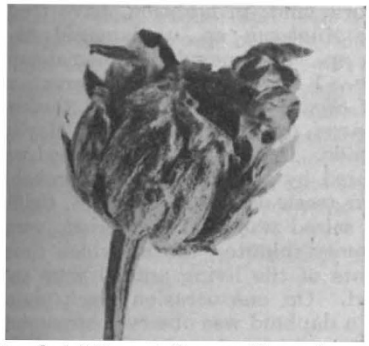

Ramularia bellunensis Speg. on *Chrysanthemum cinerariifolium*. × 2 approx.

R. bellunensis has been recorded as causing a disease of *Chrysanthemum frutescens* in Italy in 1929 [2] and in England in 1938 [3]. In Italy, leaves and unopened inflorescences of pot plants in a greenhouse were severely affected. In England, the foliage in all stages was attacked, the lesions extending inwards from leaf tip and margin. The fungus does not appear to have been recorded on *C. cinerariifolium*, although both the fungus and this host are believed to be endemic in the Mediterranean region.

The immersed stromatic bodies from which the conidiophores arise are abundantly developed on the inner surfaces of the involucral scales, fragments of which are readily distributed with the seed.

This is, perhaps, another example of an exotic fungus finding a ready victim and a more congenial environment than hitherto recorded. Its advent is regarded by the pyrethrum industry of Kenya with apprehension.

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April 21.

[1] Det. Imperial Mycological Institute.
[2] Voglino, P., L'avvizimento fogliare della Margherita bianca.—La Difesa delle Piante, VI, 3, 1 (1929) (extract R.A.M. VIII, 723).
[3] Oyler, Enid, Plant Diseases, Rep. Exp. Res. Sta. Cheshunt (1937) (extract R.A.M. XVII, 583).

Meiosis in Bougainvillea

A QUERY concerning the possibilities of crossing various horticultural varieties of Bougainvillea led me to examine meiosis in several of the more important ones available in Jamaica. Six varieties, Snow White, Formosa, Dark Purple, Ruby, Orange King and Royal Purple, were used. The first three have been assigned to the species *Bougainvillea glabra*, the next two to *B. spectabilis*, and the last is reputed to be a cross between unknown *glabra* and *spectabilis* types. In all six varieties, the chromosome number was found to be $2n = 34$. None of the available chromosome number lists gives any number for *B. spectabilis*, but Darlington and Ammal[1] list *B. glabra* as $2n = 20$. Since a counting error of 14 chromosomes is unlikely, it seems probable that the horticultural glabrous types are not directly derived from the true *B. glabra* but are species hybrids resulting from doubling in an $(x = 10) \times (x = 7)$ type. There is, however, little direct evidence for this assumption.

Cytologically, four of the varieties studied behave as regular diploids with 17^{II} at first metaphase and subsequent normal segregation (see table). All four are also fertile but apparently not completely so, as the seed set under natural conditions is not high. The remaining two types, Ruby and Orange King (the latter of which is reputedly a bud sport of the former), are meiotically irregular with most first metaphase plates showing from four to six univalents. These univalents follow the bivalents to the plate and then split. Of the resulting chromatids, about a third fail to be included in the daughter nuclei, but ultimately give rise to micro-nuclei in the tetrads. Chromatids included in the first telophase nuclei split again at second anaphase, but complete separation often fails and thus gives rise to second anaphase chromatin bridges. Both Ruby and Orange King appear to be completely sterile.

It is therefore tentatively assumed that the horticultural varieties of Bougainvillea are amphidiploids, and that a species (*B. spectabilis* ?) with a basic number of $x = 7$ should exist. In view of the horticultural importance of this genus, further investigation is indicated.

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[1] Darlington, C. D., and Ammal, E. K. Janaki (Allen and Unwin, London, 1945).

MEIOSIS IN BOUGAINVILLEA

Species	Variety	X	$2n$	Fertility	Meiosis type	Remarks
B. glabra	Formosa	17	34	Fertile	Regular 17^{II} with normal segregation at divs. I and II	
	Snow White	17	34	,,	,, ,, ,,	
	Dark Purple	17	34	,,	,, ,, ,,	
B. spectabilis	Ruby	17	34	Sterile	Irregular with 4–6[I] at M^I	Univalents split at first anaphase. About ½ excluded from nuclei
	Orange King	17	34	,,	,, ,, ,,	,, ,, ,, ,,
	Royal Purple	17	34	Fertile	Regular with 17^{II} at M^I	

A Rapid Nigrosine Method for Chromosome Counts Applicable to Growing Plant Tissues

FOR a plant-breeder dealing with plants which can be cross-fertilized who desires to work up polyploid material on a large scale, annual control of the purity of the polyploid stocks as regards chromosome number is necessary. A breeder of fruit and forest trees should also have at his command methods by which the chromosome numbers in new artificial or spontaneous crosses can be simply separated.

A grading of the polyploid chromosome number groups only requires an estimation of the number of chromosomes in the genome (for example, in *Beta*, 36 ± 2–4). Further, chromosome counting should be possible at any time in the whole vital cycle of the plants (including pollen mother-cells) and by the same simple method. In the method described below the treatment is essentially the same for roots as for leaves and flower-buds. Any deviations between them are noted in their proper connexion.

Fixing. Fix in 1 part of concentrated (98 per cent) acetic acid + 2 parts of 95 per cent alcohol for about 24 hours. Roots should be fixed in a cooled fluid.