stellar photometry, thus obviating the difficulties encountered in finding the necessary funds. Investigations on the performance of the 17–24-in. Schmidt telescope, in which Prof. H. A. Brück, director of the Dunsink Observatory, co-operated by allowing the Eicher photometer to be used for measuring test plates, have shown that with a filter removing the ultra-violet below about 4000 A. star images can be measured satisfactorily to mag. 18 photographic on a 30-min. exposure (Ilford 'Zenith' plate).

Under the heading of "Other Investigations", an account is included of the test and adjustment work on the Schmidt telescope. To acquire familiarity with the instrument, a programme of photography of discrete radio sources has been undertaken, using positions provided by the Cavendish Laboratory's radio-astronomy group, and about a hundred photographs have been obtained. Up to the present, the results have not been encouraging, and it seems possible that most of these sources cannot be profitably photographed with this telescope.

In the section on optics, reference may be made to the experimental work which has been continued on the production of mirrors relatively free from thermal distortion, which would be useful for solar work, and experiments are being made with thin glass bonded with plastic glue to a mild-steel support. The assistance of the firm of Aero Research, Ltd., is acknowledged in the preparation of these disks. An investigation into the problem of assessment of optical images has been made by Dr. E. H. Linfoot and Dr. P. B. Fellgett, and a paper on the subject will appear later (*Phil. Trans. Roy. Soc.*).

During the year, twenty-four lectures on the sun were given by Prof. Redman; sixteen on optical aberration and eight on diffraction theory of the optical image by Dr. E. H. Linfoot; twenty-four on general astrophysics by Dr. D. E. Blackwell; and fifteen on elementary electronic techniques and fifteen on spherical astronomy by Mr. G. G. Yates. The Observatory Club held twelve colloquia during the year, at which the speakers included Prof. W. M. H. Greaves, Dr. J. Houtgast, Mr. G. M. Sisson and Dr. P. A. Sweet. Fifteen papers were accepted for publication in various scientific journals during the year.

MALAYAN ANNONACEAE

J. SINCLAIR has contributed to our knowledge of an important family of tropical flowering plants in his "Revision of the Malayan Annonaceae" (*Gardens' Bull.*, **14**, 2, 149; 1955; Govt. Printing Office, Singapore; 10 dollars).

The Annonaceae are confined mostly to moist tropical lowland forests, being more plentiful in the Old World than in the New. In the present revision, there are thirty-eight genera, comprising 198 native and five cultivated exotic species, making a total of 203, together with seventeen varieties.

Points of difference between the present and earlier classifications are indicated. The main taxonomic section begins with an account of the general characters of the family, including fairly comprehensive and detailed references to the main morphological characters; here special attention is paid to the petals, which are stated to be of greater diagnostic value in this family than any other organ. "They show such a wonderful diversity in size and form that it may be said the peculiarities of the family are exhibited in its petals." They are, in fact, the main basis of classification in this group of flowering plants.

Because in the Annonaceae there are orderly progressions leading from one group to another, the constituent tribes are rather ill-defined, with overlapping characters. The author has summarized the inferences of evolutionary import as follows: "There are in the family very noticeable evolutionary trends which have a bearing on classification. Since evolution proceeds neither evenly nor at the same rate, we find genera advanced in some characters and primitive with regard to others. There is a tendency to proceed from simplicity to complexity, for example, from simple petals with no distinction between blade and claw to the complex dome-shaped petals of the Mitrephoreae with their long narrow claws and united blades; from the clumsy stamen with a great deal of connective tissue to a more precise form with a filament and greater development of the pollen sacs. There is a tendency for reduction from many seeds in two rows to a single better nourished seed and also a union of parts to give more protection. The petals become united and the stamens become fewer. The greatest advance of all is where the carpels unite to form a 1-celled ovary with parietal placentation and there is thus a division of the family into two subfamilies, the Annonoideae (apocarpous forms mostly) and the Monodoroideae with a 1-celled ovary, pariental placentation and gamopetaly (Isolona and Monodora)".

GRAFTING EXPERIMENTS BETWEEN THE TOMATO VARIETIES, GOLDEN APPLE AND OXHEART

By A. J. BATEMAN*

Cytogenetics Laboratory, Christie Hospital and Holt Radium Institute, Manchester 20

IN a recent issue of *Nature*[1], reference was made to tomato-grafting experiments by Dr. L. Felföldy of Hungary, whose results have been published in English[2]. A special feature of the work was that spectacular results had been obtained with the varieties Golden Apple and Oxheart, which are known in Britain. In repeating this experiment, a closer parallel than hitherto should have been possible between Michurinist and Western experimenters. In a letter to Dr. Felföldy, I expressed my desire to repeat his work, whereupon I received seed of his own stocks. It is this identity of experimental material which emboldens me to publish one more set of results in addition to what has already appeared[3]. The work was carried out while I was on the staff of the John Innes Horticultural Institution, Bayfordbury.

Golden Apple has medium-sized, round, bilocular, yellow-fleshed, yellow-skinned fruits on simple inflorescences. Oxheart has very large, inverted pear-shaped, multilocular, red-fleshed, white-skinned fruits on branched inflorescences.

Felföldy describes his technique as follows: "The upper parts [of the tomato plants] were interchanged".

* British Empire Cancer Campaign Research Fellow.