Research Items

Origins of Morris Dance. The question of the origins of the Morris dance and of its name is once more raised by Mr. Rodney Gallop (*J. English Folk-dance and Song Soc.*, 1, No. 3). The belief generally held that 'Morris' was a corruption of 'Morisco' and the dance itself of Moorish origin was doubted so long ago as the time of Strutt, who in his "Sports and Pastimes of the People of England" suggested that it was derived from a part of the ceremony of the Feast of Fools; but Francis Douce in 1839 tried to justify the traditional view, while recognising that the European Morris differed widely from the true Moorish dances. Cecil Sharp at first (1906) adopted Douce's view, but later (1912) held that it was a development of a pan-European, or even more widely, distributed custom. He held, however, that the name might still be derived from 'Morisco', but without any implication of origin. It was a popular 'explanation' of the blackened faces of the dancers. It is now pointed out that 'Morisco' is applied to a wide diversity of dances, first appearing in the fifteenth century in France, Burgundy and Italy. In England, from the sixteenth century onward, it is both a court dance and a folk-dance. No single feature is common to all, the two widespread elements, the blackening of the face and the use of bells, to which attention mainly has been directed, being by no means universal. In numerous ceremonial combats, the opponents are 'Christians' and 'Moors'. These combats were of wide distribution and still survive in Portugal and on the east side of the Adriatic, and they have been carried to Panama and Mexico. The Morisco of the Hispanic peninsula does not always involve two sides and a combat. Some are purely processional, though in origin obviously a survival of the pagan ceremonial combat. One side has tended to disappear, and the survivors have retained the name of 'Moor', possibly as the equivalent of 'pagan' and as applied to a 'pagan' dance.

New Fishes from New Jersey and Florida. Mr. Henry W. Fowler in his paper "The Buckler Dory and Descriptions of three New Fishes from off New Jersey and Florida" (*Proc. Acad. Nat. Sci. Philadelphia*, **86**; 1934) describes an interesting new species of *Macrorhamphosus*, *M. otteri* which has before been confused with the Mediterranean *M. scolopax*, but differs from it in the more advanced spinous dorsal origin and consequently longer interdorsal area, and in its deeper body. *Parathunnus rosengarteni* n.sp. is also described from a mounted specimen angled by Dr. Rosengarten in Florida waters, and recognised by him as a species distinct from any with which he was acquainted. This fish has a lateral golden band running along the whole length from eye to tail and measures 713 mm. Another interesting new species is *Antigonia browni*, the depth of which is 1/5 greater than its length; it differs in many ways from its Barbados relative *Antigonia capros*, Lowe, the only other American species known. The specimens of the Buckler dory, *Zenopsis conchifer*, establish its distribution over the western Atlantic, known from there previously only from the imperfect and immature *Zeus ocellata*, and indicate that it is likely to occur all along the region of the Gulf Stream.

Culture of the Mantle-Wall of *Helix*. J. Brontë Gatenby, Joyce C. Hill and T. J. Macdougald (*Quart. J. Micro. Sci.*, **77**, Pt. 1, 1934) give an account of the technique of the culture of small pieces of the mantle-wall of *Helix aspersa*, more particularly to obtain aseptic growths. In such cultures the amœbocytes wander out of the piece of tissue and become much flattened, but do not form a connective tissue network to such a degree as in non-aseptic culture. In older explants, the Golgi apparatus of the amœbocytes breaks up into granules which become scattered through the cells; hence statements concerning the Golgi apparatus, based on evidence obtained from cells in culture, are of doubtful value. There is good evidence that the cells in the tissue cultures of *Helix* divide by amitosis. The amœbocytes do not ingest bacteria until the latter have become very numerous. Joyce C. Hill contributes (*J. Roy. Micro. Soc.*, **54**, No. 3, 1934) a useful article on the technique of the culture of the tissue of *Helix*. The Hédon-Fleig saline solution, the composition of which is stated, proved to be the most satisfactory, for in this the amœbocytes which emigrated from the mantle wall produced a well-organised connective tissue network. By sterilising pieces of tissue, either by exposure to ultra-violet radiation or by soaking in blood, the life of the cultures was much prolonged. The amœbocytes were more flattened and did not unite to form a definite network.

Iodised Wraps for Fruit Storage. Mr. R. G. Tomkins, of the Low Temperature Research Station, Cambridge, has investigated the possibilities of using iodised coverings for fruit when placed in storage. The severity of many fungal diseases of storage is notorious, and the use of germicidal covers would appear to be one of the most obvious methods of control, if the fungicide has no harmful effect on the fruit. Initial difficulties seem to have been largely overcome (*J. Pomol. and Hort. Sci.*, **12**, No. 4, pp. 311–320, December, 1934). The iodised wraps are made by treating tissue paper with a definite volume of iodine solution—a covering 25 cm. square contains approximately 30 mgm. of free iodine. Laboratory tests show that storage rots of fruit can be considerably reduced by this kind of wrapping, whilst the appearance and ripening of most varieties is not impaired. Problems for the future include a study of the amounts of iodine absorbed by the fruit, and a more extensive determination of varieties which are harmed by iodine treatment.

Cyclones in Mauritius. The cyclone season of 1932–33 in Mauritius and in the neighbouring parts of the South Indian Ocean is described by N. R. McCurdy, director of the Royal Alfred Observatory, Mauritius, in Miscellaneous Publication No. 15 of that observatory. This is the sixth of a series of publications dealing exclusively with the cyclone seasons of that region. For this year the amount of data available for drawing synoptic charts is greater than at any time previously. There were six cyclones in this season, a smaller number than usual, and fortunately only one of these appears to have been intense. The storm in question appeared on the synoptic charts for March 3–15, 1933, and passed between Mauritius and Madagascar; it followed a very

unusual course, twice approaching Madagascar from the north-east and recurving to the south-east. Several ships were involved in the region around the centre, where winds of hurricane force were encountered with very heavy rain and extremely high seas, and one ship was unfortunate enough to spend some days near the centre, having waited for the storm to pass away to the south-east after the first recurve and being involved in the second recurve, when the rate of travel of the centre was only two miles an hour. Another interesting phenomenon was noted in connexion with two storms in February 1933. These formed within a few days of one another and both appeared on the synoptic charts for several successive days. This is regarded as a common occurrence in this region, for three similar cases were described in Miscellaneous Publication No. 14, which describes the cyclone season of 1931–32. One of the remaining cyclones provides an example of the partial break up of a storm on its encountering the high ground in Madagascar. The author of these papers concludes that cyclones do not disturb the winds of the cirrus level at Mauritius when their centres are more than two or three hundred miles away.

Heating of Electric Cables exposed to the Sun. The maximum current an electric cable can carry is fixed by the temperature rise of the cable after the current has been flowing so long that the cable has attained a constant temperature. It is usual to specify a temperature rise of 50° C. above that of the surrounding air. If the cable is exposed to direct sunlight a substantial increase of temperature will occur, and this will increase the resistance of the cable and consequently the electric power lost in it. The British Electrical Research Association has prepared a report on this subject (*J. Inst. Elec. Eng.*, Dec. 1934). The maximum solar radiation in different parts of the world is known approximately, and useful tabular information is given in this report. From this, the temperature rise of a cable of given diameter suspended on a rack can be determined for a given air velocity by means of a factor which varies with the diameter of the cable and with the velocity of the air. Practical tests were carried out at London, Milan and Buenos Aires. The maximum temperature was observed and is reached when the sky is clear in about half an hour if the cable is exposed to the sun's radiation between 12 noon and 2 p.m. summer time. Under these conditions, cables of about two inches in diameter may show a temperature rise of 17° C. This figure must be deducted from the permissible rise of 50° C. above shade temperature. This materially reduces the permissible current the cable can carry. The results obtained abroad are in good agreement with those obtained in England. In an appendix, the theory of the rise of temperature is given. The agreement of the experimental results with theory is much more satisfactory for the lead-covered cables than for the armoured cables.

An Electric Method for Measuring Young's Modulus. It is well known that a definite relationship exists between the stress and the permeability of iron, steel, nickel and cobalt wires. Joule observed in 1847 that a bar of iron changes its length when magnetised, and forty years later Shelford Bidwell carried out a large number of exact researches in this connexion. He measured the changes of length of wires when placed in a magnetic field both when the wire was loaded and when it was unloaded. Dr. T. F. Wall has developed an interesting electromagnetic method for measuring Young's modulus (*J. Inst. Elec. Eng.*, Dec. 1934; see also NATURE, 132, 351; 1933 and 133, 418; 1934). It is based on the fact that, with magnetisable materials, the magnetic permeability changes with strain. When a rod of iron, steel, nickel or certain alloys is placed axially in a solenoid excited by direct current, and the rod is caused to vibrate longitudinally with its natural frequency, the changes of mechanical stress will produce corresponding changes of the magnetic flux in the rod. Hence an electromotive force of the same frequency will be induced in a search coil which embraces the magnetised part of the rod. The frequency of this E.M.F. is measured by means of oscillograms, and from the density of the metal and this frequency the value of Young's modulus can easily be calculated. For the time wave a standard tuning fork was used having a frequency of 500, the vibrations being maintained electrically. The results obtained by experiments on iron rods, mild and hard drawn steel wires and nickel rods are given. They show that satisfactory results are easily obtained.

A Cosmic Ray Meter. A detailed description has been published of a precision recording cosmic ray meter which has been designed by Profs. A. H. Compton and E. O. Wollan, of the University of Chicago, and R. D. Bennett, of the Massachusetts Institute of Technology, for securing continuous records of the variation of cosmic rays at a number of widely separated stations (*Rev. Sci. Inst.*, Dec. 1934). In order to minimise fluctuations, the ionisation sphere has been made of 19 litres capacity, and is filled with very pure argon at 50 atmospheres pressure. It is protected from local radiations by a 17 cm. layer of uniform lead shot, which reduces their effect to about 0·5 per cent of the usual cosmic ray effect. The ionisation voltage is provided by a 650 volt dry battery, and the ionisation current is nearly compensated by that produced in a small chamber within the larger by the beta-rays from an adjustable surface of metallic uranium. The residue current is indicated by a Lindemann electrometer, the shadow of the needle of which is projected by a compound microscope on a moving strip of bromide paper.

Spectra of Giant and Dwarf Stars in the Red. Some interesting luminosity effects, which will serve as very good criteria for distinguishing giants from dwarfs in stars of spectral type *M*, have been discovered by Dr. Y. Öhman through a study of representative stars in the orange and red regions of their spectra (*Astrophys. J.*, 80, 171). The instruments used were the 60-in. reflector at Mount Wilson Observatory, with the Cassegrain spectrograph and 18-in. camera, giving a dispersion of about 180 A. per mm. at 7000 A. He found that three bands of CaH at 6389–6382 A., 6921–6903 A., and 7305–7208 A. occur conspicuously in the dwarf spectra, but are weak or absent in the giants. These bands first appear (in the dwarf spectra) at type *Mo* and become stronger in later subdivisions, whereas in the giants they are faint throughout. In addition, the spectra of the dwarfs appear smoother than those of giants, on account of the presence of much stronger TiO bands in the latter. The author also confirms Miss Burwell's results for the calcium lines 6162 A., 6122 A., and 6102 A., all of which are very strong in the dwarfs, but faint or invisible in giants.