Thelephoraceae of New Zealand

XV.—The Genus *Duportella*

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Abstract

FOUR species of *Duportella* have been collected in New Zealand, three being endemic and hitherto undescribed. Species are described in detail, and notes given as to host range, distribution, and comparative features. They are illustrated with line drawings of transverse sections. *D. fulva* (Lev.) G. H. Cunn. has been found in South Africa, Australia and New Zealand.

INTRODUCTION

Duportella is a small genus containing five species. It was separated from *Hymenochaete* by Patouillard because of the false setae present in the hymenium, which replace the conspicuous thick-walled setae of the latter genus. False setae (termed pseudosetae herein) are formed from free ends of context hyphae, upturned to form a palisade in the hymenial layer, either preceding, accompanying, or following development of basidia and paraphyses.

HYMENOPHORE. Species may be pileate, umbonate-sessile, or resupinate. Pilei are either conchate and attached by a narrow vertex (*D. fulva*), effused-reflexed upturned margins of broadly resupinate areas (*D. fulva, D. monomitica*), umbonate-sessile with plane free margins as in most fructifications of *D. monomitica,* or resupinate (*D. fusispora, D. sphaerospora*). Fructifications usually develop first as numerous scattered colonies. These may become free at the margins and expand to form conchate pilei attached by a narrow vertex as in some collections of *D. fulva*; or more usually merge to form broadly effused areas extending for several cm. From margins of the latter, effused-reflexed pilei may develop (*D. fulva*), or arise from the upper edges alone of fructifications growing upon upright trunks or branches (*D. monomitica*). The pileus surface is clothed with abhymenial hairs which may form a tomentum (*D. monomitica*), differently coloured radiate brown bands (*D. fulva*), or in old plants of the latter species be imbricate so that the surface appears silky.

CONTEXT. Composed either of an intermediate tissue of parallel hyphae turned into the hymenial layer (*D. fulva, D. monomitica*) or of hyphae mainly upright (*D. fusispora, D. sphaerospora*), the context is without a cortex, so conspicuous a feature in most pileate species of *Stereum* and of *Hymenochaete* species placed under Section 1. Abhymenial hairs arise from the intermediate tissue; they are always present in pileate species, but absent from or rudimentary in those which are resupinate.

Both dimitic and monomitic hyphal systems are present. Fructifications of *D. monomitica* are formed from generative hyphae alone; other known species are dimitic, composed of generative and skeletal hyphae. Coloured some shade of brown, and usually thick-walled, skeletal hyphae are sparingly septate and sparsely branched. In species with a dimitic hyphal system generative hyphae are thin-walled, hyaline, freely branched and possess conspicuous clamp connexions. Generative hyphae of the monomitic species *D. monomitica* are brown, thin-walled, branched, septate, and

without clamp connexions. They branch in a distinctive manner; each branch arises beneath a septum, emerges at a wide angle, then turns parallel with the parent hypha (Text-fig. 4).

HYMENIAL LAYER. Basidia are subclavate, project, and bear 2 or 4 spores on slender sterigmata. Paraphyses are subclavate, shorter and narrower than the basidia, and arranged in a dense palisade. Spores are elliptical or suballantoid in three species, fusiform in *D. fusispora,* and globose or subglobose in *D. sphaerospora.*

The hymenium develops early in *D. fulva* and *D. sphaerospora,* appearing before most of the pseudosetae; in older plants basidia and paraphyses disappear, to be replaced by a close palisade of pseudosetae. In *D. tristricula* (Talbot, Bothalia, *6,* 47, 1951) and *D. monomitica* pseudosetae first form a dense palisade which gives the surface its dark colour. Subsequently basidia and paraphyses appear, at first in scattered groups buried among the pseudosetae, later forming a continuous palisade when the surface colour changes to cinereous or ochre In *D. fusispora* pseudosetae and basidia appear to develop simultaneously, pseudosetae forming a dense palisade below the basidial layer, with a small number projecting above its surface.

ANCILLARY ORGANS

Pseudosetae. Formed from the apical ends of skeletal hyphae of dimitic species, generative hyphae of *D. monomitica,* and projecting into the hymenial layer, pseudosetae form a close palisade either beneath the basidia in fertile plants, or provide the hymenial surface of sterile specimens Pseudosetae are slightly inflated and coated with fine crystals on the apical region in *D. fulva, D. sphaerospora* and *D. tristricula,* smooth or almost so in *D. monomitica.* In *D. sphaerospora* they are unusual in that apices are acuminate and are sometimes bifid, or bear 1–3 small lateral branchlets. Pseudosetae darken in colour when treated with an aqueous solution of potassium hydroxide as do the setae of *Hymenochaete.*

Gloeocystidia. Present in the context and hymenial layer of *D. sphaerospora* and *D. tristricula,* gloeocystidia are clavate, obovate, elliptical or fusiform in shape and walls are thin and hyaline.

Cystidia. Embedded in the hymenial layer of *D. fulva* and *D. tristricula* are occasional pseudosetae bearing upon their apices sheaths of coarse crystals. Although in this particular they resemble cystidia of the pedicellate section of *Peniophora,* they appear to be merely forms of pseudosetae bearing more prominent crystals.

19. **Duportella** Patouillard, Philippine Journal of Science, *10,* 87, 1915.

Hymenophore pileate or resupinate, annual or perennial. Pilei conchate, effused-reflexed, or umbonate-sessile; surface clothed with abhymnial hairs arranged as a tomentum or in radiate bands; resupinate fructifications effused and adnate. Context composed of an intermediate tissue of parallel or intertwined hyphae; cortex absent; hyphal system dimitic or monomitic; skeletal hyphae brown, usually with thick walls, naked, sparingly branched and septate; generative hyphae hyaline in dimitic species, brown in monomitic, branched, septate, with or without clamp connexions. Hymenial layer composed of a palisade of basidia, paraphyses and pseudosetae. Pseudosetae cylindrical with slightly inflated apices, coloured, naked or more often delicately verruculose, sometimes bifid. Gloeocystidia when present of various shapes, hyaline, thin-walled. Basidia subclavate, projecting, bearing 2–4 spores on slender sterigmata. Spores elliptical, suballantoid, fusiform, globose or subglobose, smooth, hyaline.

TYPE SPECIES: *Duportella tristricula* (B. & Br.) Reinking (= *D. velutina* Pat.).

DISTRIBUTION: Philippine Islands, Malaya, Ceylon, Nigeria, Uganda, South Africa, Australia, New Zealand.

Additional to the four species described herein, *D. tristricula* and *D. raimundoi* Pat. have been described from the Philippine Islands. Judging from the scanty description, the latter is a synonym of *D. tristricula,* which has been recorded additionally from Ceylon, Nigeria, Uganda, South Africa and Queensland. Like *D. sphaerospora,* it bears gloeocystidia.

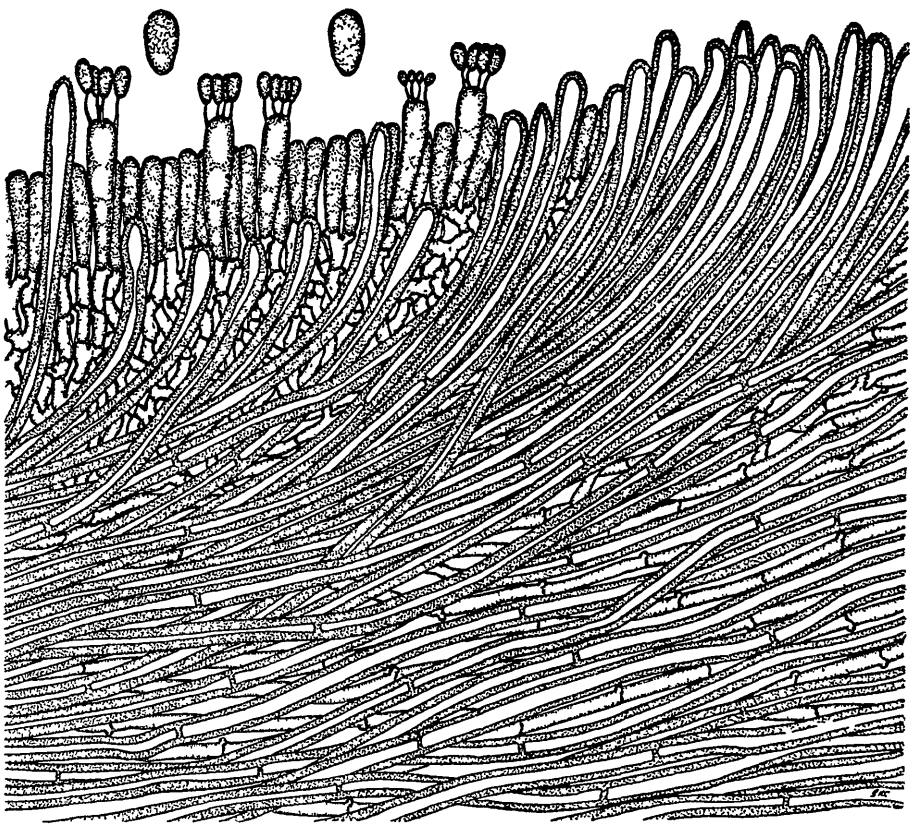
KEY TO SPECIES

Hyphal system dimitic.	
Gloeocystidia absent.	
Spores elliptic-obovate, 7–9 x 4–5.5μ	1. *D. fulva* (Lev.) G. H. Cunn.
Spores fusiform, 12–20 x 5–7μ	2. *D. fusispora* G. H. Cunn.
Gloeocystidia present; spores globose or subglobose, 10–12 x 9–11μ	3. *D. sphaerospora* G. H. Cunn.
Hyphal system monomitic; gloeocystidia absent; spores elliptical or suballantoid, 6–7 x 3.5–4.5μ	4. *D. monomitica* G. H. Cunn.

1. **Duportella fulva** (Leveille) nov. comb. Text-fig. 1.

Thelephora (*Stereum*) *fulva* Lev., Ann. Sci. Nat., III, *5*, 149, 1846.
Stereum schomburgkii Berk., Jour. Linn. Soc., *13*, 168, 1873.
S. retirugum Cke., Proc. Roy. Soc. Edinburgh, 456, 1882.
Hymenochaete olivaceum Cke., Grev., *14*, 11, 1885.
Stereum fulvum (Lev.) Sacc., Syll. Fung., *6*, 570, 1888.
Peniophora atrocinerea Mass., Jour. Linn. Soc., *25*, 141, 1889.
Hymenochaete schomburgkii (Berk.) Mass., Jour. Linn. Soc., *27*, 115, 1890.
Stereum atrocinereum (Mass.) v.d. Bijl, Ann. Univ. Stellenbosch, *7*, 44, 1929.

Hymenophore pileate, annual, coriaceous, appearing first as scattered orbicular colonies 2–10 mm diameter when sessile-umbonate with free margins, merging to form areas to 8 x 3 cm. Pilei either conchiform-umbonate when solitary or imbricated, or narrowly effused-reflexed, 1–3 cm wide, 1–5 cm long; surface tan, chestnut, or umber, tomentose, hairs sometimes arranged in concentric bands of different shades of brown, or imbricate and silky, sometimes with depressed or raised parallel concentric ridges and frequently radiately grooved or plicate; hymenial



TEXT-FIG 1 —Transverse section of *Duportella fulva*, taken from the margin of a developing fructification; showing projecting verruculose pseudosetae on right, submerged pseudosetae on left. × 500; spores × 1000. *Original.*

surface at first bay, fulvous, smoky brown, chestnut or cinnamon, becoming darker when old. tardily creviced either in radiate series, or areolate; margin thinning out, fibrillose, crenate, at first pallid grey, becoming darker, finally concolorous, free. Context tan or ferruginous, 0.3–0.8 mm thick, intermediate tissue of parallel hyphae turning abruptly into the hymenial layer; hyphal system dimitic; skeletal hyphae 4–5μ diameter, walls 1μ thick, sparingly branched, sparsely septate; generative hyphae 2.5–4μ diameter, walls 0.2μ thick, hyaline, branched, septate, with prominent clamp connexions. Hymenial layer when fertile a close palisade of basidia, paraphyses and scattered pseudosetae; when sterile appearing as a loose palisade of pseudosetae. Basidia subclavate, 24–30 x 7–8μ, 4-spored; sterigmata erect, slender, to 6μ long. Paraphyses subclavate, shorter and narrower than the basidia. Pseudosetae filiform with slightly inflated apices, in sterile plants a few showing false septa, walls brown, thin and coated with minute crystals, in fertile specimens walls thickened to 2μ, seldom septate, coated either with fine or coarse crystals. Spores elliptical or elliptic-obovate, 7–9 x 4–5.5μ, walls smooth, hyaline, 0.1μ thick.

TYPE LOCALITY: Cape of Good Hope, Africa.

DISTRIBUTION: South Africa, Australia, New Zealand.

HABITAT: On bark or decorticated dead wood of fallen trunks and stems.

Beilschmiedia tarairi (A. Cunn.) Benth. & Hook. f. Auckland: Te Moehau, Coromandel Peninsula, 500ft, December 1946, J M. Dingley; Kawau Island, 50ft, December 1947, J. D. Atkinson.

Beilschmiedia tawa (A. Cunn.) Hook. f. & Benth. Auckland: Claudelands Reserve, Hamilton, 150ft, October, 1946, G. H. C. Wellington: Weraroa, 50ft, July 1919, G. H. C.

Pittosporum tenuifolium Banks & Sol Wellington: Weraroa, 50ft, September 1919, G. H. C.

Podocarpus dacrydioides A Rich. Hawke's Bay: Waipatiki Beach, November 1955, J. M. Dingley.

Collections match the type of *Stereum schomburgkii* in Kew herbarium, ex " Port Denison, Queensland ". Talbot (Bothalia, *6,* 316, 1954) found this to agree with the type of *Thelephora* (*Stereum*) *fulva* in the herbarium of the Paris National Museum, ex " Cap-de-Bonne-Esperance, Drege, 9441 " Although Talbot (Bothalia, *6,* 47, 1951) discussed the species under *Stereum fulvum,* he suggested it would be more appropriately placed under *Duportella.* As it has the generic features of the latter, the species has been treated as a member of that genus herein.

Colour of the hymenial surface is at first cinereous, tan, or hazel; later, when pseudosetae replace the basidia, it becomes darker. *D. monomitica* resembles *D. fulva* in macrofeatures, differing mainly in form and colour of pilei. It differs appreciably in microfeatures; for in *D. fulva* the hyphal system is dimitic, clamp connexions are present in generative hyphae, pseudosetae are of different shape, appreciably thicker in the walls, usually verruculose, and spores are of different shape and slightly larger.

As has been pointed out by Talbot, the hymenium develops at an early stage, to be replaced by pseudosetae as plants age. In fertile plants the hymenium is composed of a dense palisade of basidia and paraphyses through which scattered pseudosetae project, most forming a dense palisade in the subhymenium. Later the hymenium disappears, when the palisade of pseudosetae takes its place, plants then becoming much darker on the hymenial surface. Some of the submerged pseudosetae become coated with coarse crystals, simulating cystidia of the pedicellate section of *Peniophora.* As they agree with typical pseudosetae in other features, and arise in the same way, they are regarded as such, rather than as cystidia.

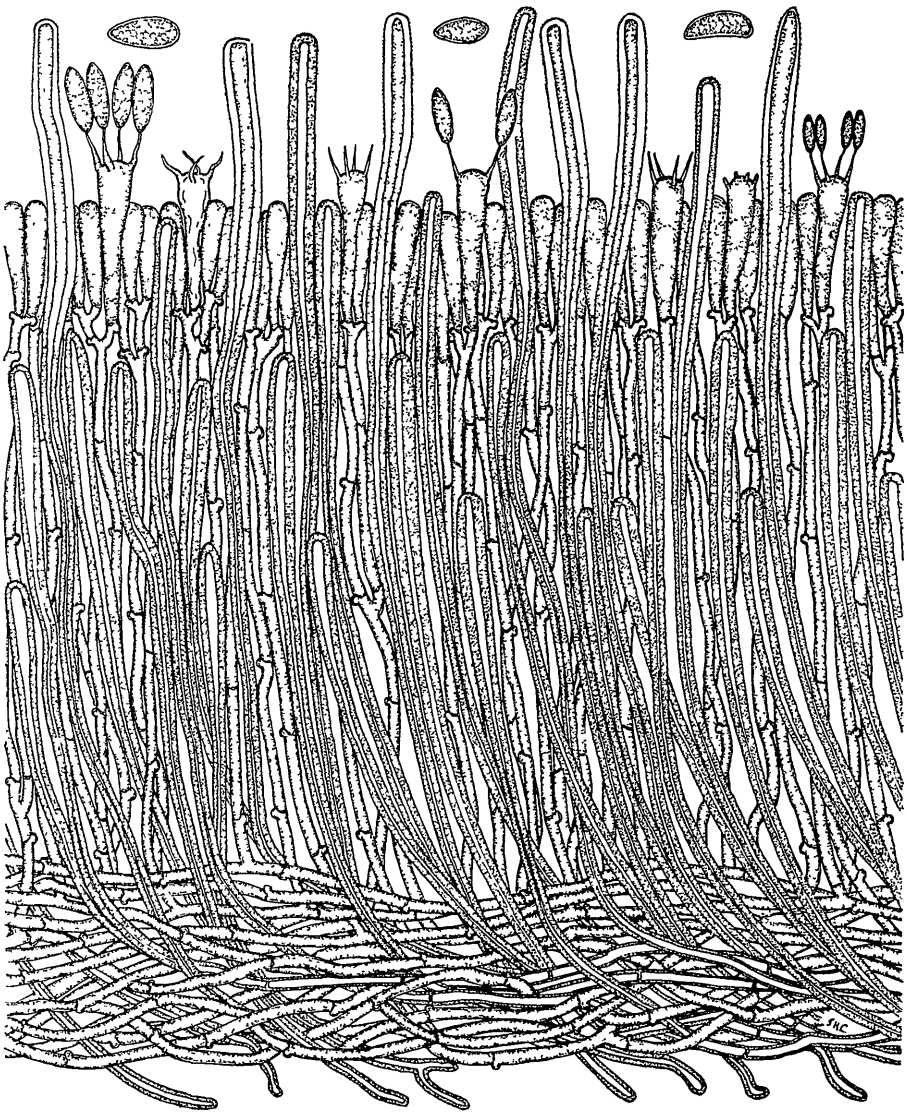
2. ***Duportella fusispora** sp. nov. Text-fig. 2.

Hymenophorum resupinatum, membranaceum, perenne, adnatum, effusum, superficies hymenii cinnamomea vel rubro-brunnea, fertili cinerea vel ochracea, alte inaequaliter rimosa. Contextus ferrugineus vel umbrinus, hyphis radiatim ordinatis, ubi stratosus hyphis erectis in vallo compactis; hypharum systema dimiticum; hyphae skeletales 3–5μ diam , lumina paene

* Latin descriptions were kindly prepared by Miss Beryl Hooton, Librarian, Plant Diseases Division

capillaria, brunnea; hyphae generatoriae 2.5–3μ diam., hyalinae, nodulosae. Pseudosetae 6–8μ diam., parietibus brunneis vel hyalinis, ad 2μ crassis, subtiliter apice verruculosae Basidia subclavata, 35–40 x 8–10μ, 2–4 sporis in tenuibus sterigmatibus. Sporae fusiformes, 12–20 x 5–7μ.

Hymenophore resupinate, perennial, membranous, adnate, at first developing as numerous scattered orbicular or irregular colonies 2–5 mm diameter, merging to form irregular areas to 9 x 5 cm; hymenial surface at first bright cinnamon, or reddish-brown, when old ochraceous, ferruginous or cinereous, even or velutinate, tardily deeply and irregularly creviced, sometimes lifting at edges of crevices; margin thinning out, or abrupt and cliff-like, fibrillose or even, concolorous, loosely attached, sometimes lifting slightly. Context ferruginous or umber, 0.3–1 mm thick, with an intermediate tissue of loosely intertwined hyphae arising from numerous points of attachment and radiating upwards, in perennial specimens loosely intertwined below, compacted for the greater part into a palisade with numerous darker parallel bands formed from ends of pseudo-



TEXT-FIG. 2.—Transverse section of *Duportella fusispora*, showing both hyaline and brown verruculose projecting pseudosetae, × 500. *Original.*

setae; hyphal system dimitic; skeletal hyphae irregular in shape, tapering from apex to base, 3–5μ diameter, lumen almost capillary, rarely branched or septate, walls reddish-brown; generative hyphae 2.5–3μ diameter, walls 0.25μ thick, hyaline, freely branched and septate, with prominant clamp connexions. Hymenial layer a close palisade of basidia, paraphyses and pseudosetae. Basidia subclavate, 35–40 x 8–10μ, 2–4-spored; sterigmata erect, slender, to 10μ long. Paraphyses subclavate, shorter and narrower than the basidia. Pseudosetae mostly submerged when slightly inflated apically, with walls brown and verruculose; many projecting to 35μ, when to 8μ diameter, with walls hyaline or coloured, 2–3μ thick, usually delicately verruculose. Spores fusiform with bluntly acuminate ends, 12–20 x 5–7μ, walls smooth, hyaline, 0.25μ thick.

DISTRIBUTION: New Zealand.

HABITAT: Effused on bark of dead standing trunks.

Phyllocladus alpinus Hook. f. Wellington: Maungatorotoro Stream, Mt. Ruapehu, 3,000ft, March 1948, J. M. Dingley; Whakapapa, Mt. Ruapehu, 3,500ft, October 1954, J. M. Dingley.

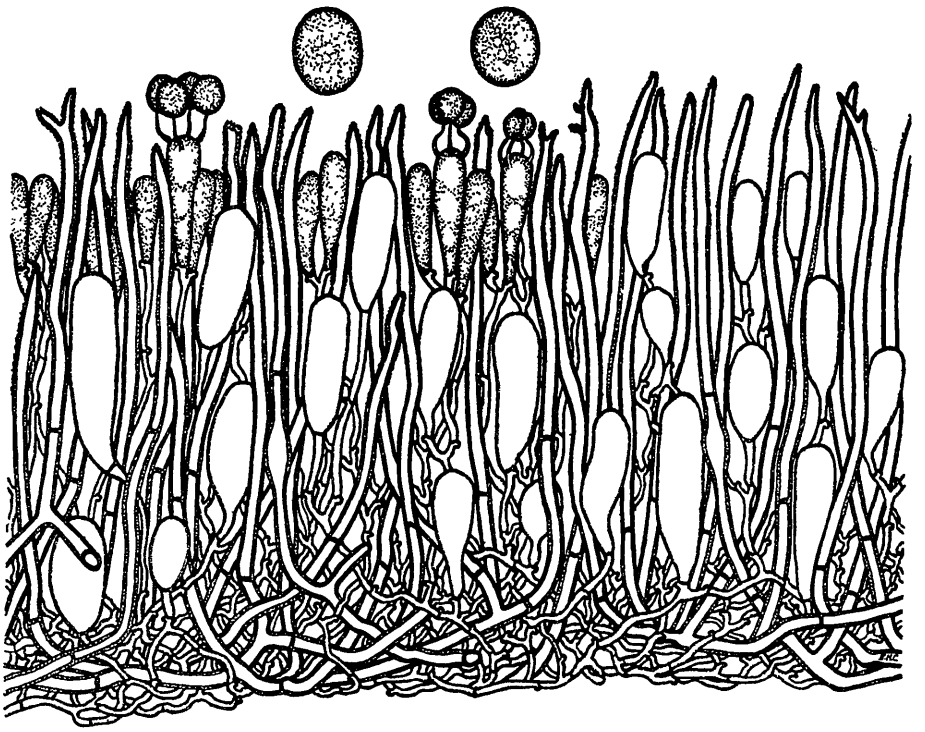
Phyllocladus trichomanoides Don. Auckland: Huia, 300ft, January 1955, E. E. Chamberlain. Wellington: Oturere River, Mt. Tongariro, 3,800ft, December 1946, G. H. C., *type collection,* P.D.D. herbarium, No. 4981.

Fructifications are resupinate and somewhat loosely attached to bark of dead standing trees, seldom to decorticated wood of the same. The species may be identified by the resupinate fructifications often arranged in small scattered orbicular colonies, arrangement of the context hyphae, large basidia and large fusiform spores. Pseudosetae vary appreciably in form. They arise from apices of skeletal hyphae, most forming a close palisade beneath the hymenium, then being brown, slightly inflated and verruculose. Those which project above the hyphal surface to 35μ, become thickened to 8μ and with walls 2–3μ thick; they may be brown or hyaline, verruculose or naked. In perennial specimens the greater part of the context is formed from a loose palisade of hyphae arranged in several strata, each delimited by a horizontal coloured zone of apices of pseudosetae, some coated with fine crystals, others naked. Spores are abundant in all collections, fusiform, either with bluntly acuminate ends, or apices bluntly rounded, and may attain a length of 20μ. Collections were taken from bark of standing dead trunks of two related species of *Phyllocladus.*

3. **Duportella sphaerospora** sp. nov. Text-fig. 3.

Hymenophorum resupinatum, ceraceum, annuum, adnatum, effusum; superficies hymenii pallide bubalina vel sordide griseo-brunnea, areolatae rimosa Contextus isabellinus vel alutaceus, angusto medio strato intertextarum hypharum et recto vallo pseudosetarum; hypharum systema dimiticum; hyphae skeletales 3–5μ diam., parietibus 1μ crassis, brunneis; hyphae generatoriae 1.5–2μ diam., hyalinae, nodulosae. Pseudosetae 4–6μ diam., parietibus brunneis vel hyalinis, tenuiter verruculosae interdum bifidae vel 1–3 ramulos a latere ferentes. Gloeocystidia clavata vel elliptica, 32–48 x 10–14μ, parietibus 0.5μ crassis, hyalinis. Basidia subclavata, 26–32 x 10–12μ, 4 *sporis in tenuibus sterigmatibus.* Sporae globosae vel subglobosae, 10–12μ diam., vel 10–12 x 9–10μ.

Hymenophore resupinate, annual, ceraceous, adnate, at first developing as scattered orbicular colonies 2–10 mm diameter, merging to form linear areas to 6 x 3 cm; hymenial surface pallid buff, dingy greyish-brown, or pallid ochre, rugulose, at length deeply areolately creviced; margins thinning out, free or adnate, concolorous Context isabelline or tan, 80–250μ thick, composed of a narrow intermediate layer of intertwined hyphae from which arises a vertical palisade of pseudosetae; hyphal system dimitic; skeletal hyphae 3–5μ diameter, walls to 1μ thick, dingy brown, aseptate, sparingly branched, sometimes slightly inflated in scattered hyphae, staining; generative hyphae 1.5–2μ diameter, walls 0.25μ thick, hyaline, branched, septate, with clamp connexions. Hymenial layer a close palisade of basidia, paraphyses, gloeocystidia and pseudosetae. Gloeocystidia clavate, subclavate, or elliptical, 32–48 x 10–14μ, walls 0.5μ thick, hyaline, crowded in the intermediate layer, subhymenium and hymenium Basidia subclavate, 26–32 x 10–12μ, 4-spored; sterigmata arcuate, slender, to 10μ long Paraphyses subclavate, shorter and narrower than the basidia. Pseudosetae forming a palisade beneath the hymenium when crowded, erect, cylindrical, 4–6μ diameter, finely verruculose, sometimes submoniliform and occasionally bifid; when projecting apices acute, sometimes bifid, many bearing 1–3 short lateral branchlets, verruculose, hyaline, staining. Spores globose or subglobose, 10–12μ diameter, or 10–12 x 9–10μ, walls smooth, hyaline, 0.25μ thick.



TEXT-FIG. 3.—Transverse section of *Duportella sphaerospora,* showing projecting pseudosetae with some bearing apical branchlets, gloeocystidia and delicate generative hyphae, × 500; spores × 1000. *Original.*

DISTRIBUTION: New Zealand.

HABITAT: Effused on bark of dead trunks and branches.

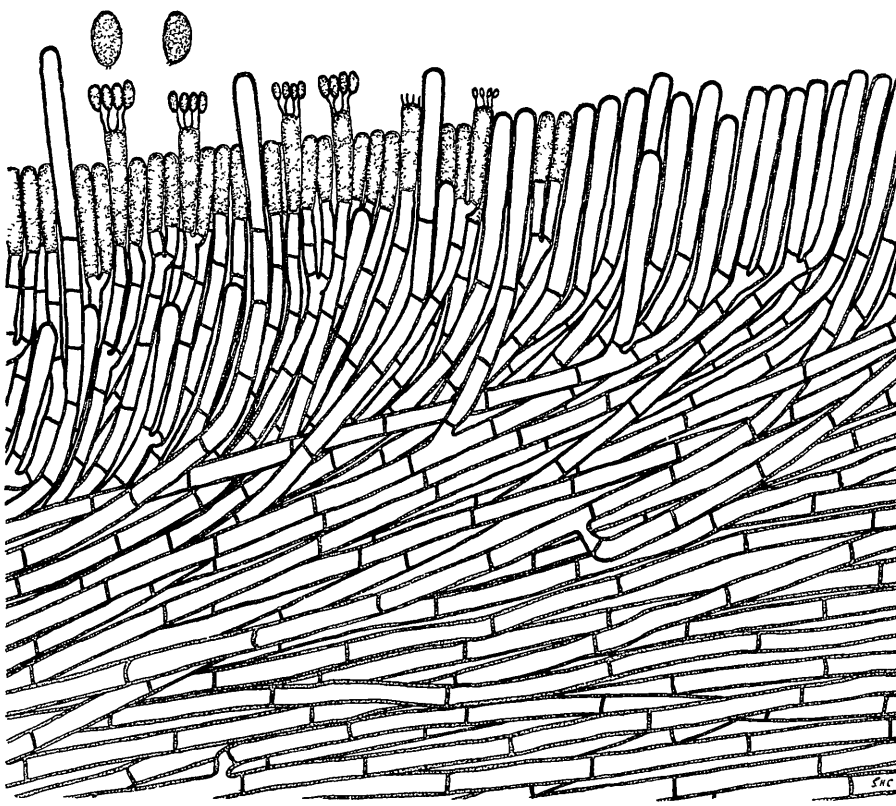
Nothofagus menziesii (Hook. f.) Oerst. Auckland: Upper Mohaka River, Kaimanawas, 2,000ft, May 1953, J. M. Dingley, *type collection,* P.D.D. herbarium, No. 12572.

Specific features are the globose or subglobose spores, subclavate or elliptical gloeocystidia, delicate generative hyphae and unusual pseudosetae. In the type collection the hymenium is overmature so that most basidia and paraphyses have collapsed. A few are present, and spores abundant in all sections examined. It would appear that the hymenium is precocious, as in *D. fulva,* developing at an early stage, later collapsing to be replaced by a palisade of pseudosetae, which is present as a dense coloured palisade in the subhymenium. Pseudosetae are unusual in that they stain deeply in aniline blue solution, are sometimes bifid at apices, or bear from one to three brief lateral branchlets. All are coated in the apical region with sheaths of fine crystals. Pseudosetae and spores are nonamyloid. Generative hyphae are of appreciably less diameter than those of other species. They are copiously produced and form the bulk of the intermediate layer. Among them lie many pseudosetae, lying at various angles; some are bifid, a few branched, and others exhibit occasional inflated areas. They are finely crystal coated, as are those of the hymenial layer. Gloeocystidia, present also in the extralimital *D. tristricula,* are crowded in the hymenium, subhymenium and context. They vary appreciably in length and shape, most being subclavate.

4. **Duportella monomitica** sp. nov. Text-fig. 4.

Hymenophorum pileatum vel resupinatum; pileis effuso-reflexis, superficie castanea vel sepiacea, tomentosa; resupinatum orbiculatum liberis marginibus; superficies hymenii umbrina vel sepiacea, ubi fertilis cinerea, tarde rimosa. Contextus sepiaceus, hyphis fere parallelis in hymenio recurvatis; hypharum systema monomiticum; hyphae generatoriae ad 6μ diam., parietibus 0.2–0.5μ crassis, brunneis, enodulosis. Pseudosetae cylindricales leviter inflatis apicibus, parietibus brunneis, nudae. Basidia subclavata, 24–30 x 5–6.5μ, 4 sporis in tenuibus sterigmatibus. Sporae ellipticae vel suballantoides, 6–7 x 3.5–4.5μ.

Hymenophore pileate or resupinate, annual, sometimes reviving a second season, coriaceous, developing at first as numerous orbicular sessile-umbonate colonies 5–10 mm diameter, merging to form either broadly resupinate linear areas with reflexed margins, or remaining resupinate, to 20 x 5 cm. Pilei narrowly effused-reflexed, to 5 cm wide, extending the length of the upper margin of the fructifications, or sometimes imbricate; surface chestnut or more usually umber or sepia, tomentose or strigose; hymenial surface at first radially sulcate, fuscus, umber, or sepia, sometimes radiately rugose, at length tardily creviced, sometimes in radiate series, when fertile becoming cinereous; margin thinning out, fibrillose, crenate, at first broad and white or tan, becoming fawn, finally concolorous, free. Context sepia, shining in section, 0.3–0.6 mm thick, intermediate layer of mainly parallel hyphae turning abruptly into the hymenium; hyphal system monomitic; generative hyphae to 6μ diameter, walls 0.2–0.5μ thick, yellow brown, darker when old and towards the base, branched, septate, without clamp connexions. Hymenial layer a close palisade of basidia, paraphyses and scanty projecting pseudosetae; in sterile plants composed of pseudosetae arranged in a loose palisade. Basidia subclavate, 24–30 x 5–6.5μ, 4-spored; sterigmata erect, slender, to 6μ long. Paraphyses subclavate, shorter and narrower than the basidia. Pseudosetae subclavate or cylindrical, some with slightly inflated apices, walls usually naked, yellow brown, 0.25μ thick. Spores elliptical with lateral apiculi, or suballantoid, 6–7 x 3.5–4.5μ, walls smooth, hyaline, 0.1μ thick.



TEXT-FIG. 4.—Transverse section of *Duportella monomitica*, taken from the margin of a developing fructification; showing projecting naked pseudosetae on right, submerged pseudosetae on left, monomitic hyphal system and mode of branching of the generative hyphae, × 500; spores × 1000. *Original.*

DISTRIBUTION: New Zealand.

HABITAT: On bark of dead standing stems and trunks

Acacia dealbata Link. Auckland: Oratia, August 1948, D. W. McKenzie; Campbell's Bay, August 1950, E. E. Chamberlain.

Leptospermum ericoides A. Rich. Auckland: Huia, 100ft, November 1945, G. H. C., October 1953, J. M. Dingley; Manaia, Whangarei Heads, October 1947, J. M. Dingley; Rereatukahia Reserve, Katikati, 500ft, September 1950, G. H. C.; Great King Island, Three Kings, January 1952, E. E. Chamberlain, December 1955, P. J. Brook; White's Stream, Piha, January 1954, J. M. Dingley.

Leptospermum scoparium Forst. Auckland: Whakarewarewa, 1,200ft, October 1945, G. H. C.; Cascade Kauri Park, Waitakeres, 700ft, October 1945, J. M. Dingley; Wood's Bay, Titirangi, March 1946, J. M. Dingley; Mt. Te Aroha, 950ft, November 1946, G. H. C.; Mt. Albert, September 1948, D. W. McKenzie; Little Huia, 200ft, February 1949, Mrs. E. E. Chamberlain; Swanson, April 1949, P. M. Ambler; Walker's Bush, Waitakeres, August 1950, J. M. Dingley; Oratia, Waitakeres, 900ft, July 1951, J. M. Dingley; Cornwallis, 100ft, May 1952, J. D. Atkinson; Moturoa Island, Bay of Islands, 100ft, May 1956, J. D. Atkinson; Mt. Te Aroha, 1,100ft, October 1956, G. H. C., *type collection,* P.D.D. herbarium, No. 16644.

Leucopogon fasciculatus (Forst. f.) A. Rich. Auckland: Hunua Falls, 400ft, October 1946, G. H. C.

Phyllocladus trichomanoides Don. Auckland: Kauri Park, Birkenhead, July 1946, J. M. Dingley.

Pinus radiata Don. Auckland: Woodhill, 100ft, July 1953, J. M. Dingley.

Pittosporum tenuifolium Banks & Sol. Auckland: Konini Road, Waitakeres, 900ft, July 1947, J. M. Dingley.

Weinmannia racemosa L. f. Auckland: Mt. Te Aroha, 1,100ft, October 1956, G. H. C.

Separated from *D. fulva,* which it resembles most closely in macrofeatures, by the monomitic hyphal system, usually naked pseudosetae, differently coloured freely septate generative hyphae, and differently shaped spores. The hymenial surface is at first sepia or chocolate in colour because of the copious development of pseudosetae. When plants become fertile the colour changes to cinereous. The hymenium is tardily developed, at first appearing as scattered groups of basidia and paraphyses lying among the pseudosetae; later, basidia and paraphyses form a close palisade submerging the pseudosetae which then appear as a dense zone in the subhymenium with a few projecting. Hyphae are somewhat scantily branched; branches arise beneath septa, grow out at a wide angle, then turn parallel with the parent hypha. The effused-reflexed pilei develop only upon the upper margins of fructifications growing upon upright stems. They are uncommon, since most plants are either resupinate or umbonate-sessile with free plane margins. Plants possess a disagreeable odour, even after long keeping in the herbarium.

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