

The Poisoning of Birds by *Cassia bicapsularis*.

The Queensland Agricultural Journal Vol. XII, December, 1919 contains an account of the poisoning of birds by two species of the genus *Cassia* (*Leguminosae*). One of them *Cassia bicapsularis*, Linn., a native of tropical America is not unfrequently introduced into cultivation on account of its rather large masses of bright yellow flowers. Specimens of this plant in the Singapore Gardens' Herbarium were collected on the Race Course Road, Penang, and it is quite possible this species is growing in cultivation or as an escape in other localities.

Mr. White concludes his account with the remarks that "In the cases here quoted, there seems no doubt that the species of *Cassia* referred to could definitely be blamed as the cause of the deaths of the birds in each; and it would further seem that the fairly numerous charges of stock poisoning made against various species of *Cassia* in Queensland may be more correct than previously imagined. This, however, is a matter that can only be ascertained by future investigations."

T. F. C.

A New Source of Plant Food.

Under the above somewhat misleading title an article in the "Journal of Heredity" Vol. X, No. 7 draws attention to plants which gather nitrogen and store it after the well known manner of the bacterial nodules of the *Leguminosae* plants. In the present case however the plants are members of the *Rubiaceae* and store the nitrogen in small nodules in the leaves instead of on the roots. The leaf nodules contain colonies of a non-motile, nitrogen bacterium, known as *Myco-bacterium rubiacearum*. The two plants quoted *Psychotria bacteriophila* and *Pavetta Zimmermanniana* are not recorded from Malaya but it is stated that probably other Rubiaceous plants have the same habits. The article continues, "These bacteria almost invariably inhabit the micropyle of the young seed, and, when the latter germinates, grow through certain stomata of the young leaves and into the intra-cellular spaces formed in the leaf-tissues around these stomata. Cavities are formed through the growth of the epidermal cells which later close entirely and make bacterial nodules which are deeply imbedded in the leaf tissues. A single leaf may have several dozen of these symbiotic bacterial nodules. Faber was able, by treating the seeds with hot water and a sublimate solution to kill the inhabiting myco-bacteria, and later, to infect part of the seedlings grown from these seeds with pure cultures of the bacterium. The artificially infected seedlings grown in soil free from combined nitrogen grew well and remained healthy for four months whereas those not so infected turned yellowish-white and died in three or four weeks. The plants from unsterilized seeds produced leaves bearing many more bacterial nodules than did those from sterilized seeds which were later artificially inoculated.