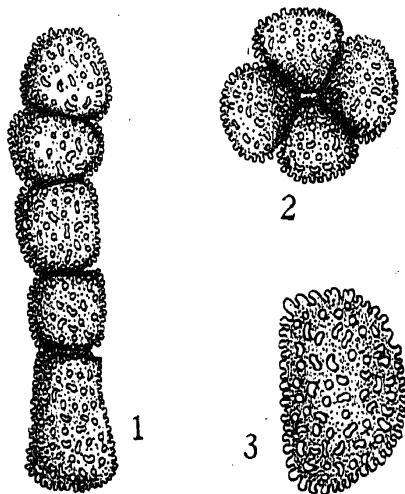


ON SOME PECULIAR SPORES IN
DUMORTIERA HIRSUTA
REINW. BL. et NEES

WHILE examining the teased material of a sporogonium of *Dumortiera hirsuta* from Kodai-kanal on the Pulneys, the author found among the normal spore-tetrads a group of five spores attached end to end in a row (Text-Figs. 1 and 4). These spores were quite mature and had a thick brown wall with the characteristic sculpturing of the normal spore. Of the five spores, one was very large—about twice the size of the remaining ones. This large spore when focussed to its centre, showed a very faint transverse line, as if the protoplast



Text-Fig. 1. Abnormal "spores," $\times 560$.

Text-Fig. 2. Normal spore-tetrad, $\times 560$.

Text Fig 3 A single ripe spore, $\times 680$.



Text-Fig. 4. Photomicrograph showing the abnormal "spores" and normal spore-tetrads and elaters, $\times 320$.

had just begun to divide but the further progress of its division was arrested due to some cause.

The exact significance of this row of five spores is not clear. At first sight, it looked as though the spore-mother-cell had formed a linear tetrad instead of the usual tetrad. But the presence of the fifth cell makes this explanation untenable. The course of development of the spores in *Dumortiera* is as follows. After the sporogenous tissue is differentiated in the sporogonium, the sporogenous cells become very much elongated. Of these some divide by transverse walls into a row of cells which by further enlargement become the spore-mother-cells, while the remaining cells do not divide, but develop into elaters. These spore-mother-cells ultimately separate from one another and form the tetrads of spores. The row of five spores referred to above would appear to represent a row of spore-mother-cells formed by one of the original elongated sporogenous cells. These five spore-mother-cells, unlike the normal spore-mother-cells, have failed to enlarge and divide into tetrads of spores, but have remained still attached to one another in a row. Further development of these five spore-mother-cells was evidently arrested owing to some cause. These spore-mother-cells have, therefore, not advanced very much from their early condition and so remained undivided and became transformed into spore-like structures.

The question whether these five cells in a row are really spore-mother-cells or not can be decided definitely only by a cytological examination of the plants developed from these spores. The plants formed from them would be diploid. Unfortunately no more spores of this kind could be found for deciding this point, though a large number of sporogonia from living material was examined.

No record of such rows of "spores" appears to have been made before in *Dumortiera hirsuta*, or in any of the other members of the Marchantiales. It may be mentioned, however, that Hofmeister (1862, Pl: VI, Fig. 23) has recorded in *Blasia pusilla* a case of two spore-mother-cells being held together. But each of these two spore-mother-cells, unlike in the present case, had already divided and formed a tetrad of spores.

It is my pleasant duty to record here my thanks to Prof. M. O. P. Iyengar for his kind suggestions and criticisms.

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1. Campbell, D. H., *The Structure and Development of Mosses and Ferns (Archegoniata)*, 1905. 2. —, "Studies on some East Indian Hepaticæ, *Ann. Bot.*, 1918, **32**, 319-338. 3 Hofmeister W., *On the Germination, Development and Fructification of the Higher Cryptogamia and on the Fructification of Coniferae*, Roy. Society, London, 1862. 4. (O'Hanlon) Sister M. Ellen, "Comparative Morphology of *Dumortiera hirsuta*", *Bot. Gaz.*, 1934-35, **96**, 154-64.