the London Topographical Society and the French Government respectively, form excellent material for the study of these two cities. In addition, the exhibition includes a number of regional maps of the various parts of the world extending over a considerable period of time, of which those of Russia and the Far East are the most extensive. There is every prospect, with these maps as a nucleus, of a great development of all phases of cartographical studies within the University.

MESSRS. W. WATSON AND SONS, LTD., of 313 High Holborn, W.C.1, have issued a new edition of Parts 1 and 2 of their microscope catalogue. Included in the list is a new model, the "Kima," which is specially designed for students and sold at a reasonably low price. The instrument, which is somewhat similar to, but smaller than, the now well-known "Service" model, complies with the specification of the British Science Guild except in regard to the position of the fine adjustment milled heads. Various models—for example, the "Royal," the "Van Heurck"—suitable for research or general high power work, as well as binocular microscopes for both low and high powers are described in detail and a complete list of eyepieces, objectives, condensers, and other accessories is given. A welcome reduction in prices is noticeable in nearly all the items. There is also listed a horizontal or reading microscope consisting of a microscope body of large diameter fitted with a micrometer eyepiece and a 2-inch objective. The body is surmounted by a sensitive bubble for levelling purposes. Vertical adjustment is made by a rack and pinion, the pillar being divided into millimetres and fitted with a vernier.

THE Pasteur lecture delivered before the Institute of Medicine of Chicago on November 24 last, by Dr. Jacques Loeb, is reproduced in the issue of *Science* dated December 29. The lecture is devoted mainly to a consideration of the osmotic equilibrium of gelatin in the presence of various concentrations of acid and alkali.

WE have received the new issue of the chemical catalogue of British Drug Houses, Ltd. In many cases there has been a considerable reduction in prices of chemicals in everyday use, and some substances required by research workers are now listed which did not appear in former catalogues. Biological stains are included, and the catalogue should find a place in every laboratory.

IN the January issue of the Research Defence Society's pamphlet, *The Fight Against Disease* (Macmillan and Co., price 6*d*.), the story of bubonic plague, by Surg.-Gen. Bannerman, is retold (the Society first published it in 1910). An excellent account is given of the ravages of bubonic plague and its transmission from rats to man through the intermediary of the rat fleas. Some data are also included of the efficiency of plague vaccine in the prevention of the disease. The general article on Pasteur which appeared in NATURE, December 23, is also reprinted.

Our Astronomical Column.

FIREBALLS IN FEBRUARY.—Mr. W. F. Denning writes: "This month though it does not supply meteors in abundance has furnished a number of large fireballs, some of which have been of exceptional character. The Mon. Not. R.A.S. for March 1922 contained a list of the remarkable meteoric phenomena recorded in recent years between February 7 and 22. Two of the most singular fireballs ever seen occurred, one on February 22, 1909, which left a long streak in the sky for two hours and drifted on upper wind-currents to north-west at the rate of 120 miles per hour. The other, on February 9, 1913, consisted of a stream of bright meteors which passed over North America, and had a luminous flight extending over at least 5500 miles.

"It is impossible to foretell the time of appearance of any individual fireball, and it is necessary that observers should be specially on the alert during the present month, for the prospect of observing a large meteor is very good, especially during the periods February 7, 10–14 and February 19–22. There are several active radiants at this time of the year, such as those at 147° − 11°, 167° +33°, 73° +42°, and 106° + 52°. In the event of any bright meteors being seen, the particulars should be carefully noted, and their apparent paths among the stars recorded as accurately as possible."

ASTRONOMICAL CIRCULARS.—There is a class of astronomical announcements—discoveries of comets or of novae, unusual markings on planets, etc.—the early circulation of which is of importance to observers. In the last century Lord Crawford started the Dunecht and Edinburgh Circulars, but they were not continued after his death. The only resource up to the present for those who find the price of astronomical telegrams too high has been the series of circulars issued by Prof. Strömgren at Copenhagen, or that of the *Astr. Nach.* at Kiel. These take some days to reach this country. The British Astronomical Association has now decided to issue a series of circulars when news of an urgent character comes to hand. Non-members of the B. A. A. can obtain these circulars at a charge of a few shillings per annum on writing to the secretary. They will include the latest ephemerides of comets in addition to discovery announcements.