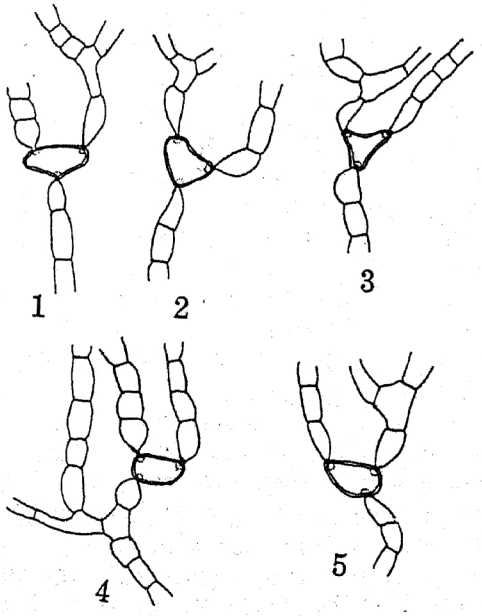
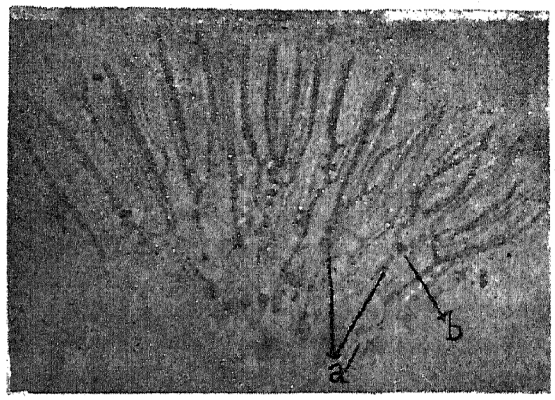
OCCURRENCE OF THREE-PORED HETEROCYSTS IN *BRACHYTRICHIA BALANI* (LLOYD.) BORN. & FLAH.

IN the genus *Brachytrichia* heterocysts are usually intercalary. An ordinary intercalary cell in the trichome gets converted into a heterocyst. Such an intercalary heterocyst develops two pores, one on either side of it, *i.e.*, where the former cell which got converted into a heterocyst was connected with its two adjacent cells of the trichome.



FIGS. 1-5. Filaments of *Brachytrichia Balan* showing three-pored heterocysts (× 640).

In some material of *Brachytrichia Balani* collected from Pamban, sometimes a cell in the main trichome which forms a branch (*branch-bearing cell*) becomes converted into a heterocyst. Since this cell is connected with three adjacent cells, *viz.*, the two adjacent cells in the main trichome and the lowermost cell of the lateral branch, the heterocyst formed by this cell shows three pores one on each side on which it is connected with the three adjacent cells (Figs. 1-5 and Fig. 6). The occurrence of such three-pored heterocysts is very unique and interesting. One-pored and two-pored heterocysts are known among the Blue-green algæ.[1,4] But a three-pored heterocyst does not appear to have been recorded among any of the Blue-green algæ. Several cases of three-pored heterocysts were found in the writers' material. These do not otherwise differ from the normal heterocyst of the alga, and have the same structure and appearance.



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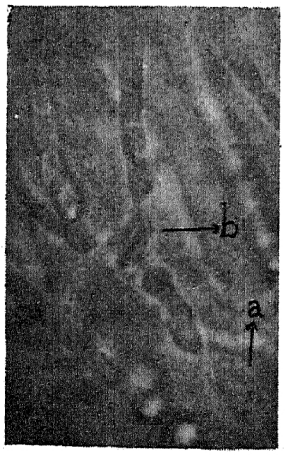

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FIG. 6. Photomicrograph of a part of a thallus showing two-pored (*a*) and three-pored (*b*) heterocysts (×220).

FIGS. 7, 8. Photomicrographs of two-pored (*a*) and three-pored (*b*) heterocysts (× 865).

They have a two-layered wall, the outer being thick and the inner quite thin. The nature of

the contents was normal and did not show any peculiarity. It may be stated here that in view of the fact that any normal vegetative cell can get converted into a heterocyst, there is nothing to prevent a branch-bearing cell of a trichome from developing into a heterocyst and forming three pores one on each of the three sides on which it is connected with its adjacent cells.

In this connection it would be interesting to note that in *Loriella osteophila* Borzi some of the heterocysts are formed at the point of forking (Ref. 2, Pl. VI, Figs. 1-5). This heterocyst would appear from the figures to be in contact with adjacent cells on three sides. But the heterocysts are shown as having only two pores. A re-examination of such heterocysts of the alga from this point is indicated. This alga has so far been recorded only from Papua.[3,5]

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May 13, 1953.

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1. Bharadwaja, Y., "Some aspects of the Myxophyceæ—Presidential Address to the Section of Botany," *Proc. Ind. Sci. Congr.*, Madras, 1940, Pt. II, 163-214. 2. Borzi, A., "Studi sulle Mixoficee–II: Stigonemaceae, *Nuov. Giorn. Bot. Ital.*, 1916, N. S. **23**, 559-88. 3. Fritsch, F. E., *Structure and Reproduction of Algae*–II: Cambridge, 1945, p. 848. 4. —, "Heterocyst, a botanical enigma—Presidential Address to the Linnean Society," *Proc. Linn. Soc.*, London, 1950, **162** (2), 194-211. 5. Geitler, L., *Cyanophyceae*, in Rabenhorst's *Kryptogamenflora*, Leipzig, 1932, **14**.