overcome the difficulty experienced by lecturers in causing water to freeze by its own evaporation. A glass tube 50 cm. long and 5 cm. diameter is closed at both ends and filled with coarse glass wool to give more surface. A lateral tube near one end connects with a round-bottomed flask (or, better still, with a Dewar flask); another lateral tube near the other end connects with an exhaust pump. The flask is first half-filled with water, and the glass wool is saturated with fresh strong sulphuric acid. The formation of ice is very rapid. Grace's apparatus for determining the mechanical equivalent of heat also deserves mention as being a cheap pattern of the modern rotating cylinder form of apparatus for this purpose.

THE May number of *Knowledge* appears under new auspices. The editors are now Mr. Wilfred Mark Webb and Mr. E. S. Grew; and Hardwicke's *Science Gossip* is incorporated with the journal, as well as *Illustrated Scientific News*. In an introductory note Principal Miers gives encouragement to scientific amateurs to pursue their observational work in spite of the gulf that may exist between them and the trained specialist. In astronomy and natural history particularly, the work of amateurs is often of great value to science, and any efforts made to stimulate it must be appreciated by professional men of science. The new number of our contemporary should be of assistance in this direction. There are several fine illustrations in the form of plates and other figures, and the articles are by contributors who write with authority and not as the scribes. Among the astronomical articles we notice one on Halley by Mr. T. A. Bellamy, a characteristic contribution by Mr. J. E. Gore on counting the stars, and a description of Prof. Lowell's observations of Martian canals. Dr. D. H. Scott, F.R.S., writes upon the earliest flowering plants—a subject which he has made his own—Prof. F. Cavers upon liverworts, and Prof. A. W. Porter upon electromagnetic mass. There are also the usual notes upon recent advances in the various departments of science, and reviews of books. We offer our congratulations to the editors upon the attractive character of their first number, and trust that their efforts to promote and extend intelligent interest in science will meet with success.

BOTANISTS alone, so far as we are aware, have a journal dealing purely with the jests and humours of their subject. The first number of the *Sportophyte*, edited by Dr. Marie Stopes, emanates from Manchester University, and is to appear yearly. It contains anecdotes, verse, and articles parodying serious journals, of which the highly technical and friendly humour will appeal to professional botanists.

THE first part of a catalogue of books on natural history, to be obtained from Mr. Francis Edwards, 75 High Street, Marylebone, W., has been received. It is concerned with miscellaneous and general books and those dealing with ornithology and oology. The second part of the catalogue will deal with works on botany, gardening, ichthyology, and other subjects.

OUR ASTRONOMICAL COLUMN.

TOTAL SOLAR ECLIPSE OF MAY 9.—According to the *Daily Mail* of May 19, Mr. Driffield, a surveyor, reported to Mr. Baracchi, director of the Melbourne Observatory, that he observed the solar eclipse of May 9 at Queenstown, Tasmania, in clear weather. According to him, the corona appeared regular in form, concentric with and evenly distributed around the moon's disc, except in the south-eastern quadrant, where two streamers were seen running straight for some distance, and then curving downward like a plume. The extent of the corona was more than half a degree from the limb. Its structure was striated, the colours merging gradually from deep orange to pale green. The streamers were two moon's diameters in length. Mr. Baracchi is recorded to have said that this is the best observation which was obtained.

SOLAR ACTIVITY.—After a period of quiescence the sun has, during the past week, exhibited a recrudescence of spot activity. Several moderately sized groups have been observed containing well-defined extensive umbræ.

COMET 1910*a*.—According to an ephemeris published by Prof. Kobold in No. 4410 of the *Astronomische Nachrichten*, comet 1910*a* is still almost stationary to the west of the Great Square, and its estimated magnitude is about 12·0. For May 27 its position is given as

$$\alpha\ (1910{\cdot}0) = 22\text{h. } 31{\cdot}5\text{m.}, \quad \delta = +29^\circ\ 29{\cdot}8'.$$

THE PROBLEM OF THE RESISTING MEDIUM.—In No. 4408 of the *Astronomische Nachrichten* Mr. Selig Brodetsky, of Cambridge University, discusses Prof. See's assumptions concerning the possible part played by a resisting medium in the capture of satellites. In conclusion, he shows that the arguments employed by Prof. See will not stand close analysis, and are such as to render the possibility of capture, with an assumed resisting medium, very uncertain. That such a satellite as the moon was captured in the manner suggested appears to be extremely improbable; while some of the larger planets have apparently been able to capture a number of comets, rendering them periodic, there is no known case in which the earth has been able to perform a similar operation.

THE CALCIUM BANDS AT λ 6382 AND λ 6389.—In the spectra of sun-spots the calcium bands with heads at λλ 6382 and 6389 are an important feature, to which attention was directed by Prof. Fowler, but their precise origin is not quite settled. Investigations on this point have been carried out by Prof. Barnes at Bryn Mawr College, who describes his latest results in No. 2, vol. xxxi., of the *Astrophysical Journal*.

In dry air at atmospheric pressure, and with pure metallic poles, these bands do not appear in the arc spectrum, but with the pressure reduced to 3 cm. of mercury, or less, they come out strongly. In atmospheres of dry hydrogen and pure dry nitrogen the bands do appear, but not so strongly as when the arc is run *in vacuo*; with the arc burning in SO_2 they do not appear.

It has been suggested that these bands are due to a compound of calcium and hydrogen, but, from his experiments, Prof. Barnes concludes that they may be considered as true metallic radiations, a conclusion which is important in discussing the probable origin of the sun-spot spectrum.

STARS WITH VARIABLE RADIAL VELOCITIES.—In No. 2, vol. xxxi., of the *Astrophysical Journal*, Mr. O. J. Lee publishes the results of recent observations of radial velocities with the Bruce spectrograph at the Lick Observatory. For α Cygni a range of 9 km., from −9·0 to −0·1 km., was found, but the observations do not suggest a period. Two members of the Taurus stream of stars discovered by Prof. Boss, Nos. 1007 and 1092 in his catalogue, have also been shown to vary their radial velocities. The first is 58 Tauri, the range of its velocity being from +41 to +15 km., and the second is B.D. 7° 681 Tauri, which exhibits a range of from +34 km. to +17 km. θ Pegasi is also shown to be a spectroscopic binary with a range of from −32 to +19 km., and on one plate shows a very faint component at +62 km.

OCCULTATION OF MARS BY THE MOON ON APRIL 13.—Through a break in the clouds Dr. W. Krebs was able to observe the last contact during the occultation of Mars by the moon on April 13, and, in No. 4407 of the *Astronomische Nachrichten*, he gives the time as 10h. 49m. 30s. ± 15s. (G.M.T.).