

extensive experiments with plants, may prove to be of great scientific importance. In the second paper the author indicates some of the recent reactions of modern palæobotany upon the phylogeny of the higher plants, and points out that the great problem of palæobotany to-day is the history of the Angiosperms.

THE annual reports of the West Indian Department of Agriculture are, as usual, very satisfactory, showing continued progress in various directions. The activities of the staff cover a wide range; plants are distributed from the Botanical Gardens; instructors are sent out to show the best methods of cultivation; in some islands prizes are awarded for the best holding; and investigations are undertaken of the numerous insect and fungoid pests. Large importations of Hevea rubber seeds were made at Grenada with the view of diversifying the agriculture; improvements have been effected in the limejuice in Dominica; Para rubber (but not Maniçoba rubber) is proving successful in St. Lucia, while in spite of a bad season, the output of limes from the Virgin Islands was higher than in previous years, and the value of the cotton crop was increased.

AN investigation has been made by Prof. Ewart, of Melbourne, on bitter pit in apples, the results of which are published in the Proceedings of the Royal Society of Victoria, vol. xxiv., part 2. He concludes that bitter pit is not a disease, but a symptom of local poisoning produced in the sensitive pulp cells of the apple, which may be induced by a variety of poisons. In some cases poisonous sprays may be the cause, and the trouble appears to be more prevalent in sprayed orchards than in those that have never been sprayed or had poison applied to the soil. But this is not an invariable rule, and it will be interesting to ascertain what poisons are at work in unsprayed orchards. During the course of the work it is shown that the cells of the apple fruit are extraordinarily sensitive to traces of poison.

IN a note in our issue of May 16 on the proposed substitution of electric for gas lighting in the House of Commons, we expressed doubts as to the necessity for placing the lights behind amber-coloured glass in order to guard against the effects of ultra-violet light on the eye. Our view is confirmed by a paper by Dr. Louis Bell which appears in the May number of the Proceedings of the American Academy of Arts and Sciences, and records the results of a series of measurements of the amounts of ultra-violet light sent out by various artificial lights per candle-power. The quartz mercury arc in its diffusing globe sends out least, and the carbon arc enclosed in quartz most, ultra-violet rays per candle-power, but the numbers for these artificial sources are far exceeded by that for daylight. In these circumstances it seems unnecessary within buildings to protect eyes which prove themselves hardy enough in the daylight outside.

THE value obtained by Prof. Joly twenty years ago for the specific heat of air at constant volume was for many years regarded as too high compared with the values for the specific heat at constant pressure

obtained by Regnault and Wiedemann. Three years ago Dr. Swann published results for the latter quantity, determined by the continuous-flow method, which were higher than those obtained previously, and fitted in well with the observations of Joly. A copy of a paper by Drs. Scheel and Heuse, of the Reichsanstalt, which appeared in a recent number of the *Annalen der Physik*, has reached us, which confirms Swann's result, and gives values of the specific heat of air down to -183° C. The method used was that of continuous flow, and the results in gram degrees at 15° C. per gram degree are as follows:— at 20° C., 0.241; at -78° C., 0.243; and at -183° C., 0.253.

MESSRS. A. F. HOST AND SON, of Copenhagen, announce the early publication of vol. i. of the "Report on the Danish Oceanographical Expeditions, 1908-1910, to the Mediterranean and Adjacent Seas." Dr. Johs. Schmidt, the leader of the expeditions, will contribute an introduction, and other chapters will deal respectively with hydrographical observations, hydrography of the Mediterranean and adjacent waters (by J. N. Nielsen), exact determination of the chlorine in some samples of sea water from the Mediterranean (by H. Bjorn-Andersen), determination of the quantity of oxygen in sea water (by S. Palitzsch), the amount of oxygen in the water of the Mediterranean (by J. P. Jacobsen), measurement of the hydrogen ion concentration in sea water (by S. Palitzsch), the deposits of the sea-bottom (by O. B. Bøggild). Other volumes dealing with biological matters will be issued later.

Errata.—By a regrettable oversight the heading of the article in NATURE of July 11 *re* the Provisional Programme of Sections of the forthcoming meeting of the British Association appeared as "The Sheffield Meeting of the British Association." The meeting will, of course, be held at Dundee, as is stated in the letter.—In the letter of Prof. MacBride on "Hybrid Sea-urchins," in NATURE of July 4, p. 450, col. i., for *Echinus nuharis* read *Echinus miliaris*.

OUR ASTRONOMICAL COLUMN.

THE MASSES OF DOUBLE STARS.—The following interesting figures concerning the masses of pairs of double stars are published by Dr. Doberck in No. 4583 of the *Astronomische Nachrichten*; the spectral type (Harvard) is shown in brackets:— η Cassiopeiae (F8), 0.87; 40° Eridani (G5), 0.43; Sirius (A), 3.26; Castor (A), 72.19; Σ 3121, 371.9; γ Virginis (F), 8.09; α Centauri (G, K5), 1.99; ζ Herculis (G), 0.73; μ^2 Herculis (G5), 1.11; 70° Ophiuchi (K.), 2.58; and 85° Pegasi (G), 3.07. Excluding Castor and Σ 3121, the former because the orbit is uncertain, and the latter because the parallax is too small, the mean value is 2.46, and as this includes both stars of the pair, the average mass of a single star is approximately equal to that of the solar system, which is taken as unity. The data are, as yet, too meagre to allow of any attempt to correlate average mass and spectral type.

SOLAR PROMINENCES IN 1911.—According to Prof. Riccò's annual summary, published in No. 5, vol. i. (2nd series), of the *Memorie della Società degli Spettroscopisti Italiani*, the frequency, size, and magnificence of the solar prominences observed at Catania in 1911 were all considerably less than in 1910. The mean