

are their nuclei, but they are very rich in protoplasm (Fig. 2). Only rarely an antipodal is found to be vacuolated.

The details of the embryology of this and some other plants of the same family shall be published elsewhere.

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September 4, 1937.

¹ Schnarf, K., *Vergleichende Embryology der Angiospermen*, Berlin, 1931.

² Junell, S., "*Symb. Bot. Upsalienses*, 1934, 1, No. 4.

The Occurrence of *Cystopus ipomoeae-panduratae* (Schw.) Swingle on *Ipomoea pestigridis* Linn.

Cystopus ipomoeae-panduratae is reported on various species of *Ipomoea*, viz., *I. eriocarpa*, *I. reniformis*, *I. hederacea*, *I. Batatas*, etc., in India and elsewhere also. So far as the writer is aware its occurrence on *Ipomoea pestigridis* is not reported from India.

The infected leaves of *Ipomoea pestigridis* were first collected at Utratia, District

Lucknow, in September 1936. The disease manifests itself as white spots on the leaf (Fig. 1) which brings about distorted deformity of the leaf resulting prematurely in death. In older spots, the tissue crumbles down and holes are formed. The diseased plants with large ellipsoidal spots of dull white colour were also collected in Badashahbagh in October 1936, where the infection was visible on the petiole and stem also.

In spite of best efforts, only conidial stages were found, which are generally laid down in a thick sorus under the epidermis of the host and the conidial spores are liberated by its rupture. The spores are broad, ellipsoidal, smooth and are 16 to 21 μ long and 12 to 16 μ broad. The identification of the parasite was confirmed by the Imperial Mycologist, Delhi, to whom my thanks are due.

This species of *Ipomoea*, a diffuse, twining, pubescent herb, is very common in the United Provinces during the rainy season almost in all fields.

An effort to germinate the spores in culture was unsuccessful.

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Petalody in Cotton.

RAMANATHA AYYAR AND SANKARAN¹ have described the appearance and genetic behaviour of a petaloid mutant from Karunganni cotton. They record complete dominance of normal in F_1 and segregation into 3 normal : 1 petaloid in F_2 .

Seed of heterozygotes was kindly supplied to us by Mr. Ramanatha Ayyar, and grown at Indore. It was observed that the fertile plants in segregating families were of two kinds, those bearing normal flowers with never more than one or two petaloid stamens and those bearing flowers showing slight petalody in a quarter to half the stamens. Karunganni strains are so late in fruiting at Indore that very little seed was obtained. Nine F_2 plants with normal flowers (only an occasional stamen petaloid) gave 24 normal plants in F_3 . Five F_3 plants with a quarter to half their stamens slightly petaloid gave 3 normal : 6 intermediate : 4 petaloid plants in F_3 . Dominance of normal is therefore



Fig. 1.

Leaf of *Ipomoea pestigridis* Linn., showing infection as white pustules. \times natural size.

incomplete, and heterozygotes can be distinguished with considerable accuracy.

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July 22, 1937.

¹ Ramanatha Ayyar, V., and Sankaran, R., *Ind. Jour. Agric. Sci.*, 1934, **6**, 938.

SUBSEQUENT examination of this character on a larger number of crosses has led us also to similar conclusions. Mention has been made of this feature in my report of the Cotton Breeding Station for 1936-37 (in press). A fuller article on this subject is under preparation.

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On the 'Fish-Gazer', *Ichthyoscopus inermis* (Cuv. and Val.) Swainson¹
from the Madras Coast.

RECENTLY a fine specimen of *Ichthyoscopus inermis*, a close relative of the 'Star-gazers', was obtained from the neighbourhood of the Madras Harbour. As the fish is not quite common, opportunity was taken to have the inside examined, and it was found to exhibit several interesting features.

The fish is very tenacious of life and was alive two hours subsequent to being taken out of water. It measures 40 cm. in length from the snout to the tip of the tail and 33 cm. in girth at the base of the pelvic fin. It is beautifully coloured, the characteristic canary-yellow shades and the buffy-brown pattern being very well marked. The canary-yellow, however, has disappeared almost completely after preservation.

The highly muscular, sac-like stomach contained two recently swallowed specimens of *Sillago sihama*, measuring 10.2 cm. and 10 cm. respectively in length, besides partly digested remnants of smaller Teleosteans, egg capsules of Gastropods and some mud. The gastric epithelium exhibits folds all round, unlike the case in an allied form, viz., *Uranoscopus cirrhosus*, reported from New Zealand, where the inferior wall is

devoid of folds.² The pylorus is rather anterior with nine stout digitiform pyloric cæca. Possibly their number is variable in the species; for, Cuvier and Valenciennes mention only eight in a specimen from the Coromandal Coast.² Gunther also mentions only eight for the species.³ The cæca are arranged seven in a semicircle, around the dorsal aspect of the duodenum and the remaining two in a short parallel line beside the posterior limb of the semicircle, towards the mesial side. They are sub-equal, their average length being 2.9 cm. The diameter of each cæcum approximates to that of the duodenum. The liver is horse-shoe shaped with the median part resting saddle-like on the œsophagus and the two limbs directed backwards over the sides of the stomach. The enormous gall bladder, filled with pale transparent bile recalls Aristotle's statement that *Uranoscopus* (called by him as *Callionymus*), has a gall bladder larger in proportion than that of any other fish. It is of interest to note that ancient physicians have ascribed to this bile the properties of healing wounds, consuming superfluous growths in the eyes and thus curing defective vision.

The ovaries are remarkable. They are of the cystovarian type and are placed in the hind region of the visceral cavity, where they form two closed oval sacs, uniting behind to be continued as a very short common oviduct which opens close behind the anus. They are slung to the dorsal wall of the body cavity by a tough mesovarium. The thick muscular wall of the ovary measures 1.4 mm. on an average in thickness and is composed of clearly defined circular and longitudinal bundles. The outermost layer is a tough fibrous one, made of intercrossing bundles forming a close feltwork which is closely invested by a thin sheet of connective tissue. Internal to this feltwork is a layer composed of slender longitudinal bundles intermixed with oblique and circular fibres. Next comes a thick layer consisting of well-developed fascicles disposed in a circular direction. Oblique and radiating prolongations of this layer into the stroma within, serve as axial supports for the ova-bearing folds. Such a remarkably thick, complex ovarian wall is rare among Teleosts. Usually it appears only as a comparatively thin sheet covering the ova. The ovary was seen to exhibit vigorous movements of contraction, which persisted for some time even after