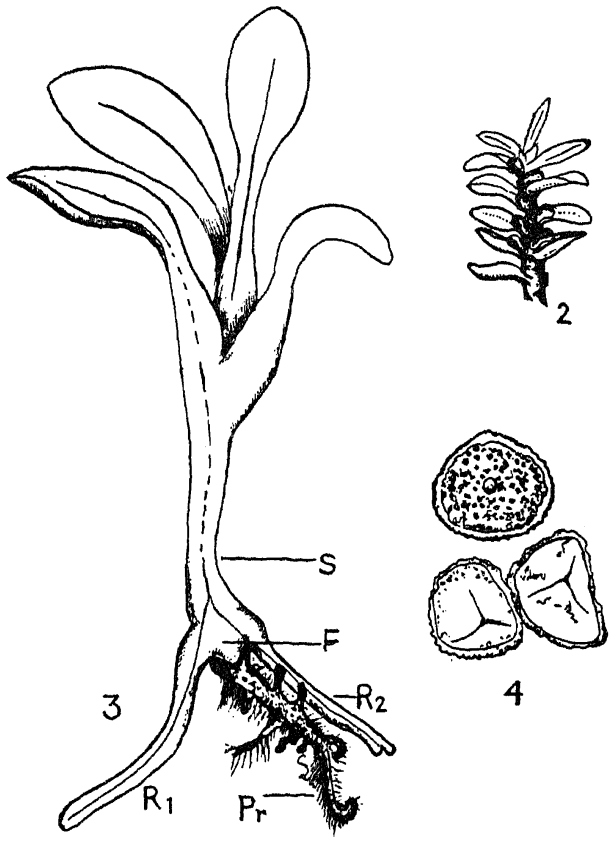
small number of specimens with me. I hope to give a detailed account if and when some more specimens become available.



FIGS. 2-4. *L. Hamiltonii* Spring. Fig. 2. Apex of a shoot showing axillary sporangia of the *Selago* type × N. S. FIG. 3. The prothallus with a young sporophyte attached to it × 8. S. – Primary shoot; F-foot; R_1 – first root; R_2 – second root on the germ plant; Pr – prothallus. Note the paraphyses and rhizoids growing in great profusion on the prothallus. Fig. 4. Spores × 220.

The prothallus shown in Fig. 3 is typical of the specimens with me and is probably typical for the species. It consists of a long drawn out, stout central conical portion with several lateral branches ramifying in the humus in which it was found growing. Empty antheridia are noticeable on the lateral branches and archegonia on the central stout conical portion only. Numerous rhizoids and paraphyses are seen all over the prothallus except near the terminal part where the embryo is seen attached to the prothallus. There is no "*Primary Tubercle*" in this species as in *L. cernuum* or *L. ramulosum* (see Mahabalé,[6] 1937). The foot is highly conspicuous and transperent. The lateral antheridia-bearing branches are pale yellow in colour but the central conical part and the lowermost part of the prothallus are dark brown. It is quite evident from this that the structure of the prothallus in this species agrees in general with the structure of the prothallus in other epiphytic species such as *L. Phlegmaria* described by Trueb[7] (1886), in *L. Billardeiri* described by Edgerley[8] (1915) and Holloway[9] (1920), and in *L. lucidulum* described by Spessard[10] (1920).

Further work on the germination of spores and on the other aspects of the plant is in progress.

Department of Botany, Royal Institute of Science, Mayo Road, Bombay-1, *March* 12, 1948.

T. S. MAHABALE.

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A NEW BACTERIAL DISEASE OF *MANGIFERA INDICA* L.

A bacterial disease of mango, observed on the Agricultural College Farm, Poona, and in the mango gardens at Dharwar in 1947, seems to be similar to that described from South Africa by Doidge.[1] Yet, the pathogen differs in several characters, to justify assigning it a specific rank.

On leaves, the pathogen produces a number of small, angular, water-soaked areas of varying dimensions ranging from 1 to 4 mm. in diameter. These, initially, light yellow, later turn deep brown with a clear halo around the necrotic spots The surface of such spots is often rough and raised due to drying of heavy bacterial exudation. The marginal infection of the leaves results in deformities and cracking. In most cases the spots crowd towards the tip of the leaves. The pathogen is able to infect the petioles, fruits and tender stems.

Pseudomonas mangiferae-indicae sp. nov.

Short rods, single or in chains of 2 to 4, 1·44-0·45 μ × 0·54-0·36 μ, motile, no endospore, non-capsulated, gram-negative.

On the potato dextrose agar, the colonies are circular, smooth, glistening, pulvinate, with entire margin, measuring 1 to 1·5 cm. in diameter after 7 days' growth; white to creamy white; no distinctive odour; gelatin liquefied; casein digested; starch attacked; hydrogen sulphide produced; litmus reduced; acid but no gas in dextrose, sucrose, lactose and mannitol; M. R. and V. P. test negative; no growth in Cohn's, but fair growth in Uschinsky's solution; no production of nitrite

indol and ammonia; optimum temperature for growth 27° C.; thermal death-point about 55° C.

Pathogenic on *Mangifera indica*, L. and *Anacardium occidentale*, L.

A detailed account of the disease is forthcoming.

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College of Agriculture, M. K. PATEL.
Poona, L. MONIZ.
April 27, 1948. Y. S. KULKARNI.

1. Doidge, E. M., *Ann. Appl. Biol.*, 1915, 2, 1.

A PRELIMINARY NOTE ON THE EYE OF *CENTROPAGES FURCATUS* DANA

WHILE the lateral eyes of Entomostraca like Copepoda are of interest because of their specialisation in the higher Crustacea and other Arthropods, the structure of the median-eyes on the other hand, excites interest because of its resemblance to that of the Nauplius. The rotatability of the median-eye has been recorded by Baird in *Diaptomous* castor and by Gerstæcker in *Dias* (Sub-order Calonoidea.) The enclosure of the eye in a special compartment of the body-cavity has been described in *Pontella helgolandica* by Gerstæcker (Pl. 7, Fig. 14). The composite nature of the median-eye is evident from the studies of *Corycœus, Sapphirina* (Dana), *Pontella, Dias* and *Temora* (Gerstæcker) belonging to the families *Corycœidæ* and *Pontellidæ* and *Calanidæ* by Dana and Gerstæcker. *Centropages furcatus* Dana, a Copepod belonging to the sub-order *Calanoidea*, occurring in the Madras Plankton has an eye capable of rotatory movements lodged in a compartment of the body-cavity and is composed of different units.

The eye is visible as a dark-red spot from the dorsal side and it consists of a bag-like structure with a pigmented quadrangular upper portion and a lower portion with a globular refractive-body lodged in it (Fig. 1, *rb.*) The diameter of the refractive-body is 0·16 mm. and it appears to be constant. Six retinula-cells can be made out in the pigmented-portion (Fig. *rc.*) each of which has a prominent nucleus towards its proximal margin. The cells are all coalescent, with a rhabdom (Fig. 1, *rh.*) in between the adjacent cell-walls towards the dorsal portion. The hypodermis (Fig. 1, *hy.*) appears as two-small thickenings below the cuticular-lens which covers the entire dorsal part of the eye. (Fig. 1, *cl.*)

The rotatability of the eye is due to three muscle-strands, two of which arise from the bases of the first antennæ and are thin (Figs. 1 & 2, *am.*) while the stouter third muscle arises from the posterior region of the cephalothorax (Figs. 1 & 2, *pm.*) and is attached to the middle of the pigmented portion (Fig. 2, *pm.*). These muscles rotate the eye to the right and to the left and dorsalwards. Diap-

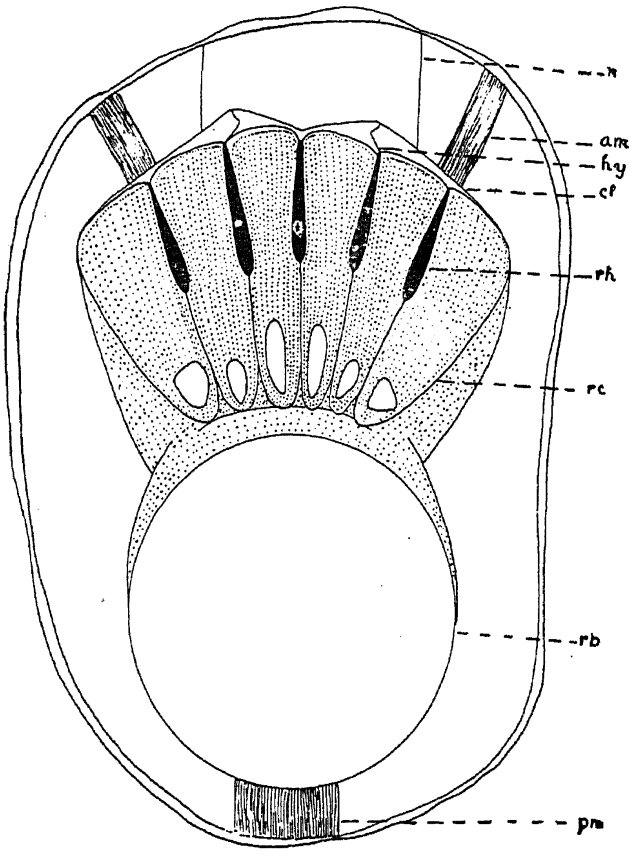

FIG. 1. Latero ventral view.

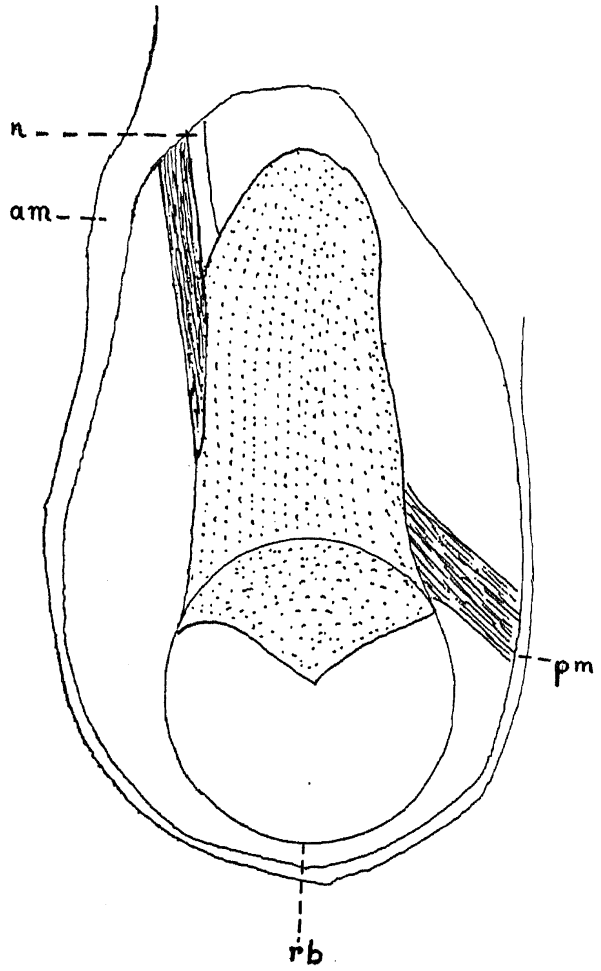

FIG. 2. Lateral view.

am — anterier muscle; *pm* — posterior muscle; *hy* — hypoder mis; *cl* — corneal lens; *n* — nerve
rh — rhabdom; *rc* — retinula cell; *rb* — refractive body