

**PARAPHELARIA, A NEW GENUS OF AURICULARIACEAE  
(BASIDIOMYCETES)**

E. J. H. CORNER  
*Botany School, University of Cambridge*

Recent collections from the Solomon Islands show that *Aphelaria amboinensis* (Lév.) Corner is an auriculariaceous fungus of coriaceous consistency, devoid of hymenium, but with the basidia immersed longitudinally in the superficial tissue. Re-named *Paraphelaria ambonensis* (Lév.) nov. gen., comb. nov., it is a parallel both to *Aphelaria* and to *Tremellodendron*.

*Aphelaria* is the most undistinguished of branched clavarioid genera. It lacks clear pigmentation; its spores have no ornamentation and seem very variable in shape and size even within specific limits; its simple hyphae do not inflate and, generally, are devoid of clamps. Yet, it turns out to be, perhaps, the most critical. It leads to *Tremellodendron* through *Tremellodendropsis*, the basidia of which are more or less intermediate between the homobasidium and the *Tremella*-basidium (Corner, 1966). Now I add an *Auricularia*-basidium for which the new genus *Paraphelaria* is created. In effect, Homobasidiomycetes, Tremellaceae, and Auriculariaceae converge in this clavarioid form, where they are distinguishable only by the basidium. These three main groups are, of course, represented also by resupinate, stereoid, hydroid, and even polyporoid forms, most of which in the Heterobasidiomycetes have gelatinous fruit-bodies, and by this means the beginner soon learns to distinguish *Calocera* (Dacryomycetaceae) from *Clavaria*. He becomes so impressed with the gelatinous nature of heterobasidiomycetes that he forgets the correspondence in growth-form with the homobasidiomycetes which, in the case of the clavarioid is the central from which the rest are derived, either by elaboration or by degeneration (Corner, 1964: 234). The fruit-bodies of *Aphelaria*, *Paraphelaria*, *Tremellodendropsis*, and *Tremellodendron* have, however, dry thick-walled hyphae and, consequently, a coriaceous texture which removes, thereby, this barrier to comparison. It is impossible to distinguish them except by minute microscopy; they inherit the branched seaweed-form and are not convergent in this respect, but divergent in sporangial mechanism (Church, 1919: 58). *Tremellodendropsis* shows, perhaps, how the *Tremella*-basidium has been derived from the unseptate basidium of *Aphelaria*. It is possible that an intermediate with *Paraphelaria* exists for, as this genus shows, the mycological resources of the world are far from being exploited.

*Aphelaria amboinensis* has been a puzzle; the scant herbarium-material seems sterile. In 1965, during the expedition sent by the Royal Society of London to the Solomon Islands, I met repeatedly among the surface roots which build a tussock at the base of the short trunks of the palm *Areca macrocalyx* a large *Aphelaria*. The palm forms a conspicuous undergrowth in the broader, wetter, lowland valleys of the forest; possibly every one becomes infected by the fungus which fruits copiously in the appropriate season when heavy rains follow a dry spell. Yet, I was unable with a hand-lens to detect any hymenium, regardless of the size or age of the fruit-body. I thought that the fungus must be *A. amboinensis* and, aggravated by this apparent frustration, I collected in formalin-alcohol much material of all ages from several localities, as well as dried material. Examination of this has now shown me that the fungus lacks, indeed, a hymenium, but that it produces in the outer layer, *c.* 100  $\mu$  thick, of its branches longitudinal, transversely septate basidia the sterigmata of which reach the surface by growing between the *Aphelaria*-hyphae and vary, accordingly, very much in length; there is no mucilaginous covering to the surface. This is the only clavarioid fungus known to me, without a hymenium of basidia perpendicular to the surface. The young basidia are, clearly, the gloeocystidial branches which I described from the herbarium-material when I transferred the species to *Aphelaria*. Unfortunately, I have been unable to find any any germinated spores.

### **Paraphelaria** Corner, *gen. nov.*

Receptacula clavarioidea erecta flabellato-ramosa, multifida v. dichotoma, floccoso-fibrillosa coriacea, haud gelatinosa, hymenio vix evoluto. Sporae albae aseptatae leves. Basidia auriculiformia, subclavata v. subcylindrica, plerumque recta, sine probasidio, in cellulis 4 transverse septata, longitudinalia, superficialia v. in textu superficiali immersa. Cystidia nulla. Hyphae monomiticae afibulatae, haud inflatae, plus minus crasse tunicatae, hyalinae. — Typus: *Thelephora amboinensis* Lév.

### **Paraphelaria amboinensis** (Lév.) Corner, *comb. nov.*

*Thelephora amboinensis* Lév., *T. funalis* Lév., *T. scoparia* Lév., in *Annls Sci. nat. (Bot.)*, ser. III, 2: 207, 208. 1844. — *Lachnocladium funale* (Lév.) Sacc., *L. scoparium* (Lév.) Sacc., *Syll. Fung.* 6: 739. 1888. — *Aphelaria amboinensis* (Lév.) Corner in *Ann. Bot.*, ser. II, 17: 348. 1953.

Erect, -15 cm. high, sparingly to much branched, white, then drab or isabelline, finally pale fuliginous from the base upwards (attacked by a pyrenomycete); trunk 1-6 cm  $\times$  2-15 mm, becoming strigoso-villous and set with acicular abortive branches; main branches in massive fruit-bodies becoming strigoso-villous; branches

### EXPLANATION OF FIGURE I

Fig. 1. *Paraphelaria amboinensis*, a large fruit-body (RSS 706B), a young fruit-body (left, RSS 712), and a depauperate fruit-body (right, RSS 708);  $\times$  1.5.

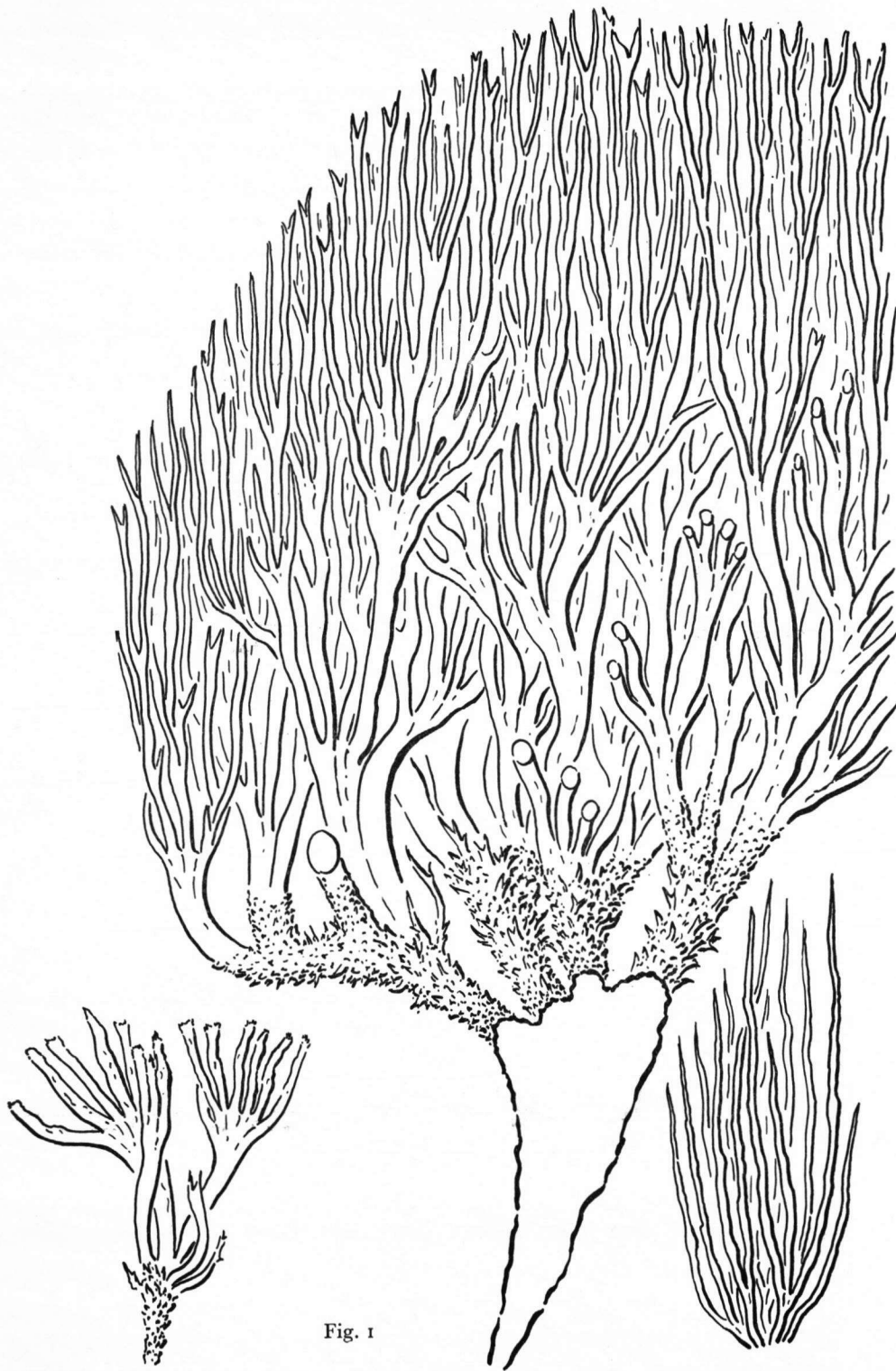


Fig. 1

multifid-flabellate below with the axils 2–8 mm wide, narrower and dichotomous above, 1–2.5 mm wide, uneven, rugulose, often twisted and confluent, the tips obtuse then elongate and subulate, finely penicillate, without evident hymenium, but fertile on all sides: smell none.

On the ground in lowland forest; Java, Amboina, Aru Islands, Solomon Islands (generally among the short aerial roots of *Areca macrocalyx*).

Spores  $19\text{--}25 \times 5.5\text{--}7.5 \mu$ , ellipsoid-subcylindric or subarcuate, obtuse, thin-walled, not amyloid, shortly apiculate, with finely guttulate contents. Basidia  $90\text{--}125 \times 6\text{--}9 \mu$ , the cells  $20\text{--}30 \mu$  long, densely guttulate-oleaginous; sterigmatic processes  $10\text{--}100 \times 3\text{--}3.5 \mu$ , dilating distally  $4\text{--}5 \mu$  wide, short on the superficial basidia, longer on the immersed, the acicular tip  $2\text{--}4 \mu$  long. Hyphae  $3\text{--}8 \mu$  wide, the walls thickening  $\sim 0.5 \mu$ , becoming  $1\text{--}2.5 \mu$  thick in the old tissue, drying pale brownish ochraceous but hyaline in the living state, longitudinal, entwined, the cells  $25\text{--}160 \mu$  long, sometimes with intercalary or subterminal vesicular swellings  $9\text{--}15 \mu$  wide, the branches constricted on origin, contents hyaline; growing hyphal tips  $2\text{--}3.5 \mu$  wide, multiguttulate, soon vacuolate, loose and spreading at the ends of the branches of the fruit-body.

Solomon Islands collections from the Warahito River, San Cristobal: RSS 706 (19 July 1965), 706A (1 Aug. 1965), 706B (2 Aug. 1965), 708 (20 July 1965, on bare earth, branched only near the base with simple subulate branches  $\sim 6$  cm long), 712 (20 July 1965), 766 (24 July 1965).

The pyrenomycete, which develops among the superficial hyphae of the trunk and old branches, was immature in my specimens. My notes are: perithecia  $50\text{--}70 \mu$  wide, black, subglobose, not rostrate, glabrous except for a fringe of short, unicellular, subclavate hairs with fuliginous walls,  $\sim 15 \times 3\text{--}4.5 \mu$ , around the ostiole; mycelial hyphae  $1\text{--}2.5 \mu$  wide, short-celled, with brown walls.

#### REFERENCES

- CHURCH, A. H. (1919). Thalassiophyta and the subaerial transmigration. In Oxford botanical memoirs 3. Clarendon Press, Oxford.  
CORNER, E. J. H. (1964). The life of plants. Weidenfeld & Nicolson, London.  
CORNER, E. J. H. (1966). The clavarioid complex of *Aphelaria* and *Tremellodendropsis*. In Trans. Br. mycol. Soc. 49: 205–211.

#### EXPLANATION OF FIGURES 2, 3

Fig. 2. *Paraphelaria amboinensis*, part of the fertile surface of a branch in longitudinal section,  $\times 700$ .

Fig. 3. *Paraphelaria amboinensis*, young and old basidia, hyphae, and (right) a young basidium before septation and the apex of a growing hypha from a branch-tip,  $\times 700$ ; mature spores, spores developing on sterigmata, and a hyphal branch,  $\times 1400$ .

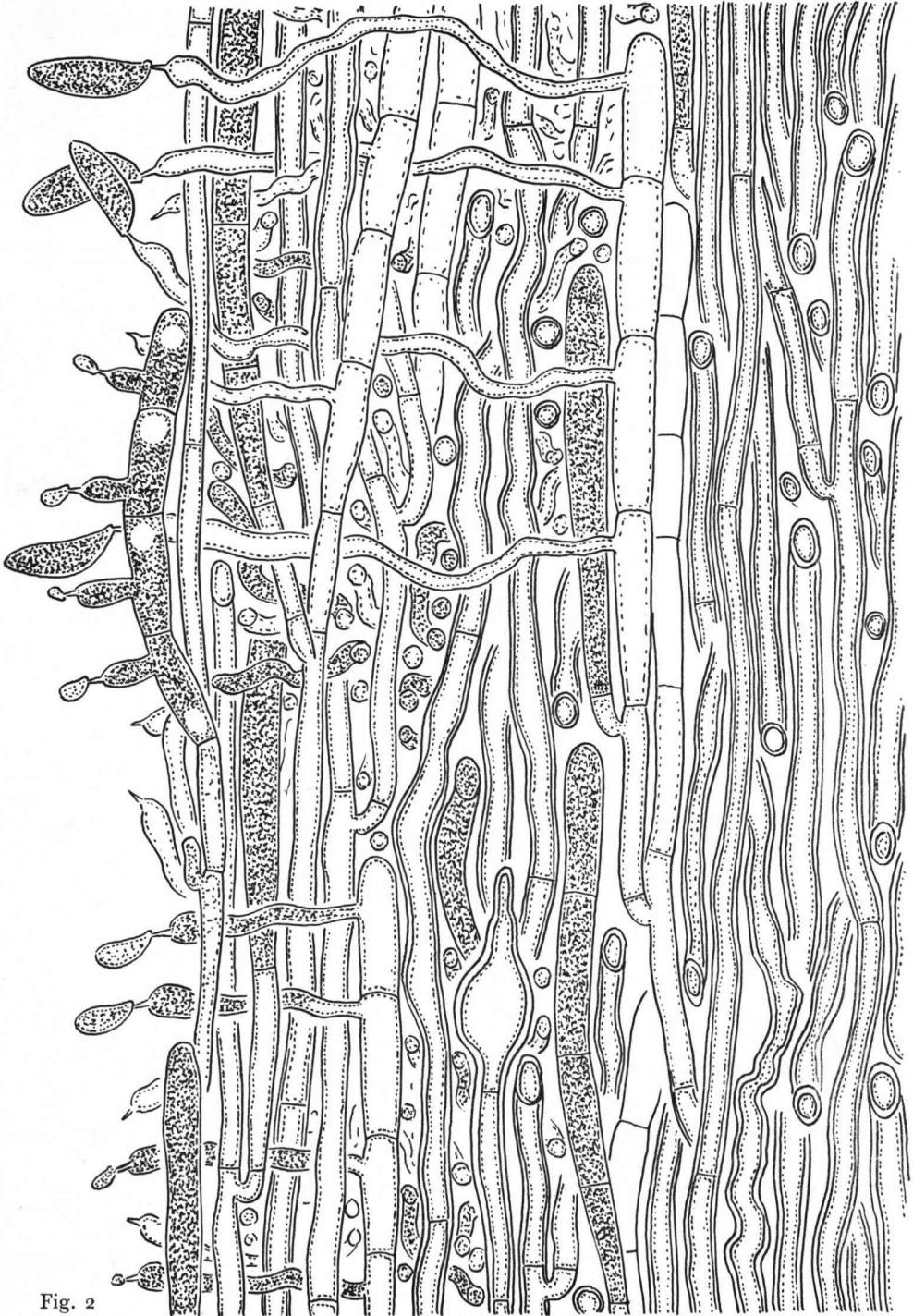


Fig. 2

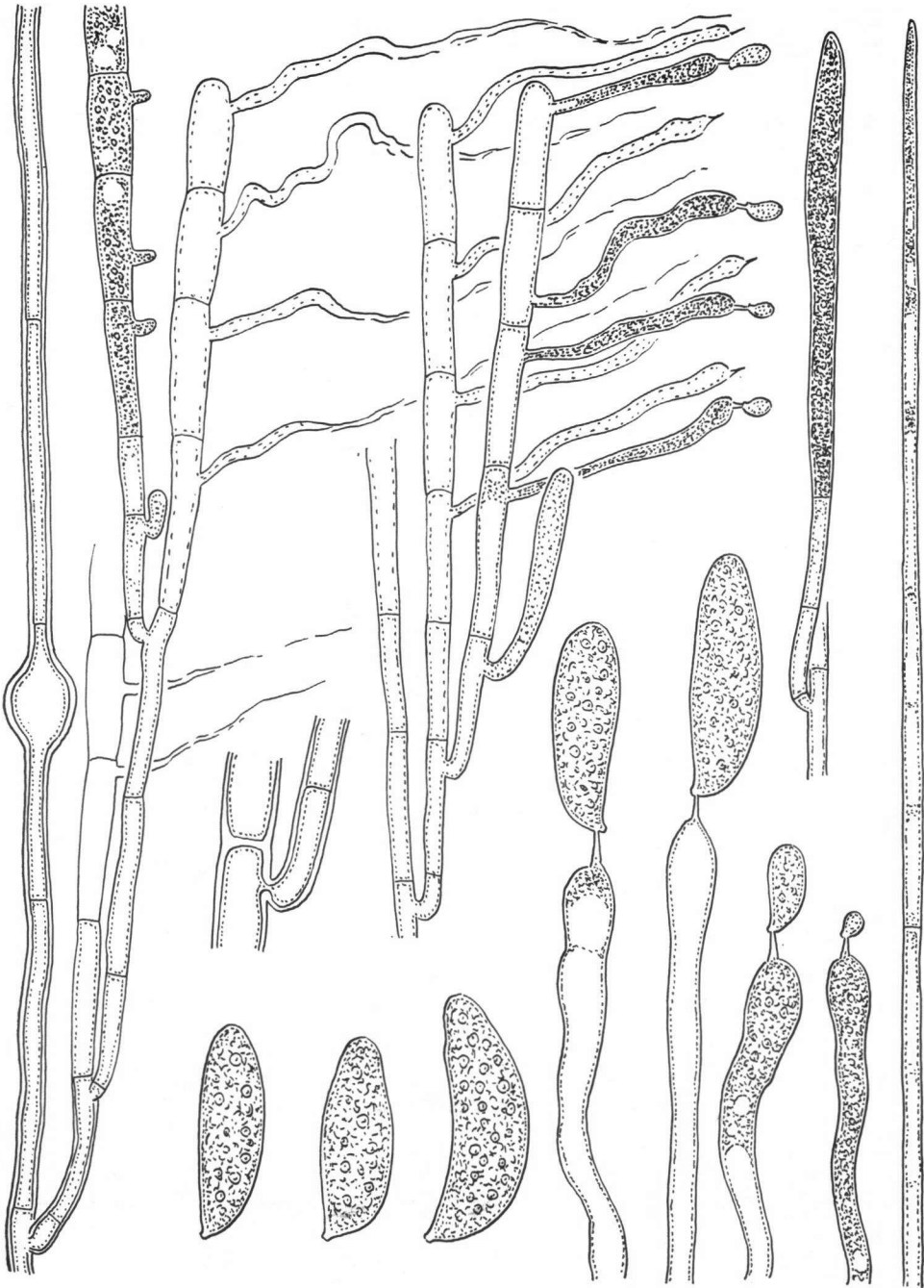


Fig. 3