Thelephoraceae of New Zealand

Part III: The Genus *Corticium*

By G H CUNNINGHAM,

Plant Diseases Division, Auckland

[*Read before the Auckland Institute and Museum, September 14, 1953; received by the Editor, February 9, 1954*]

Abstract

Corticium is treated as second of seven genera placed in the tribe Corticeae of the subfamily Thelephoroideae. Forty-two species are recognized, of which 21 are regarded as new. A diagnostic key to species is given together with a full technical description of each accompanied by notes on distribution hosts and comparative features. Thirty-eight are illustrated with line drawings of sections two with drawings of spores, and three with photographs

Twenty-one new species belonging to the genus in New Zealand are described and figured

Excluded species, based on identifications of specimens by overseas workers, are *C albidum* Mass., *C auberianum* Mont, *C. calceum* (Pers) Fr, *C ceraceum* Berk. & Rav.. *C cretaceum* Pers., *C. laeve* Pers, *C. luteo-aurantiacum* Wakef, *C molle* Fr, *C. nudum* Fr, *C ochraceum* Fr, *C polygonium* (Pers) Fr. *C sebaceum* (Pers.) Mass. *C serum* (Pers.) Fr, *C sparsum* Berk. & Br, *C spumeum* Berk & Rav, *C. sulfureum* Fr. *C terreum* Berk, *C. violacco-lividum* Fr., *C. vride* Berk and *C. viscosum* Fr

INTRODUCTION

Corticium is the second genus placed in a previous paper (Cunningham, 1953) under the tribe Corticeae of the subfamily Thelephoroideae It contains species with an even hymenium consisting of a palisade of basidia and paraphyses, developing from a context composed of woven or upright hyphae arising in turn from a layer of parallel hyphae attached to the substratum Most species are wood-inhabiting, a few grow upon debris on the ground, and a half-dozen are parasites of living plants

The genus contains many species, possibly in excess of 300, but as most grade into one another, and well-marked specific features are few and difficult to define precisely, it is not possible to ascertain their number Different workers have placed emphasis on diagnostic features which are often variable and of trivial value; so that what are regarded as species by some, are treated by others as varieties, forms, or synonyms Even when authentic material is available for study, identification of collections is often difficult because of variations which may occur in features upon which species were erected. The value of differential characters employed by various workers is discussed below

In 1951, through the courtesy of the Director of the Royal Botanic Gardens, Kew, I was enabled to examine collections of all species of the family in Kew herbarium These included authentic or type specimens described from Europe

and North America, and collections from Australia, Tasmania and New Zealand which had been identified by Berkeley, Cooke, Massee or Wakefield. New Zealand specimens were compared with these; unfortunately, however, only half were found to match collections at Kew, since no less than 21 out of 42 species present in the Dominion have had to be described as new

HYMENOPHORE. Such macrofeatures as colour, texture, size and shape were the main characters used by early workers for species differentiation, microfeatures not being employed until the latter part of last century In the absence of authentic material, it has seldom been possible to recognize most species described by them. Many did not keep type specimens; and even different collections dispersed by early workers as representing their own species, often fail to agree with one another. In the result, where type material has not been available for study, confusion exists as to the identity of most early species, save in those possessing outstanding recognizable diagnostic features.

Surface colour is in general of little aid, since most species are at first white and in the herbarium remain white, or change to cream or isabelline. Species which may remain white or colour slightly in temperate climates, often become coloured appreciably in tropical and subtropical areas Consequently its value in diagnosis is limited to a few brightly coloured species such as *C caeruleum* (azure), *C. comedens* (reddish-brown), *C. atrovirens* (greenish-blue), *C fuciforme* and *C. cordylines* (flesh-pink) which retain their colours in the herbarium

Shape and size are likewise of little aid, save with a few species, all being resupinate and most effused, growth being often limited by available surface area of the substratum. Noteworthy exceptions are *C kauri* with fructifications consisting of numerous crowded angular white nodules 2–10 mm. across, small elliptical colonies of *C. ampullosporum* and *C. crystallitectum* often found on living bark; and the conspicuous clavariform bodies produced on living grasses by *C. fuciforme.*

Whether the hymenial surface is even, creviced, or finely colliculose has little significance in other than a few species. *C. bullatum* is colliculose at maturity, blisters appearing on the surface through rupture of the hymenial layer by masses of crystals developing in the context The surface of *C. corniculatum*, *C. hydnans* and *C scutellare* may become deeply areolately creviced, though the condition may develop tardily and irregularly

Marginal features are seldom noteworthy, save where margins are receding as in *C. perenne,* cliff-like as in *C. kauri*, fibrillose broad and loosely attached as in *C. cordylines* and *C. polyporoideum*, or rhizomorphic as in some collections of *C. scutellare* and *C sulphureum*

Whether fructifications are firmly or loosely attached is significant with only a few, most species being firmly anchored by basal hyphae some of which penetrate into the substratum. Exceptions are *C. cordylines* and *C. polyporoideum* which when fresh may be detached as a continuous sheet

Texture was employed by Bourdot and Galzin (1928, p. 182) to divide species into sections upon whether they were membranaceous, ceraceous, pelliculose, byssoid, arachnoid, arescent or coriaceous Use of such features is apt to mislead, since they themselves did not always place species under their relevant sections; and plants vary appreciably in texture according to age, habitat, climatic range, and the like. Herein species are described as being membranous, ceraceous,

chalky, or arachnoid, though these features alone are not regarded as possessing significant diagnostic value.

CONTEXT When numerous collections are available it is possible to ascertain if plants are annual, biennial, or perennial The last condition is shown by the presence of numerous layers of replicated tissues, each produced during a growth period (not necessarily a season) as in *C kauri* and *C. perenne.* Though perennial, *C. fistulatum* is often collected with one layer only. *C. fallax* is probably biennial, possibly perennial, since it may exhibit as many as five zones of context differentiated mainly by bands of mucilage

Arrangement of context hyphae has some slight value, mainly to indicate related species. In most the context consists of two well defined tissues—a basal layer of hyphae lying parallel upon and with branches penetrating the substratum: an intermediate layer produced from it and in turn giving rise to tissues of the hymenium The basal layer may be composed by many hyphae closely compacted, sometimes cemented, or be reduced to a few repent hyphae It is always present. The intermediate layer is usually well developed and composed either of hyphae loosely woven and branched at a wide angle, or of hyphae mainly erect when scanty, compacted into a dense palisade, or corymbose In *C. tulasnelloideum* and *C. vescum* this layer is wanting, the hymenium arising directly from upturned branches of the basal layer.

Context hyphae may be naked, as with most species; coated with granules of mucilage, often coloured red, orange or brown as in *C. comedens, C. fallax, C. lividum* and *C. vitellinum;* with fine granules of colourless mineral matter, as in *C. polyporoideum:* or embedded in masses of coarse calcium crystals, varying in shape, quantity and position. Species with these last are chalky in section and difficult to examine New Zealand examples are *C. ampullosporum, C. bullatum, C. commixtum, C. corniculatum, C. crystallitectum, C. scutellare* and *C tuberculatum.* In *C vitellinum* both pigment granules and crystals are present; and in *C. bullatum, C. contiguum* and *C scutellare* crystals occur not only in masses between hyphae but coat those of the context and may even cover walls of basidia and paraphyses

In most species the context is white in sections; in a few coloured, as yellow in *C. sulphureum,* reddish-brown in *C. comedens,* mouse-brown in *C fallax,* brown and glistening in mature plants of *C. lividum,* pink in *C. cordylines,* and ferruginous in *C. singulare* All save the last possess hyaline hyphae, whereas in *C. singulare* walls are fuscous, the only species in the region exhibiting this feature

GLOEOCYSTIDIA As fifteen New Zealand species possess these ancillary organs, their presence has been employed as a sectional feature. They are always present, but not always easy to demonstrate; and are sometimes confused with cystidia of *Peniophora,* or paraphysate hyphae which have sometimes been mistakenly termed cystidioles. Gloeocystidia are invariably naked, of appreciably larger size and of different shape than basidia, and in fresh plants contain oily or granular sometimes yellow contents staining with aniline blue. In old or dried plants they are often collapsed, empty, or both, when their presence is not easy to detect unless adequate sections are prepared from marginal tissues. In exceptional cases they may not be present in a section, or only one or two may appear in the field of the microscope. Despite these hazards several workers have employed their presence as a generic feature, and placed species bearing

them under *Gloeocystidium*. They are present also in some species of *Aleurodiscus, Asterostroma, Cytidia, Duportella, Epithele, Peniophora, Stereum* and *Vararia;* consequently it would be equally logical to subdivide these into genera with and without gloeocystidia, which appears to be unnecessary duplication Since they may vary appreciably in size and shape, even in the same species, or specimen, gloeocystidia should be employed with caution for species differentiation.

VESICLES. Three species which bear gloeocystidia also contain structures for which the term vesicles has been used. They are similar to gloeocystidia in contents, staining reactions and naked wall, differing mainly in size and shape Large, scattered and pyriform in *C. coprosmae;* they are small and arranged in whorls around the bases of intermediate hyphae in *C. utriculicum;* and in *C. torquatum* are two-celled, arise from short lateral branches of the intermediate hyphae, and bear a girdle of digitate processes around the septum.

SPORES. Affording useful differential characters when differences are measureable spores may be smooth, as in most species, or echinulate; and in shape globose, oval, elliptical, pip-shaped, allantoid or navicular Size is noteworthy in the large allantoid spores of *C comedens* or minute allantoid spores of *C vescum* In some species spores are copious and always present; a few carry them abundantly among the context hyphae; in others they may develop only during a brief period, when a search over several sections may be necessary before numbers sufficient for measurement are seen As a guide to their shape and size it is advisable to examine spores attached to basidia, thus avoiding the pitfall of mistaking for those of the species under examination, spores of contaminating moulds, as has often been done

Certain workers have employed as a group character presence of starch in the spore wall, demonstrated by its blue reaction when treated with a solution of iodine in potassium iodide. Such spores are said to be amyloid The reaction appears to be of doubtful value since it is not associated with any morphological character, and necessitates special treatment which, in my experience, is not always successful.

HYPHAL SYSTEMS Species described herein possess a monomitic hyphal system, that is they are composed of generative hyphae alone It is possible that all true corticiums are monomitic, since none with a dimitic hyphal system was seen in those examined at Kew Consequently hyphal systems cannot be used as a group feature as is possible with species of several other genera of the family.

Clamp connections are present in all save seven of the species present in New Zealand. As they may be demonstrated with certainty they afford useful group characters. Even though they may not be present at all septa when fibulate species are examined carefully clamp connections will be seen at most, being suppressed sometimes where hyphae become cemented together. An exception occurs with *C. singulare* in which about one in 500 septa, or less, bears clamp connections.

Hyphal diameter and thickness of wall may be employed in a few species where differences are marked. Hyphae are sometimes inflated between septa (ampullate), a somewhat rare condition noted in *C. fallax, C filicinum* and *C tulasnelloideum.*

BASIDIA, PARAPHYSES AND PARAPHYSATE HYPHAE Basidia are usually subclavate or subcylindrical in shape, though varying appreciably in size in different

species. Compare, for example, those of *C. torquatum* with *C. utriculicum*, or *C. comedens* with *C. kauri*. Together with paraphyses in most species they form a dense palisade; in *C. fallax*, on the other hand, they are scattered loosely through a wide zone; and in a few, notably *C. cebennense* and *C. corymbatum*, may be produced in corymbs.

Paraphyses, like basidia, are commonly subclavate or subcylindrical. In *C. filicinum* many are obpyriform, or ovate; and in *C. polyporoideum* some may be turbinate.

Paraphysate hyphae are vertical hyphae of the context with apices passing between basidia and paraphyses to extend above the hymenial surface. Though commonly neglected in descriptions they nevertheless offer useful group features Cylindrical with rounded apices in *C. confusum*, *C. kauri*, *C. leptospermi* and *C. scutellare*, they are long-acuminate in *C. bullatum* and *C. contiguum*, and apically sparsely branched in *C. comedens* and *C. corniculatum*. Commonly naked, a few bear occasional crystals, and sometimes a cap or band of crystals at or near the apex as in *C. scutellare*. They are not cystidia, however, such crystals being accidental and rare

SUBSTRATUM Few New Zealand species are confined to one host or related group of hosts, most developing on bark and/or wood of dead branches or trunks of trees or shrubs Some extralimital species grow upon humus, earth, or mosses, *C. kauri* appears to be confined to decorticated much decayed stumps of *Agathis australis; C. confusum* and *C. filicinum* in New Zealand to dead pendent stipes of tree ferns. Noteworthy exceptions are *C. fuciforme*, an active parasite of certain grasses, and the extralimital *C. salmonicolor* which attacks many plants of economic value, such as citrus, tea and coffee. Few produce typical forms of decay as do many species of *Hymenochaete* and *Stereum*, consequently notes as to types of rots have not been included in the text.

ILLUSTRATIONS. Drawings are true to scale, size and shape of structures they illustrate. Unnecessary features, such as obscuring hyphal chips, mineral matter, gelatinous granules and mucilage have been omitted since their inclusion would merely obscure features of diagnostic value Crystals have been omitted save in those species with tissues buried in them, where a segment on the right of the drawing illustrates their development as seen in sections before treatment with HCl for their removal For their preparation, numerous sections were cut from different parts of the fructification so that the typical manner of growth could be illustrated and no characteristic feature overlooked. As in most species context hyphae, basidia and paraphyses collapse or become partly gelatinized when old, drawings necessarily illustrate conditions seen in actively growing specimens.

4. **Corticium** Persoon ex Fries, Epicrisis Systematis mycologici . 556, 1838
Corticium Pers., Mycologici Europaei, *1*, 128, 1822, *pro parte*
Xerocarpus Karst., Finska Vet.-Soc. Bidrag. Nat och Folk, *48* 417, 1889
Lyromyces Karst, *l.c.*, 418.
Gloeocystidium Hoehn. & Litsch., Weisner Festschr. Wien. 58. 1908, non Karst. 1889
Vuilleminia Maire. Bull. Soc. Myc. Fr., *18*, 81, 1902.
Gloeocystidiellum Donk. Nederl. Mycol. Ver. Med, *18–20*. 156. 1931

Hymenophore resupinate, annual or perennial, effused; surface plane, creviced, or even, sometimes finely colliculose, white or coloured. Context composed of one or several strata, each consisting of a basal layer of parallel hyphae,

with usually an intermediate layer of upright hyphae from apices of which the hymenium develops, in some species associated with gloeocystidia and vesicles; hyphal system monomitic (in New Zealand species); generative hyphae hyaline, rarely coloured, branched, septate, naked or coated with crystals or granules of mucilage, with or without clamp connections. Hymenial layer composed of a palisade of basidia and paraphyses, in some species associated with gloeocystidia or paraphysate hyphae. Basidia subclavate or subcylindrical, projecting or not, bearing 2 or 4, sometimes 6 or 8 spores on apical sterigmata. Gloeocystidia of various shapes, thin-walled, aseptate, naked, hyaline, developing in context and/or hymenium. Vesicles commonly unicellular, pyriform or subglobose, developing in context; paraphysate hyphae developing in the hymenium, projecting, cylindrical, sometimes sparingly apically branched. Spores unicellular, variously shaped, wall smooth or verruculose, hyaline or tinted.

TYPE SPECIES. *Corticium evolvens* Fr.

DISTRIBUTION. World-wide.

KEY TO SPECIES

A Gloeocystidia present in hymenium and context

I Gloeocystidia and vesicles present; hyphae with clamp connections.

a Gloeocystidia irregularly cylindrical, to 64 x 8μ: vesicles pyriform or subglobose, to 16μ diameter, spores pip-shaped, often adhering in fours, 5-6 x 2.5-3μ . 1 *C. coprosmae* G. H. Cunn.

b Gloeocystidia flexuous, obclavate or cucurbitiform, to 130 x 15μ in context, to 50 x 10μ in hymenium; vesicles two-celled, encircled by a median band of finger-like processes: spores suballantoid, 8-9 x 4-4.5μ 2 *C. torquatum* G. H. Cunn.

c Gloeocystidia fusiform or ventricose with acuminate projecting apices, to 32 x 5μ; vesicles pyriform, 4-5μ diameter, spores oval or subglobose, 4-6 x 3-3.5μ 3. *C. utriculicum* G. H. Cunn.

II. Gloeocystidia alone present, unaccompanied by vesicles.

a. Spores globose or subglobose.

1 Spores verruculose; clamp connections present.

(a) Spores globose, 7-10μ diameter, gloeocystidia flexuous-cylindrical, to 96 x 12μ 4. *C. globososporum* G. H. Cunn.

(b) Spores subglobose, oval, or obovate, 6-9 x 5-7μ, gloeocystidia flexuous-cylindrical, to 150 x 14μ. 5. *C. punctulatum* Cke

2 Spores smooth, 4-6μ diameter, clamp connections absent, gloeocystidia in hymenium aculeate, in context flexuous-cylindrical, to 80 x 8μ 6 *C. corrosum* G. H. Cunn.

b Spores elliptical, oval, pip-shaped or suballantoid.

1 Clamp connections present.

(a) Spores finely verruculose (see 5. *C. punctulatum*).

(b) Spores smooth.

(1) Context composed of several prominent layers visible in sections under a lens.

1. Context of 30-40 layers, delimited by brown zones of crystals; spores pip-shaped, 4-5 x 2-3μ; gloeocystidia fusiform, subclavate or oval, to 40 x 12μ . 7. *C. perenne* G. H. Cunn.

ii Context of 1-3 layers delimited by zones of crystals and tinted hyphae, spores elliptical, 5-6 x 3-3.5μ, gloeocystidia cylindrical, containing dense orange contents, to 150 x 12μ — 10. *C fistulatum* G. H Cunn.

(2) Context composed of one layer only.

i Spores to 16μ long; gloeocystidia cylindrical, to 150 x 12μ, projecting to half their length — 8 *C patricium* G. H. Cunn.

ii Spores not exceeding 11μ in length, gloeocystidia not projecting

(i) Spores oval, 8-11 x 7-8μ, basidia to 64 x 12μ, gloeocystidia flexuous-cylindrical, often moniliform, 45-110 x 10-12μ — 9 *C radiosum* Fr.

(ii) Spores elliptical, 5-6 x 3-3.5μ, basidia to 16 x 5μ; gloeocystidia cylindrical to 160 x 8μ — 10 *C fistulatum* G. H Cunn.

(iii) Spores elliptical, 6-8 x 2.5-3μ, basidia to 30 x 6μ, gloeocystidia flexuous-cylindrical, often moniliform, to 96 x 8μ — 11. *C litschauerı* Burt

(iv) Spores suballantoid, 7-9 x 2.5-3μ; basidia to 25 x 6μ; gloeocystidia flexuous-cylindrical, to 120 x 6μ — 12 *C protrusum* Burt

(v) Spores pip-shaped, some obovate, often adhering in fours, 6-9 x 3-4.5μ, basidia to 32 x 6μ, gloeocystidia fusiform, ventricose, or obclavate, to 80 x 8μ — 13 *C porosum* Berk & Curt.

2. Clamp connections absent.

(i) Spores broadly elliptical, 4.5-5 x 2.5-3μ; basidia to 16 x 4μ, gloeocystidia cylindrical, to 90 x 8μ; context without crystals, waxy — 14. *C afibulatum* G H Cunn.

(ii) Spores broadly elliptical, some oval, 5-6.5 x 3.5-4.5μ; basidia to 35 x 6μ, gloeocystidia cylindrical, fusiform or subclavate, to 50 x 10μ; context containing masses of crystals, appearing chalky — 15 *C crystallitectum* G. H Cunn.

B. Gloeocystidia absent from hymenium and context

I Spores globose, depressed globose, or subglobose, hyphae with clamp connections.

a Spores echinulate or verruculose

1 Spores 8-10 x 8-9μ depressed globose, with a median umbo, finely closely verruculose, basidia to 36 x 8μ, surface pallid cream; context hyphae naked — 16 *C umbonatum* G H Cunn

2. Spores 5-7 x 4.5-5μ, oval, some broadly elliptical, finely closely echinulate, basidia to 12 x 7μ, surface yellow, arachnoid, context hyphae often crystal coated — 17 *C sulphureum* Pers.

3. Spores 4.5-5.5μ, globose, subglobose, or obovate, moderately echinulate; basidia to 16 x 6μ; surface dingy white, arachnoid; context hyphae naked — 18 *C. tulasnelloideum* H. & L

b. Spores smooth.

1. Context without crystals, hyphae naked

(a) Spores subglobose or oval, 7-11 x 6-9μ, basidia to 60 x 9μ, surface alutaceous to pinkish buff — 19 *C. confluens* Fr

(b) Spores spherical, 6-8μ diameter, basidia to 35 x 9μ, surface cream to pinkish buff — 20 *C. incii* Bres

2. Context packed with masses of crystals, context hyphae crystal coated, spores subglobose, or oval, 7-9 x 6-7μ; basidia to 45 x 12μ, surface chalk white — 21 *C. commixtum* H. & L

II. Spores **elliptical, pip-shaped**, or allantoid, smooth save in *C. polyporoideum*.

a Clamp connections present.

1. Context composed of 20-30 layers visible in sections under a lens, hymenophore composed of numerous crowded angular colonies, spores elliptical or suballantoid 7-9 x 4-4.5μ, basidia to 18 x 8μ — 22 *C. kauri* G. H. Cunn.

2. Context composed of one layer, or sometimes two or three vaguely defined layers

(a) Spores 16-24 x 5-7μ suballantoid, basidia to 112 x 16μ, context hyphae coated with orange granules, hymenophore erumpent through bark, surface reddish, paraphysate hyphae branched apically — 23 *C. comedens* (Nees) Fr

(b) Spores 16-20 x 6-8μ, elliptical with a prominent apiculus; basidia to 56 x 10μ, context packed with masses of crystals, hymenophore surface chalk white paraphysate hyphae unbranched — 24 *C. ampullosporum* G. H. Cunn

(c) Spores not exceeding 10μ in length

i. Growing upon dead pendent fern stipes, context without crystals and context hyphae naked.

(1) Spores elliptical 7-8 x 3-3.5μ, paraphyses conical or fusiform with acuminate apices, without paraphysate hyphae; surface deeply laterally creviced — 25 *C. filicinum* Bourd

(2) Spores allantoid, 5-8 x 1.5-2μ, paraphyses subclavate; paraphysate hyphae present, though rare, surface not creviced — 26 *C. confusum* B. & G.

ii. Growing on wood and/or bark of phanerogams

(1) Context hyphae coated with coloured gelatinous granules which may also be present between them; with or without crystals in the context: hymenophore commonly ceraceous in texture.

(1) Spores pyriform or pip-shaped, 6.5-9 x 6.5-7μ; basidia to 36 x 9μ, hyphae to 6μ diameter, often inflated between nodes; surface seal brown — 27 *C. fallax* G. H. Cunn.

(2) Spores elliptical, 6-8 x 3-4μ, basidia to 34 x 6μ, hyphae to 4μ diameter, not inflated, surface alutaceous, buff, or reddish-brown, polished — 28. *C. luridum* Pers.

(3) Spores elliptical, 4-5.5 x 2.5-3μ, basidia to 25 x 5μ, hyphae to 3μ diameter, not inflated, with paraphysate hyphae, surface chrome-yellow — 29 *C. leptospermi* G. H. Cunn.

(4) Spores elliptical, 4-5.5 x 2-2.5μ, basidia to 24 x 6μ, paraphysate hyphae absent, hyphae to 3μ diameter, not inflated; surface egg-yolk yellow, verrucose — 30 *C. vitellinum* G. H. Cunn

(II) Context containing hyaline crystals either lying in masses between hyphae, coating them, or both, gelatinous granules present in addition in *C. vitellinum*

(1) See *C. vitellinum* No. 30.

(2) Spores elliptical, 3-4.5 x 2-2.5μ; basidia to 12 x 5μ; paraphysate hyphae cylindrical, context containing masses of crystals; surface blistered, cream or alutaceous — 31. *C. bullatum* G. H. Cunn.

(3) Spores elliptical or suballantoid, 6-8 x 3-4μ, basidia to 24 x 6μ, paraphysate hyphae cylindrical, context containing masses of crystals, surface deeply and finely areolately creviced, cream — 32. *C. scutellare* Berk. & Curt

(4) Spores broadly elliptical, or oval, 6-9 x 5-6μ, basidia to 24 x 6μ, paraphysate hyphae apically branched, context containing masses of crystals; surface deeply and finely areolately creviced, cream — 33 *C. corniculatum* G. H. Cunn

(5) Spores elliptical, 5-7 x 3-4μ, basidia to 24 x 6μ, paraphysate hyphae acuminate, context containing masses of crystals, surface scantily creviced, cream — 34 *C. contiguum* Karst.

(6) Spores obovate, 6-8 x 3.5-4μ, with a tinted delicately and irregularly verruculose wall, basidia to 24 x 6μ; paraphysate hyphae absent, crystals confined to hyphae of the context surface even or sparsely creviced yellow — 35 *C. polyporoideum* Berk & Curt.

(iii) Context hyphae naked, not embedded in or coated with crystals or granules of mucilage
(1) Spores suballantoid, 7-9 x 1.5-2μ; basidia to 26 x 7μ; paraphyses subclavate, surface not creviced, cream — 36. *C. cebennense* Bourd.
(2) Spores allantoid, 3-4 x 1-1.5μ, basidia to 12 x 4μ; paraphyses pyriform and subclavate, surface not creviced, white — 37 *C. vescum* Burt

b Clamp connections **absent.**
1. Context **hyphae hyaline.**
(a) Parasitic upon grasses Hymenophore composed of one or several fuciform or clavariform bodies developing from leaves and culms, spores elliptical or suballantoid, 8-11 x 4-6μ . — 38 *C. fuciforme* (Berk.) Wakef.
(b) Saprophytic, growing upon dead bark or wood
(1) Spores oval or ovate. 4.5-6 x 3.5-4μ, context composed of erect hyphae embedded in masses of crystals and coated with them, surface deeply areolately creviced often tuberculate, buff or ochre — 39. *C. tuberculatum* Karst.
(2) Spores obovate or pyriform 4.5-6 x 3-3.5μ, context composed of a dense basal layer of parallel hyphae and an intermediate layer of vertical hyphae, both naked but embedded in masses of crystals, surface pink, creviced, colliculose .. — 40. *C. corydalmes* G. H Cunn
(3) Spores elliptic-obovate, 6-7 x 3-3.5μ, context composed of a narrow basal layer and an intermediate layer of naked hyphae arranged in corymbs, embedding crystals absent; surface not creviced, cream — 41. *C. corymbatum* G. H. Cunn.
2. Context hyphae coloured brown, naked, spores elliptical, 4.5-6 x 2-2.5μ; context of woven hyphae attenuating upwards; surface sparsely creviced, pallid tan — 42 *C. singulare* G. H. Cunn

SECTION A. *Gloeocystidia present in the hymenium or context.*

1. **Corticium coprosmae** n.sp.* Text-fig. 1.

Hymenophorum ceraceum, adnatum, effusum; superficie cremea deinde alutacea, aequa, demum rimosa Hyphae contextu fibulatae, 4–5μ diam., prope basim crystallis Basidia 12–20 x 3–5μ, 4 sporis Gloeocystidia fusiformia vel

* Latin descriptions of new species have been prepared by Miss Beryl Hooton, Librarian of the Plant Diseases Division.

ventricosa, 30–64 x 6–8μ; vesiculis pyriformibus vel subglobosis, ad 16μ diam. Sporae obovatae, attenuato-apiculatae, quaternae conglutinatae, 5–6 x 2 5–3μ, laeves, hyalinae.

Hymenophore annual, tending to lift at edges of crevices and curl at margins when old, ceraceous, effused forming linear areas to 18 x 5 cm., with several orbicular outlying islands; surface cream, becoming fawn or tan, even, at length creviced; margin thinning out, white, arachnoid, adnate but tending to lift when old Context white, 150–250μ thick, composed of a compact basal layer of parallel hyphae and an intermediate layer of loosely arranged upright hyphae somewhat corymbose beneath the hymenium, crystal coated or naked; generative hyphae 4–5μ diameter commonly 3–4μ, wall 0 5μ thick, hyaline, somewhat oval in section, branched, septate, with clamp connections. Hymenial layer 50–60μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate or as often subcylindrical, 12–20 x 3–5μ, 4-spored; sterigmata slender, to 4μ long. Paraphyses cylindrical or subclavate, narrower than the basidia Gloeocystidia confined to the hymenial region, elongate-fusiform, ventricose, some flexuous-cylindrical, attenuate to the apex, or inflated in the middle and tapering to ends, 30–64 x 6–8μ, projecting to 25μ, or not, base rounded, sometimes inflated to 12μ, wall 0 5–1μ thick; vesicles pyriform or subglobose, to 16μ diameter, wall 1μ thick, attached by a narrow neck, scattered in the intermediate layer, collapsing. Spores pip-shaped, with rounded apex and attenuate base, 5–6 x 2 5–3μ, wall smooth, hyaline, 0 25μ thick, sometimes adhering in fours.

DISTRIBUTION. New Zealand.

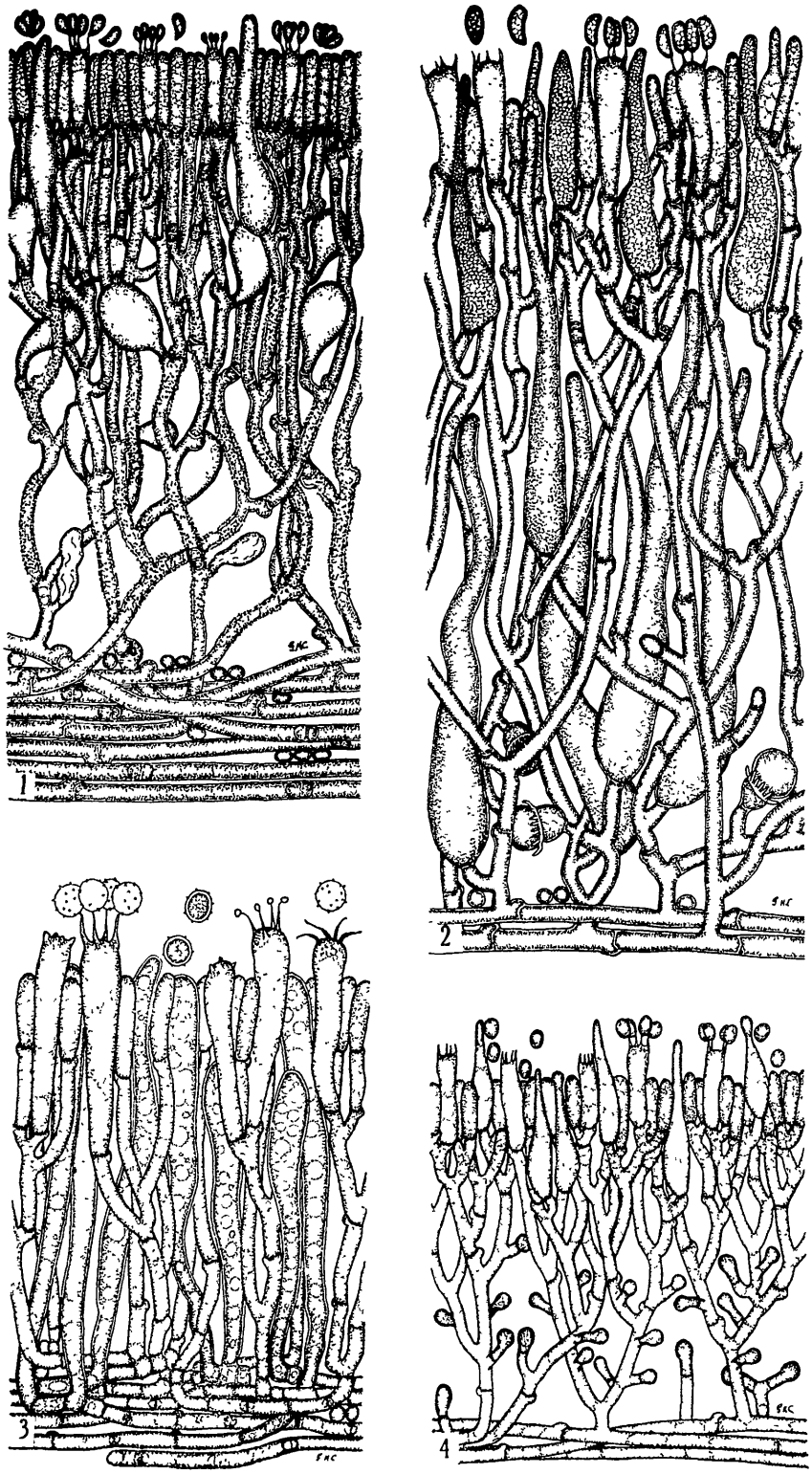
HABITAT Effused on bark of dead branches.

Coprosma australis (A. Rich.) Robinson. Auckland Off Anawhata Road, Waitakeres, 1,000ft., June, 1946, J. M. Dingley, *type collection*, P.D.D. herbarium, No. 4528; same locality, April, 1947, M. Ambler; Cutty Grass Road, Waitakeres, 1,000ft, April, 1949, J. M. Dingley; Upper Piha Valley, August, 1949, J M Dingley, Mt. Atkinson, Titirangi, 1,000ft., May, 1950, J. M. Dingley; Mountain Road, Henderson, 600ft., July, 1950, J M Dingley.

Coprosma robusta Raoul. Auckland. Mt. Te Aroha. 1,100ft., December, 1953. G H C Wellington · Lake Papaetonga, 50ft, September, 1953, G. H. C.

Gloeocystidia vary in shape and size, and are usually confined to the upper part of the context, they are often sparse and difficult to demonstrate save near growing margins. Associated vesicles are usually pyriform and attached by a narrow base, less often subglobose. Usually scattered through the context, sometimes arranged in a dense zone beneath the hymenial layer, vesicles may sometimes be seen only near margins. In mature specimens they usually disappear leaving cavities in the compact often pseudoparenchymatous tissues Clamp connections are large and abundant in context hyphae, though absent from bases of gloeocystidia and vesicles. The fungus is probably a parasite, since collections have been taken from recently dead branches attached to living plants and still retaining some discoloured leaves

Superficially the species resembles *C evolvens* Fr but differs in such microfeatures as much smaller spores and basidia, different gloeocystidia and presence of vesicles. It also resembles *C evolvens* and *C gloeosporum* Talbot in that the pip-shaped spores often adhere in fours.



TEXT-FIG. 1.—*Corticium coprosmae*. TEXT-FIG. 2.—*Corticium torquatum*. TEXT-FIG. 3.—*Corticium globososporum*. TEXT-FIG. 4.—*Corticium utriculicum*. Original, × 500.

2. **Corticium torquatum** n.sp Text-fig. 2.

Hymenophorum membranaceum, adnatum, effusum, superficie alba, deinde pallide cremea, pruinosa, demum rimosa Hyphae contextus fibulatae, 3–4μ diam., nudae Basidia 16–24 x 6–9μ, 4 sporis Gloeocystidia obclavata vel cucurbitiformia, ad 130 x 15μ in contextu, 30–48 x 6–10μ in hymenio, vesiculis duobus inaequalibus cellulis, pyriformibus, ad 14 x 10μ, septo corona digitorum cincto Sporae ellipticae vel suballantoides, apiculatae, 8–9 x 4–4 5μ, laeves, hyalinae.

Hymenophore annual, adnate, membranous, effused, forming linear areas to 14 x 3 cm., surface white, becoming pallid cream, finely pruinose, sparsely creviced when old; margin thinning out, white, arachnoid, adnate. Context white, 200–300μ thick, composed of a narrow base of parallel hyphae and an intermediate layer of upright hyphae more densely arranged beneath the hymenium, anastomosing when old, generative hyphae 3–4μ diameter, wall 0·25μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer 30–50μ deep, of basidia, paraphyses, paraphysate hyphae and gloeocystidia. Basidia subclavate, 16–24 x 6–9μ, 4-spored; sterigmata slender, to 6μ long. Paraphyses subclavate, narrower than the basidia, paraphysate hyphae scanty, projecting, cylindrical with rounded apices Gloeocystidia obclavate or cucurbitiform, base rounded, apex long-acuminate, in context to 130 x 15μ, in hymenial layer 30–48 x 6–10μ, projecting to 20μ, or not, wall 0 5μ thick. Vesicles arising from lateral branches at bases of context hyphae, unequally two-celled, with a girdle of digitate processes 1–4μ long encircling the septum, pyriform, to 14 x 10μ, wall 0 5μ thick Spores elliptical or suballantoid, apiculate, 8–9 x 4–4 5μ, wall smooth, hyaline, 0 25μ thick

DISTRIBUTION. New Zealand

HABITAT Effused on decorticated decaying wood.

Beilschmiedia tawa (A. Cunn.) Hook. f & Benth Auckland Campbell's Bay, February, 1953, Mrs E. E Chamberlain.

Dysoxylum spectabile (Forst. f.) Hook. f. Auckland: Coromandel coast, December, 1946, J. M Dingley, *type collection*, P D.D herbarium, No. 5035.

Pseudotsuga douglasii Carr Auckland Campbell's Bay, January, 1953, Mrs E E Chamberlain

Gloeocystidia may be abundant or scanty, are of two sizes, and in fresh specimens contain orange coarsely granular contents. Vesicles are unusual: they are two-celled, with the septum girdled by a band of digitate processes, a feature not recorded for any other species, hence the specific epithet. They also may be abundant or scanty, and arise in the base of the intermediate layer from short lateral branches Paraphyses are irregular, some being clavate, others fusiform or ventricose, a few long-elliptical with acuminate apices Occasional paraphysate hyphae project beyond the basidia.

3 **Corticium utriculicum** n.sp Text-fig 4

Hymenophorum membranaceum, adnatum, effusum, superficie alba deinde cremea, pruinosa, rimosa. Hyphae contextus fibulatae, 3–4μ diam., prope basim crystalla interdum ferentes. Basidia 16–24 x 4–5μ, 4 sporis. Gloeocystidia fusiformia vel ventricosa, aliquot capitata, 20–32 x 4–5μ; vesiculis pyriformibus, 4–5μ diam Sporae ovatae, 4–6 x 3–3 5μ, laeves, hyalinae.

Hymenophore annual, adnate, membranous, effused, forming irregular linear areas to 15 x 4 cm.; surface white, becoming cream, pruinose, creviced when old; margin thinning out, arachnoid, white, adnate. Context white, 70–140μ thick, composed of a narrow base of parallel hyphae and an intermediate layer of scanty upright hyphae branched more freely beneath the hymenium, with or without crystals; generative hyphae 3–4μ diameter, wall 0 2μ thick, hyaline, branched, septate, with clamp connections, sometimes crystal coated near the base Hymenial layer to 50μ deep, of basidia, paraphyses and gloeocystidia Basidia subclavate, subcylindrical, some constricted in the middle region, 16–24 x 4–5μ, 4-spored, projecting; sterigmata slender, to 6μ long. Paraphyses subclavate or cylindrical, shorter and narrower than the basidia. Gloeocystidia confined to the hymenial region, fusiform or ventricose with acute apices, some capitate, 20–32 x 4–5μ, projecting to 15μ, or not, wall 0 25μ thick Vesicles arising from hyphae of the intermediate layer on short lateral branchlets, pyriform or abruptly capitate, 4–5μ diameter, smooth, staining deeply Spores oval, a few subglobose, 4–6 x 3–3 5μ, wall smooth, hyaline, 0 2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on bark of decaying branches.

Beilschmiedia tawa (A. Cunn.) Hook. f & Benth. Wellington. Pohangina Reserve, 300ft., September, 1953, G. H. C.

Coprosma australis (A. Rich.) Robinson. Wellington. Pohangina Reserve, 300ft, September, 1953, G. H C.

Cupressus macrocarpa Hartw. Auckland. Campbell's Bay, October, 1947, Mrs. E. E. Chamberlain.

Hedycarya arborea Forst. Auckland. Huia, March, 1953, J M. Dingley.

Macropiper excelsum (Forst f.) Miq. Auckland: Manaia, Whangarei Heads, October, 1947, J. M. Dingley; Piha, November, 1952, J. M. Dingley

Melicytus ramiflorus Forst Auckland: Waitekaruru, Waitakeres, November, 1948, J. M. Dingley; Oratia, 600ft., December, 1952, J. M. Dingley

Metrosideros scandens Sol Auckland. Taneatua Reserve, 50ft, May, 1952 G. H. C

Pinus radiata Don Auckland: Campbell's Bay, November, 1952, E. E Chamberlain.

Pseudopanax crassifolium (Sol.) Koch. Wellington· Pohangina Reserve, 300ft., September, 1953, G. H. C

Rhipogonum scandens Forst. Auckland: Huia Filters, November, 1948, J M Dingley; Lake Okataina, 1,500ft., June, 1952, G. H. C, *type collection*, P.D D herbarium, No. 11505

Specific characters are the fusiform or ventricose small gloeocystidia, small oval spores, and lateral pyriform vesicles Gloeocystidia are confined to the hymenial region, apices being usually long-acuminate and projecting slightly, though some are capitate Vesicles arise from lateral branchlets of the upright hyphae of the intermediate layer; they may be abundant, then appearing in whorls on the hyphae, or scanty when but one or two may be seen near the base In old specimens tissues may collapse and become somewhat pseudoparenchymatous. Crystals may be present or absent, consequently they have not been included in the drawing.

4. **Corticium globososporum** n.sp. Text-fig 3.

Hymenophorum membranaceum, adnatum, effusum, superficie cremea, leviter pruinosa, non rimosa. Hyphae contextus fibulatae, 3–4μ diam., nudae. Basidia 30–70 x 8–10μ, 2–4 sporis. Gloeocystidia cylindricalia, interdum subclavata, 50–96 x 8–12μ Sporae globosae vel subglobosae, 7–10 x 7–9μ, tenuiter raro verruculosae, hyalinae.

Hymenophore annual, membranous, adnate, effused, forming linear areas to 10 x 4 cm.; surface slightly farinose, cream, even, not creviced; margin thinning out, arachnoid, white, adnate. Context white, 60–80μ thick, composed of a narrow base of parallel hyphae, and an intermediate layer of upright hyphae which become compact and cemented when old; generative hyphae 3–4μ diameter, naked, wall 0·2μ thick, hyaline, branched, septate, with clamp connections. Hymenial layer 45–60μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate, 30–70 x 8–10μ, 2–4-spored, sterigmata slender, 6–8μ long. Paraphyses subclavate, much smaller than the basidia. Gloeocystidia arising from the base of the context, crowded, projecting to 30μ, or not, flexuous-cylindrical or a few subclavate, 50–96 x 8–12μ, wall 1μ thick. Spores globose or subglobose, 7–10 x 7–9μ, wall finely sparsely verruculose, to 1μ thick, non-amyloid.

DISTRIBUTION New Zealand.

HABITAT. Effused on decorticated wood.

Dacrydium cupressinum Sol. Auckland: Glen Esk Valley, Piha, May, 1951, J. M Dingley, *type collection*, P.D.D. herbarium, No. 11273.

Unknown Host. Auckland· Mohaka Valley, Kaimanawa Ranges, 2,000ft., May, 1953, J. M. Dingley.

Differentiated by the subglobose or globose verruculose spores, flexuous-cylindrical abundant gloeocystidia, scanty context and non-creviced, membranous, cream hymenophore. Verruculae of the spores are scanty, evenly spaced, broad at the base, and about 1μ long. Gloeocystidia arise from the base of the context, singly or sometimes in groups when their bases may be fused to form small islands of pseudoparenchyma.

Judging from the description published by Bourdot & Galzin (1928, p 260) their subspecies *Gloeocystidium analogum* is similar. Since authentic specimens have not been examined they are regarded as distinct, especially as Bourdot & Galzin stated their species resembled exteriorly and in spore form *Corticum confluens*, whereas our plant does not. Spores especially differ in being nearly spherical, with thick definitely echinulate walls.

5. **Corticium punctulatum** Cooke, Grevillea, *6*, 132, 1878. Text-fig 7

Hypochnus sordidus Schroet, in Cohn, Krypt.-Fl. Schles., *3*, 418, 1888
Kneiffia eichleri Bres., Ann. Myc., *1*, 101, 1903
Hypochnus cremicolor Bres., *l.c.*, 109
H albo-stramineus Bres, *l.c.*, 110.
Peniophora sordidella H. & L. Sitzgb. K. Akad. Wiss., Wien Math Nat Kl., *115*, 1559, 1906.
P. sphaerospora H. & L., *l.c.*, 1600.
P. peckii Burt, Ann. Missouri Bot. Gard., *12*, 291, 1926

Hymenophore annual, arid, membranous, closely adnate, effused, forming linear or irregular areas to 15 x 10 cm.; surface straw colour or pallid ochre, at first somewhat loose and punctulate, becoming stellately creviced; margin thin-

ning out, adnate, straw colour, arachnoid, sometimes irregularly poroid-reticulate Context straw colour, 90–130μ thick, composed of a base of a few stout repent hyphae and an intermediate layer of loosely woven, widely branched, frequently anastomosed hyphae more densely compacted in the subhymenium; generative hyphae to 7μ diameter, wall 0·5–1μ thick, becoming thinner towards the hymenium, naked, hyaline, septate, with large, often proliferating clamp connections Hymenial layer to 60μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate, 20–35 x 6–8μ, 4-spored: sterigmata slender, to 7μ long. Paraphyses clavate, smaller than the basidia. Gloeocystidia arising from the base of the context and beneath the hymenial layer. flexuous-cylindrical, 64–150 x 8–14μ, projecting to 90μ, or not, wall 0 5μ thick Spores oval, obovate, subglobose, a few elliptical, 6–9 x 5 5–7μ, apiculate, wall delicately granular-verruculose, hyaline, 0·75–1μ thick, staining deeply

TYPE LOCALITY. South Carolina, U.S.A

DISTRIBUTION. Europe, Great Britain, North America, New Zealand

HABITAT Effused on bark of decayed fallen trunks.

Pinus ponderosa Dougl. Auckland: Rotorua State Forest October, 1932, R. Murray.

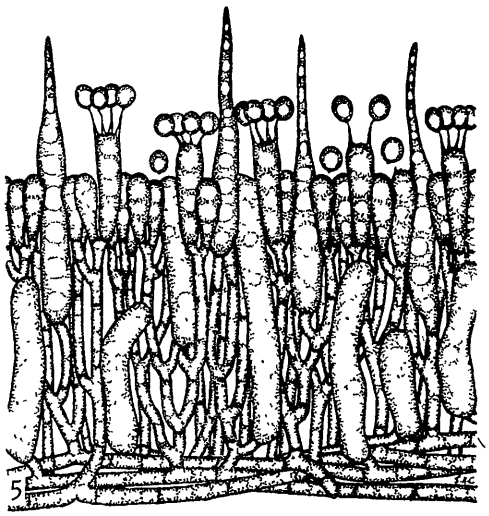
Pinus radiata Don Auckland· Putaruru. November, 1953, J M Dingley, Atiamuri, November, 1953, J. M Dingley

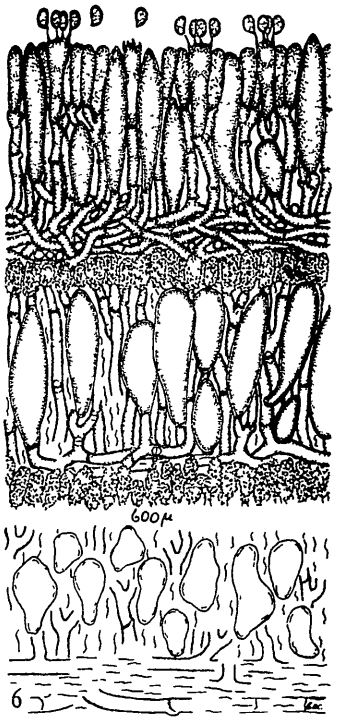
Spores may be globose, subglobose, oval, obovate or elliptical, and are delicately granular-verruculose, thick-walled and stain deeply. They are often found scattered among the context hyphae Gloeocystidia are flexuous-cylindrical, arise from the base of the context and beneath the hymenium, the latter often projecting to as much as 90μ. Paraphyses are more clavate than in most species and often develop at a wide angle Clamp connections are large and frequently proliferating. Context hyphae branch at a wide angle, and sometimes anastomose as is shown in the illustration. Synonyms are some of those given by Rogers and Jackson (1943, 320), numerous combinations being omitted

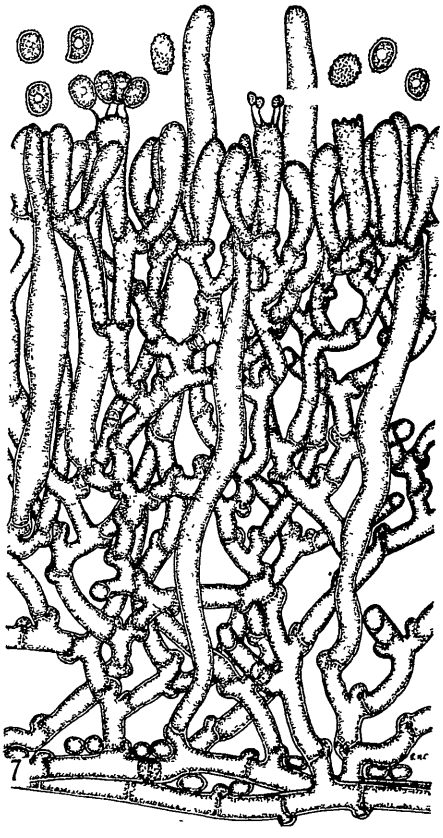
6. **Corticium corrosum** n.sp. Text-fig. 5.

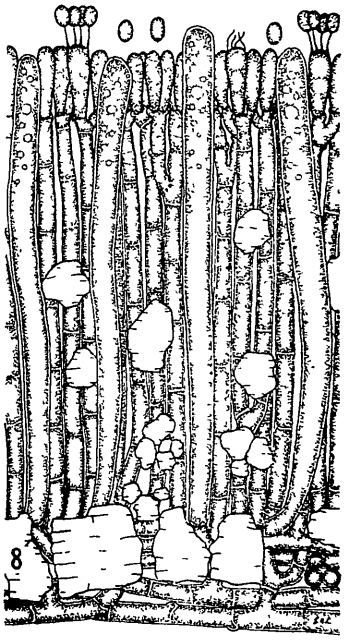
Hymenophorum ceraceum, adnatum, effusum, superficie cremea vel pallide ochracea, non rimosa. Hyphae contextus afibulatae, 2–3 5μ diam., nudae Basidia 20–24 x 5–6μ, 2–4 sporis Gloeocystidia strati hymenialis, longo-acuminata, contextus cylindricale flexuosa, 40–80 x 6–8μ. Sporae globosae vel subglobosae apiculatae, 4–6 x 4–5μ, laeves, hyalinae

Hymenophore annual, closely adnate, ceraceous, effused, forming linear areas to 30 x 6 cm ; surface rich cream to pallid yellow ochre, even, not creviced; margin thinning out, definite, cream, even, byssoid Context 10–50μ deep, white, composed of a few basal hyphae and an intermediate layer of mainly vertical hyphae, generative hyphae 2–3 5μ diameter, wall 0 2μ thick, naked, branched, septate, without clamp connections, sometimes inflated near septa Hymenial layer to 70μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate, 20–24 x 5–6μ, projecting, 2–4-spored; sterigmata slender, 6–8μ long. Paraphyses clavate, shorter than the basidia. Gloeocystidia of two types: (a) arising in the subhymenium, aculeate, apex long-acuminate, 15–40 x 5–6μ, projecting; (b) arising from the base of the context, flexuose-cylindrical, 40–80 x 6–8μ, with rounded









TEXT-FIG 5—*Corticium corrosum* TEXT-FIG 6.—*Corticium perenne.* TEXT-FIG. 7.—*Corticium punctulatum.* TEXT-FIG. 8.—*Corticium fistulatum. Original* × 500

base and apex, some passing into the hymenium but not projecting, wall 0·25μ thick. Spores globose or subglobose, apiculate, 4–6 x 4–5μ, wall smooth, hyaline, 0·2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on decorticated wood.

Coprosma australis (A. Rich.) Robinson Wellington Ohakune, 2,000ft. December, 1953, J. M. Dingley.

Coprosma robusta Raoul. Auckland: Campbell's Bay, July, 1953, J. M. Dingley.

Griselinia lucida Forst. f. Taranaki: Mt. Egmont, 2,500ft., March, 1951, J. M. Dingley.

Metrosideros robusta A. Cunn Auckland. Mt. Te Aroha, 2,750ft., November, 1946, G. H. C.

Nothopanax colensoi (Hook. f.) Seem. Auckland: Mt. Hauhangatahi, 2,800ft, February, 1952, G. H. C., *type collection*, P.D.D. herbarium, No. 11350 Taranaki Mt. Egmont, 3,000ft., March, 1951, J M. Dingley. Wellington · Ohakune, 2,000ft., December, 1953, J. M. Dingley.

Characterized by the two types of gloeocystidia, small globose smooth spores, absence of clamp connections, and widely effused, adnate, pallid ochre, thin and even hymenophore closely appressed to naked wood Gloeocystidia of the hymenial layer are long-aculeate and project for about half their length. Because of their size, shape and position the species might be sought under *Peniophora;* without justification, however, since these bodies are true gloeocystidia with naked exterior and oily yellow contents Those of the context are flexuous-cylindrical with rounded ends, often bent at an angle or allantoid and also contain oily yellow contents Gloeocystidia may be abundant or scanty in different collections; sometimes the aculeate form may be wanting. All structures of the hymenium are filled with conspicuous oil globules and each spore contains a large globule, sometimes almost filling the interior. Plants are so readily devoured by snails or insects that it is usually difficult to secure a fertile specimen for examination—hence the specific name

7. **Corticium perenne** n.sp. Text-fig. 6.

Hymenophorum membranaceo-coriaceum, adnatum, stratosum, effusum; superficie alba deinde pallide cremea, raro rimosa senectute Contextus 30–40 stratosum in crystallorum et gloeocystidiorum zonis divisorum; hyphis fibulatis, 2–3μ diam., crystallis tectis, basi omnis zonae Basidia 16–20 x 4–6μ diam., 4 sporis. Gloeocystidia fusiformia vel clavata, 30–40 x 8–12μ Sporae obovatae, attenuato-apiculatae, 3 5–5 x 2–3μ, laeves, hyalinae.

Hymenophore perennial, stratose, membranous-coriaceous, closely adnate, forming linear areas to 20 x 3 cm ; surface white, becoming pallid cream, even, sparsely creviced when old; margin receding in each successive layer, white, adnate, arachnoid, black creviced and vernicose where long exposed Context 2–2 5 mm. thick, cream or isabelline, composed of 30–40 brown-tinted layers each 50–130μ deep, of densely packed mainly vertical hyphae with narrow bands of parallel hyphae and crystals or crystal-coated hyphae between; generative hyphae 2–3μ diameter, wall 0 2μ thick, hyaline, branched, septate, with clamp connections Hymenial layer of basidia, paraphyses and gloeocystidia, to 25μ deep Basidia

subclavate, 16–20 x 4–6μ, 4-spored; sterigmata slender, to 4μ long. Paraphyses subclavate, about half the length of the basidia. Gloeocystidia arising near the base of each layer, fusiform or clavate, 30–40 x 8–12μ, not projecting, wall 0·5–1μ thick. Spores pip-shaped, a few suballantoid, 3·5–5 x 2–3μ, apiculate, wall smooth, hyaline, 0·2μ thick

DISTRIBUTION. New Zealand

HABITAT. Effused on decorticated wood.

Dacrydium cupressinum Sol. Auckland: Titirangi beach, October, 1946, J. M. Dingley, *type collection*, P.D.D. herbarium, No. 4761.

Recognized readily by the thick perennial hymenophore composed of as many as 40 layers, visible under a lens. Each layer consists of a palisade of gloeocystidia and is demarked at the base by masses of crystals tinted brown coating the ends of context hyphae and paraphyses or lying between them From the current hymenium to the base there is progressive deterioration through gelatinization of walls of hyphae and gloeocystidia; consequently towards the base only a few hyphal remnants are discernible as such and the position of gloeocystidia indicated by cavities of irregular size and shape. Layers are not equal in width but may range from 50 to 130μ in depth, and sometimes merge at intervals.

8 **Corticium patricium** n.sp. Text-fig. 9

Hymenophorum ceraceum, adnatum, effusum; superficie cremea deinde pallide ochracea vel bubalina, aequa, demum rimosa. Hyphae contextus fibulatae, 4–6μ diam., aliquot prope basim crystallis tectae, interdum in crystallis sitae. Basidia 24–48 x 5–8μ, 2–4 sporis. Gloeocystidia ad 70μ eminentes, cylindricalia, terminis rotundis, aliquot prope apices constricta, 60–150 x 8–12μ. Sporae longo-ellipticae, 10–16 x 4–6μ, laeves, hyalinae

Hymenophore annual, adnate, ceraceous, effused, forming linear areas to 30 x 4 cm; surface cream, becoming straw colour, pallid ochre or buff, even, at length creviced then tending to lift at creviced edges; margin thinning out, membranous, white, adnate Context white, 75–500μ thick, composed of a narrow basal layer of parallel hyphae, and an intermediate layer of vertical hyphae densely arranged, some crystal coated near the base and embedded in masses of crystals, or the latter may be wanting; generative hyphae 4–6μ diameter, wall 0·5μ thick, hyaline, branched, septate, with clamp connections Hymenial layer 60–90μ deep, of basidia, paraphyses and gloeocystidia Basidia clavate, 24–48 x 5–8μ, 2–4-spored; sterigmata slender, to 10μ long Paraphyses subclavate, same length but narrower than the basidia. Paraphysate hyphae scanty, cylindrical Gloeocystidia arising from the context and projecting 30–70μ, cylindrical with rounded apices, sometimes slightly moniliform, or strangulated near apices, 60–150 x 8–12μ, wall to 1μ thick Spores long-elliptical, 10–16 x 4–6μ, wall smooth, hyaline, 0·25μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on bark of dead branches.

Acacia dealbata Link. Auckland: Tinopai, 100ft., April, 1947, J. D. Atkinson

Coriaria arborea Linds. Auckland: Kohekohe, Waiuku, February, 1953, J M. Dingley.

Leptospermum ericoides A. Rich. Auckland: Hautepe, Taupo, March, 1953. J. M. Dingley.

Macropiper excelsum (Forst. f.) Miq. Auckland: Hick's Bay, 300ft., May, 1952, G. H. C.

Melicytus ramiforus Forst. Auckland: Huia, July, 1953, J. M. Dingley

Meryta sinclairii (Hook. f.) Seem. Auckland: South-west King Island, January, 1952, E. E. Chamberlain.

Nothofagus cliffortioides (Hook. f.) Oerst. Auckland: Whakapapa, Mt Ruapehu, 3,000ft., October, 1949, J. M Dingley, *type collection*, P.D.D. herbarium, No. 11220. Otago: Routeburne Valley, February, 1948, J M. Dingley.

Nothopanax arboreum (Forst. f.) Seem. Auckland. Mt. Ruapehu, 3,000ft. October, 1949, J M. Dingley.

Rubus sp. Wellington: Ohakune, 2,000ft., December, 1953, J. M Dingley

Large elliptical spores with one prominent guttula and long, stout, cylindrical gloeocystidia projecting 40–70μ are the main diagnostic features. When well developed and filled with oily contents gloeocystidia are conspicuous bodies in sections; but in old specimens they collapse and are sometimes difficult to detect Tissues of the context become somewhat gelatinized when old, and tend to become pseudoparenchymatous. Crystals may be present then forming masses near the base and coating some of the context hyphae; in other collections they may be wanting.

9. **Corticium radiosum** Fries, Epicrisis Systematis mycologici . . , 560, 1838 Text-fig. 10.

Thelephora radiosa Fr., ex Pers., Myc Eur. *1* 130. 1822.
Corticium alutaceum (Schrad.) Bres., Atti I. R. Accad. Agiati, III, *3*, 110, 1897
Gloeocystidium alutaceum (Schrad.) Bourd. & Galz., Bull. Soc. Myc Fr., *28*. 367. 1913

Hymenophore closely adnate, membranous, effused, forming linear areas to 12 x 5 cm.; surface cream, later pallid buff, even, not creviced; margin thinning out, white, fibrillose, adnate. Context white, 30–120μ thick, composed of a narrow layer of parallel hyphae at the base, and vertical compact hyphae forming the intermediate layer; generative hyphae 3–4μ diameter, wall 0 5μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 80μ deep, of basidia, paraphyses and gloeocystidia. Basidia clavate, projecting, 45–64 x 11–14μ, 2–4-spored; sterigmata stout, 8–10μ long. Paraphyses subclavate, thinner and shorter than the basidia Gloeocystidia crowded in the context and hymenium, forming a dense palisade, arising from the base, flexuous-cylindrical, moniliform, or subclavate, scarcely or not projecting, 45–110 x 10–12μ, wall 1μ thick. Spores oval, a few subglobose, 8–11 x 7–8μ, apiculate, wall smooth, hyaline, 0 5μ thick.

TYPE LOCALITY. Europe

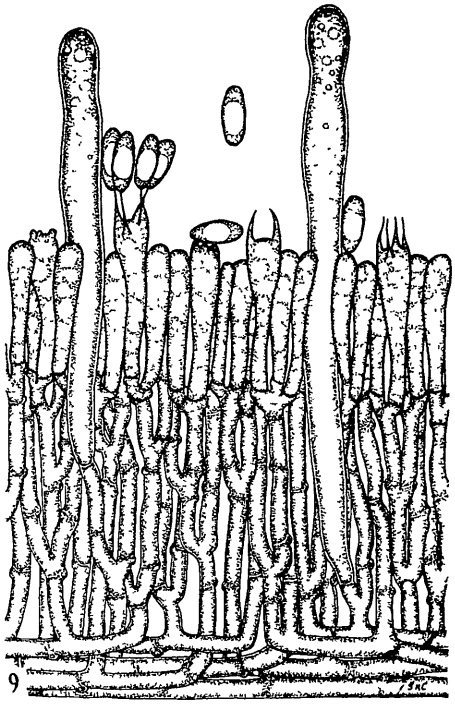
DISTRIBUTION. Europe, Great Britain, North America, New Zealand

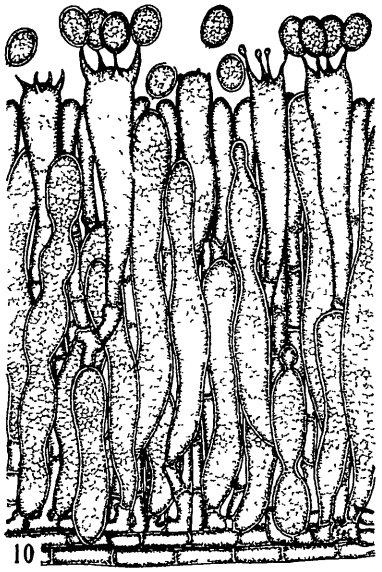
HABITAT. Effused on decorticated wood.

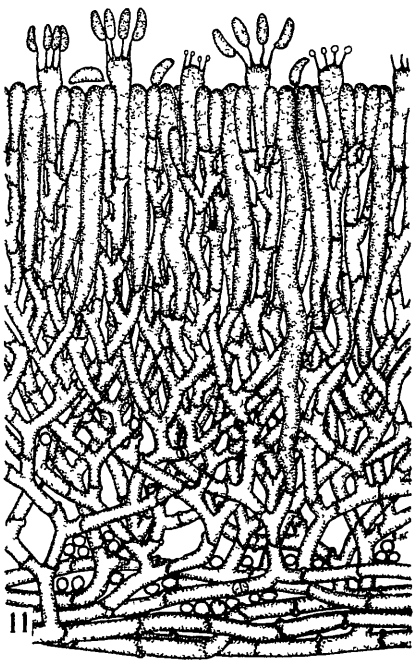
Coprosma robusta Raoul Westland: Staircase Creek, Reefton, 2,000ft., December, 1952, S. D. Baker.

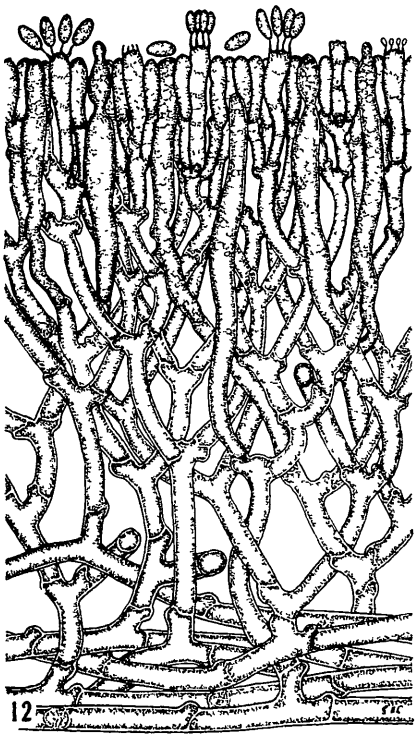
Griselinia littoralis Raoul. Auckland: Whakapapa, Mt. Ruapehu, 3,000ft., October, 1949, J. M. Dingley.

Leucopogon fasciculatus (Forst. f.) A. Rich. Auckland: Mt. Te Aroha, 1,100ft December, 1953, G. H. C.









TEXT-FIG. 9.—*Corticium patricium* TEXT-FIG 10.—*Corticium radiosum* TEXT-FIG. 11.—*Corticium protrusum*. TEXT-FIG. 12.—*Corticium litschaueri* Original, × 500.

Specific features are the oval spores, large, often strangulated or moniliform gloeocystidia crowded into the context, and large clavate basidia The last are abundant, unusually large and project slightly when fertile, whereas paraphyses are scanty, slender and seldom more than half their length. Gloeocystidia are irregular both in shape and size. Many of small size are crowded near the base; others pass from the base to the hymenium but seldom project. Most are moniliform, others cylindrical and sometimes strangulated near the apex. Spores are somewhat larger and more oval than in European collections examined and not at all roughened; but collections agree in so many other features that despite these differences they are regarded as co-specific. Superficially plants resemble collections of *C. patricium*.

10. **Corticium fistulatum** n.sp. Text-fig. 8.

Hymenophorum ceraceo-coriaceum, adnatum, effusum; superficie alba demde cremea vel alutacea, laterale rimosa. Contextus 1–3 stratis, multis crystallis et hyphis tinctis divisis; hyphis fibulatis, 4–5μ diam., nudis. Basidia 12–16 x 4–5μ, 2–4 sporis. Gloeocystidia cylindricale flexuosa, 80–160 x 5–8μ, corpore aurantio expleta. Sporae ellipticae, 5–6 x 5–3·5μ, laeves, hyalinae.

Hymenophore annual or perennial, adnate, ceraceous-coriaceous, effused, forming linear areas to 30 x 3 cm., or irregular areas with a few outlying islands, surface white, becoming cream or alutaceous, sometimes tinted reddish-buff, laterally closely creviced, margin thinning out, white or tinted brown, abrupt, sometimes receding, membranous, adnate. Context white, 200–400μ thick, of 1–3 obscure layers, defined partly by masses of crystals and tinted hyphae, mainly by rows of gloeocystidia, each layer composed of a narrow base of parallel hyphae, and an intermediate layer of compact vertical hyphae; generative hyphae 4–5μ diameter, wall 0 5μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 50μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate, 12–16 x 4–5μ, 2–4-spored; sterigmata slender, to 8μ long. Paraphyses subclavate, similar to but smaller than the basidia. Gloeocystidia extending from the base of each context layer, projecting to 30μ, or not, cylindrical or flexuous-cylindrical, 80–160 x 5–8μ, wall 0 5–0 75μ thick, contents densely granular and orange. Spores elliptical, some apiculate, 5–6 x 3–3 5μ, wall smooth, hyaline, 0·2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on dead bark or decorticated wood.

Leptospermum ericoides A. Rich. Auckland: Huia, October, 1953, J. M. Dingley

Leptospermum scoparium Forst Auckland: Kauri Park, Birkenhead, July, 1946, J. M. Dingley, *type collection*, P.D.D. herbarium, No 4562; Huia, March, 1953, J. M. Dingley.

Metrosideros tomentosa A Rich Auckland: Coromandel coast, November, December, 1946, J. M. Dingley.

Gloeocystidia are long, narrow, flexuous-cylindrical, regularly spaced, and extend from the base to the surface of the hymenium, some projecting to 30μ Filled with granular orange contents, they are conspicuous and readily seen in sections; even in old specimens they are conspicuous, for they either retain the orange colour or contents appear dark-brown and resinous. When fully grown

plants may consist of three definite layers, separated by zones of parallel tinted hyphae embedding masses of crystals; but as several specimens in the collections listed consist of a single layer this does not appear to be a constant feature. Crystals may be confined to the base, scattered through the context, or absent.

From other species with gloeocystidia containing bright orange contents—*C debile* B. & C., *C. leucoxanthum* Bres., *C luridum* Bres., *C leucocystidiatum* Talbot and *C. serrale* Fr it may be separated by the often stratose context, singularly even spacing of gloeocystidia, small basidia and spores.

11. **Corticium litschaueri** Burt, Annals of the Missouri Botanic Garden, *13*, 259, 1926 Text-fig 12.

Corticium septentrionale Burt, Annals of Missouri Bot. Gard., *13*, 257, 1926

Hymenophore annual, adnate, membranous, effused, forming elliptical areas to 14 x 4 cm.; surface white, then cream, coarsely areolately creviced; margin thinning out, white or cream, arachnoid, adnate. Context white, 180–250μ thick, composed of a narrow basal layer of parallel hyphae, and an intermediate layer which at first composed of loosely woven hyphae branched at a wide angle, later becomes compacted and often anastomosed, gloeocystidia then collapsing and represented by lacunae; generative hyphae 4–8μ, commonly 5–6μ diameter, wall 0 5–1μ thick, naked, hyaline, branched at a wide angle, septate, with large clamp connections Hymenial layer to 50μ deep, of basidia, paraphyses and gloeocystidia Basidia subclavate, 20–32 x 4–6μ, 4-spored; sterigmata slender, to 6μ long Paraphyses subclavate, about half the length of the basidia. Gloeocystidia abundant or sparse, arising from the upper part of the intermediate layer, flexuous-cylindrical, some moniliform, 40–96 x 4–8μ, projecting to 15μ, or not, wall 0 5μ thick; staining deeply. Spores elliptical, 6–8 x 2 5–3μ, wall smooth, hyaline, 0 2μ thick.

TYPE LOCALITY North Dakota, U.S A

DISTRIBUTION. North America, New Zealand.

HABITAT Effused on bark of dead branches.

Aristotelia serrata (Forst. f.) Oliver Auckland Otau, Hunua Range, April, 1950, J M Dingley; Oratia, December, 1952, J. M. Dingley, Lake Okataina, 1,400ft., December, 1953, G. H C. Wellington Ohakune, 2,000ft., December, 1953; J M Dingley Westland: Staircase Creek, Reefton, 2,000ft., December, 1952, S. D. Baker. Otago Stewart Island, Horse Shoe Bay, February, 1954, J M Dingley.

Coprosma arborea Kirk. Auckland. Little Barrier Island, November, 1947, J M. Dingley

Coprosma australis (A. Rich.) Robinson. Auckland Off Anawhata Road. Waitakeres, 1,100ft., October, 1946, J. M. Dingley

Hedycarya arborea Forst. Auckland: Te Moehau, Coromandel Peninsula January 1947, J M. Dingley.

Nothofagus cliffortioides (Hook f) Oerst Otago Routeburne Valley, February, 1948, J M Dingley

Nothofagus fusca (Hook f) Oerst Westland Staircase Creek, Reefton, 2,000ft., November, 1952, S. D Baker

Nothofagus menziesii (Hook f.) Oerst Hawke's Bay Poronui, 2,000ft., June, 1953, J M Dingley Otago Tuatapere, Alton Valley, 500ft., February, 1954, J M Dingley.

Nothopanax arboreum (Forst. f.) Seem. Taranaki: Mt. Egmont, 3,000ft., March, 1951, J. M. Dingley; same locality, 2,750ft., February, 1952, G. H. C.

Pennantia corymbosa Forst. Westland: Wcheka, December, 1946, J. M Dingley.

Senecio elaeagnifolius Hook. f. Taranaki: Mt. Egmont, 3,000ft., March, 1951. J. M. Dingley.

Readily recognized by the stout, somewhat thick-walled hyphae branching at a wide angle and becoming corymbose beneath the hymenium, long slender gloeocystidia arising in the context and passing to the surface of the hymenium, moderately sized spores and white or cream membranous hymenophore. In some collections gloeocystidia may all be flexuous-cylindr cal, in others moniliform, in others again both types may be present. Though sometimes difficult to demonstrate they are most readily seen near margins.

Collections agree with a specimen of *C. septentrionale* Burt from Winnipeg, Canada, examined in Kew herbarium. According to Rogers & Jackson (1943, 300) this is a synonym of *C. litschauer.* They chose the latter name for the species, on the grounds that there is no provision in the International Rules of Botanical Nomenclature which makes page priority compulsory, the type of *C. litschauer* is in better condition, and they wished to honour the name of an eminent student of the Thelephoraceae, the late Viktor Litschauer. The species most closely resembles *C. protrusum* differing in features discussed under the latter

12. **Corticium protrusum** Burt, Annals of Missouri Botanic Garden, *13*, 260, 1926. Text-fig. 11.

Hymenophore annual, adnate, following the substratum closely, membranous, effused, forming elliptical or irregular areas to 10 x 6 cm.; surface cream, then alutaceous, finally ochraceous, irregularly colliculose, at length sparsely creviced, margin thinning out, white then cream, arachnoid, adnate. Context white, varying in thickness from 100μ to 500μ, composed of a base of parallel compact hyphae, and an intermediate layer of woven hyphae becoming compact towards the hymenium; generative hyphae 3–4μ diameter, wall 0·2μ thick, naked, hyaline, freely branching at a wide angle, septate, with clamp connections. Hymenial layer to 70μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate, 25–35 x 4–6μ, 4-spored, projecting; sterigmata slender, to 6μ long. Paraphyses subclavate, about half the size of the basidia. Gloeocystidia with oily orange contents, of two types: (a) arising from the upper part of the intermediate layer, abundant, narrowly cylindrical with slightly tapering base and rounded apex, not projecting, 40–70 x 5–6μ, wall 0 25μ thick; (b) arising from the base of the intermediate layer, flexuous-cylindrical, to 120 x 6μ. Spores suballantoid, 7–9 x 2 5–3μ, apiculate, wall smooth, hyaline, 0 2μ thick.

Type Locality. Mexico.

Distribution. North America, New Zealand.

Habitat. Effused on bark of dead branches and trunks.

Nothofagus cliffortioides (Hook. f.) Oerst. Westland · Staircase Creek, Reefton, 2,000ft, November, 1952, S. D. Baker.

Nothofagus fusca (Hook f.) Oerst Westland: Staircase Creek, Reefton, 2,000ft, November, 1952, S. D. Baker.

Wintera colorata (Raoul) Ckn. Taranaki: Mt. Egmont, 2,700ft, February, 1952, G. H. C.

Unknown Host. Auckland · Huia, March, 1953, J. M. Dingley.

Separated from *C. litschauer* by the ochraceous colliculose surface, narrower context hyphae with thinner walls, protruding basidia and suballantoid spores. Like those of the preceding species context hyphae are branched at a wide angle and possess clamp connections at all septa. Spores are allantoid and of somewhat unusual shape, being attenuated from the rounded base to the narrow apex. They were not seen in a slide from the type which, however, agrees with our specimens in other microfeatures.

13. **Corticium porosum** Berkeley & Curtis, ex Berkeley & Broome, Annals & Magazine of Natural History, V. *3*, 211, 1879. Text-fig 13.

Corticium stramineum Bres., ex Brinkm., Hedwigia, *39*. 221, 1900

C. vesiculosum Burt Ann Missouri Bot Gard., *13* 266, 1926

C. pruni Overh., Mycologia, *21*, 282, 1929

Hymenophore annual, adnate, ceraceous, of numerous small orbicular colonies 5–10 mm which commence at lenticels, often becoming caespitose when to 5 cm long, surface cream or pallid ochre, usually raised and darker in colour towards the centre, becoming creviced; margin thinning out, pallid cream, finely byssoid, adnate Context cream, 100–500μ thick, composed of a basal layer varying in thickness of compact parallel hyphae, and an intermediate layer of mainly vertical hyphae, more compact beneath the hymenium, sometimes embedded in masses of crystals; generative hyphae 3–4μ diameter, wall 0·2μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 40μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate, projecting, 24–32 x 5–6μ, 2–4-spored; sterigmata slender, to 6μ long. Paraphyses subclavate, much shorter than the basidia. Gloeocystidia arising from the intermediate layer, fusiform, ventricose or obclavate, some flexuous-cylindrical, apices long-acuminate, projecting to 10μ, or not, 50–80 x 6–8μ, wall 0 5μ thick. Spores broadly elliptical, pip-shaped, or obovate, 6–9 x 3–4 5μ, apiculate, wall smooth or delicately irregularly verruculose, 0·2μ thick, sometimes adhering in fours.

TYPE LOCALITY. Neotype from Glamis, Scotland (Wakefield, 1914).

DISTRIBUTION Great Britain, North America, Europe, New Zealand.

HABITAT Adnate on bark of dead branches

Albizzia lophantha Benth. Auckland: Campbell's Bay, May, 1953. Mrs. E. E Chamberlain

Beilschmiedia tawa (A Cunn.) Hook. f. & Benth. Auckland: Te Whaiti, June, 1950, J. M. Dingley

Olearia ilicifolia Hook. f. Westland. Douglas Rock, Copland Valley, 3,500ft., January, 1947, G. H. C.

Prunus armeniaca L. Otago: Earnscleugh, December, 1951, J. D. Atkinson

Prunus cerasus L Otago · Alexandra, July, 1952, J. D. Atkinson

Prunus persica Sieb. & Zucc Auckland: Mt Albert, May, 1949, J M Dingley

Diagnostic characters are the usually orbicular colonies often commencing from lenticels, with cream, creviced surface; densely compacted layer of basal parallel hyphae, somewhat loosely arranged upright hyphae of the intermediate layer sometimes embedded in crystals, pip-shaped spores often adhering in fours

and obclavate gloeocystidia with long-acuminate apices extending to the surface of the hymenium. The plant is variable and several forms have been described as species. *C. pruni* is a form with smooth spores, obclavate gloeocystidia with long necks and a thick basal layer. Our collections from apricot, cherry and peach match this form exactly. Collections from *Albizzia* and *Beilschmiedia* possess delicately granular-roughened amyloid spores which Rogers & Jackson (1943, 302) described for the type form of *C. porosum*. Burt described *C. vesiculosum* from an old specimen in which gloeocystidia had collapsed, leaving cavities in the context hyphae, a condition common in old specimens Practically every section examined shows a somewhat different microstructure, consequently it is advisable to regard these as forms of this variable species, as Rogers & Jackson have done. In general, thick specimens have longer gloeocystidia and more of them in the lower portions of the context. Crystals may be present or absent in different sections taken from the same specimen. Odd lateral vesicles, such as are present in *C. utriculicum*, have been noted in a few sections

14 **Corticium afibulatum** n.sp. Text-fig 14

Hymenophorum ceraceum, adnatum, effusum; superficie cremea deinde ochracea, colliculosa, non rimosa. Hyphae contextus afibulatae, 3–4μ diam., nudae. Basidia 12–16 x 3–4μ, 4 sporis. Gloeocystidia 40–90 x 6–8μ. Sporae laete ellipticae, 4–5 5 x 2·5–3μ, laeves, hyalinae.

Hymenophore annual, adnate, ceraceous, effused, forming orbicular or linear areas to 20 x 8 cm., with several outlying islands; surface cream, then ochre, colliculose, not creviced; margin thinning out, white, byssoid, adnate. Context white, 200–350μ thick, composed of a narrow base of densely compacted cemented hyphae, and an intermediate layer of woven mainly vertical hyphae densely compacted beneath the hymenium, embedding a few scattered crystals, generative hyphae 3–4μ diameter, wall 0 5–1μ thick, naked, hyaline, branched, septate, without clamp connections. Hymenial layer to 90μ deep, of basidia, paraphyses and gloeocystidia densely compacted. Basidia subclavate or subcylindrical, projecting, 12–16 x 3–4μ, 4-spored; sterigmata slender, to 6μ long. Paraphyses subclavate, much smaller than the basidia. Gloeocystidia arising in the intermediate layer, projecting to 20μ, or not, cylindrical, a few fusiform, 40–90 x 6–8μ, wall 1–2μ thick, some irregularly distributed in the context, inclined, to 60 x 12μ Spores broadly elliptical, some apiculate, 4–5·5 x 2·5–3μ, wall smooth, hyaline, 0·2μ thick.

DISTRIBUTION New Zealand.

HABITAT. Effused on bark of dead trunks.

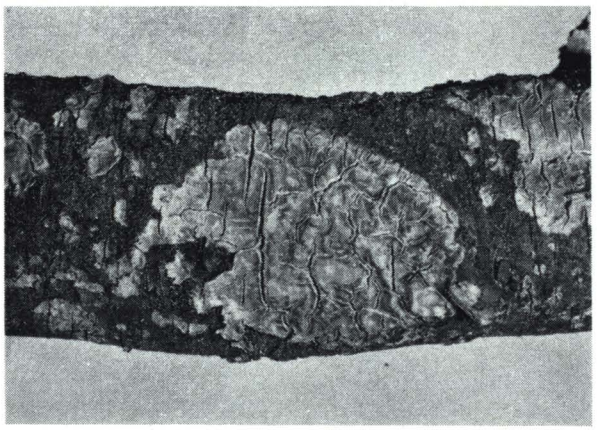
Corynocarpus laevigata Forst. Auckland: Buffalo Beach, Whitianga, November, 1947, E. E. Chamberlain, *type collection*, P.D.D. herbarium, No 7421.

Specific features are the finely colliculose, closely adnate, non-creviced, ochraceous, ceraceous hymenophore, narrow cylindrical abundant gloeocystidia and small, broadly elliptical spores Clamp connections are absent from hyphae of this and the following species A few crystals are scattered in the base of the context of old specimens.

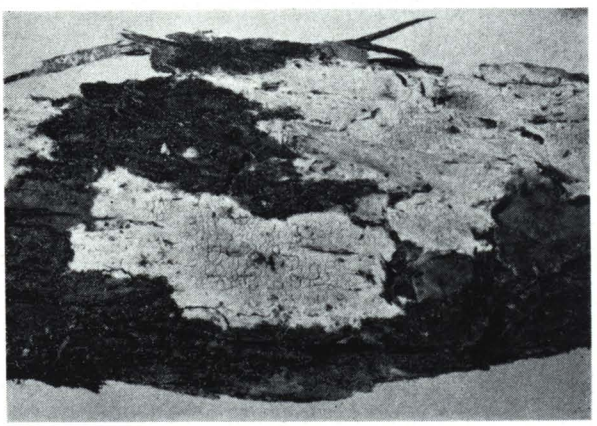
15. **Corticium crystallitectum** n.sp Text-fig. 15.

Hymenophorum cretaceum, adnatum, effusum; superficie fusco-alba, pruinosa, non rimosa. Hyphae contextus in crystallis sitae, afibulatae, 3–4μ diam., nudae

1



2

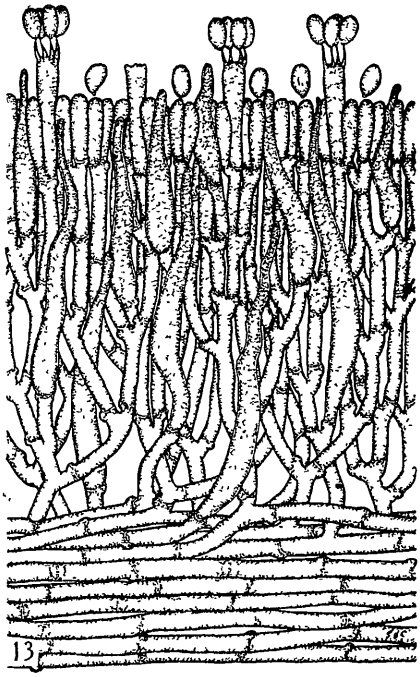


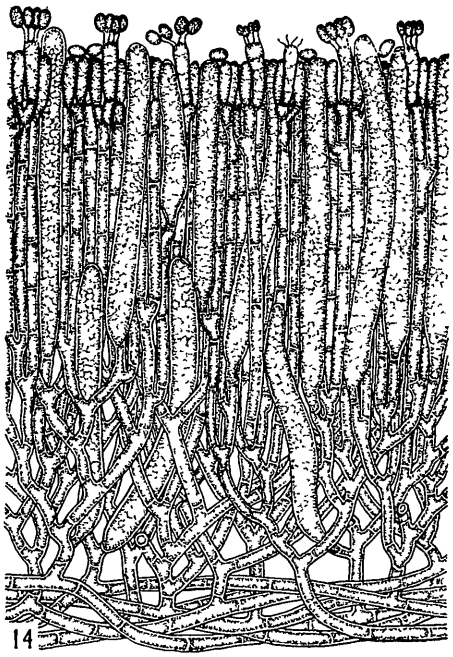
3

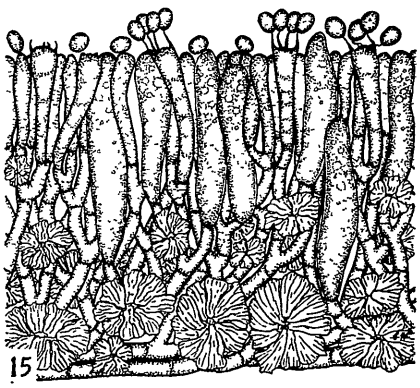
FIG. 1—*Corticium kauri* × 1. FIG. 2—*Corticium vitellinum* × 1. FIG. 3—*Corticium scutellare* × 2.

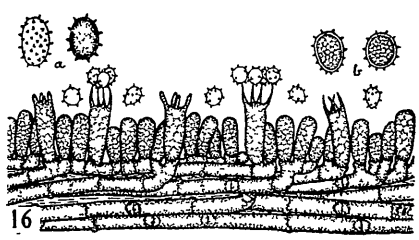
Photographs by J. W. Endt.

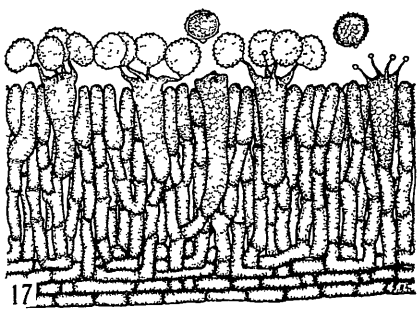
Facing page 296]

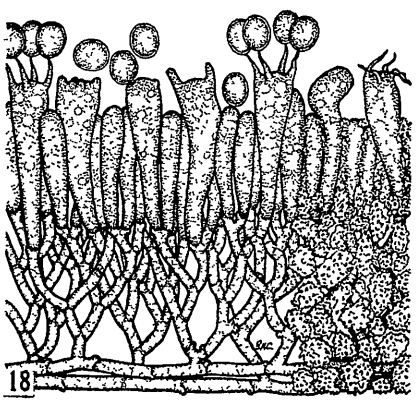












TEXT-FIG. 13.—*Corticium porosum.* TEXT-FIG. 14.—*Corticium afibulatum* TEXT-FIG. 15.—*Corticium crystallitectum.* TEXT-FIG. 16—*Corticium tulasnelloideum.* TEXT-FIG. 16a.—*Corticium sulphureum.* Spores × 1000 TEXT-FIG. 16b.—*Corticium tulasnelloideum.* Spores × 1000. TEXT-FIG. 17.—*Corticium umbonatum.* TEXT-FIG. 18.—*Corticium commixtum. Original,* sections × 500.

Basidia 24–36 x 5–6μ, 4 sporis. Gloeocystidia cylindricalia, late fusiforma vel subclavata, 25–50 x 8–10μ. Sporae late ellipticae, aliquot ovatae, 5–6·5 x 3·5–4·5μ. laeves, hyalinae.

Hymenophore annual, adnate, chalky, effused, forming irregular linear areas to 20 x 4 cm.; surface dingy white, then pallid cream, even, pruinose, not creviced; margin thinning out, white, even, membranous. Context white, chalky, 30–100μ thick, composed of a few repent hyphae at the base and an intermediate layer of upright hyphae embedded in masses of crystals especially near the base; generative hyphae 3–4μ diameter, wall 0 2μ thick, naked, septate, branched, without clamp connections. Hymenial layer to 40μ deep, of basidia, paraphyses and gloeocystidia. Basidia subclavate, 24–35 x 5–6μ, 4-spored; sterigmata slender, to 6μ long. Paraphyses subclavate or subcylindrical, appreciably smaller than the basidia. Gloeocystidia arising in the context, scarcely or not projecting cylindrical, broadly fusiform or subclavate, apices rounded or bluntly acuminate, 25–50 x 8–10μ, wall 0·5–1μ thick. Spores broadly elliptical, some oval, 5–6 5 x 3 5–4·5μ, wall smooth, hyaline, 0·2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on bark of dead branches and stems and stipes of tree ferns.

Blechnum filiforme (A. Cunn.) Ettingsh Wellington: Lake Papaetonga, 50ft. September, 1953, G. H. C.

Brachyglottis repanda Forst. Auckland: Cascade Kauri Park, Waitakeres, 650ft., March, 1950, J. M. Dingley; Piha, September, 1953, J. M Dingley.

Cyathea dealbata (Forst. f.) Swartz. Auckland: Swanson, Waitakeres, October, 1946, J. M. Dingley; Cascade Kauri Park, Waitakeres, 600ft., March, 1950, J. M. Dingley.

Nothopanax arboreum (Forst. f.) Seem. Auckland: Glen Esk Valley, Piha, May, 1951, J. M. Dingley, *type collection*, P.D.D. herbarium, No. 11240

Olea lanceolata Hook. f. Auckland: Mountain Road, Henderson, 1,000ft., September, 1953, J. M. Dingley.

Separated from *C. afibulatum*, which is also without clamp connections, by the short, broad gloeocystidia, large basidia and masses of crystals. The last are of peculiar construction, as the illustration shows Because of their abundance plants appear chalky in section.

One collection from *Cyathea dealbata* possesses a thin context with consequent shorter gloeocystidia, spores are smaller (4 5–5 x 3–3 5μ) and many subglobose Specimens from *Blechnum filiforme* are without crystals but agree in micro-features with the type.

SECTION B. *Gloeocystidia absent from the hymenium and context.*

16. **Corticium umbonatum** n sp. Text-fig. 17.

Hymenophorum membranaceum, leviter adnatum, effusum; superficie alba deinde pallide cremea, non rimosa. Hyphae contextus fibulatae, 3–3 5μ diam., nudae Basidia 24–36 x 7–8μ, 4 sporis Sporae depresso-globosae, umbonatae, 8–10 x 7–9μ, subtiliter dense verruculosae, hyalinae.

Hymenophore annual, slightly adnate, membranous, effused, forming linear areas to 20 x 3 cm.; surface white, becoming pallid cream, even, not creviced,

margin thinning out, white, arachnoid, adnate. Context white, 15–25μ thick, composed of a basal layer of compact parallel hyphae and an intermediate layer of erect, densely compacted hyphae which collapse and become pseudoparenchymatous; generative hyphae 3–3·5μ diameter, wall 0 2μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 30μ deep, of basidia and paraphyses. Basidia clavate, slightly projecting, 24–36 x 7–8μ, 4-spored; sterigmata somewhat stout, to 6μ long. Paraphyses subclavate, cylindrical, or as frequently obclavate, about half the size of the basidia. Spores usually depressed-globose or subglobose, 8–10 x 7–9μ, umbonate, wall minutely closely verruculose, hyaline, 0·5μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on bark of dead stems.

Bambusa sp. Auckland: Mt. Eden, 350ft., March, 1950, G. H. C., *type collection*, P.D.D. herbarium, No. 10596.

Rhipogonum scandens Forst. Auckland. Hick's Bay, 300ft., May, 1952, G. H. C.

Identified readily by the unusual spores, somewhat large basidia, tenuous context and white, non-creviced, membranous hymenophore. Spores are commonly depressed-globose and attached to the sterigmata by a definite umbo on the middle of one flattened side. At first they lie with long axes nearly parallel with that of the basidium; as they mature spores become oriented with the umbo downwards, and when detached bear this structure permanently The hymenial layer soon collapses so that developing basidia may be seen only in sections taken from the growing periphery. The base of the plant tends to lift from the substratum when the ventral surface is seen to be polished and discoloured.

17 **Corticium sulphureum** Persoon ex Fries, Epicrisis Systematis mycologici . . . 561, 1838. Text-fig. 16a.

Thelephora sulphurea Pers., ex Fr., Syst. Myc., *1*, 452, 1821.
Corticium fumosum Fr, Epicrisis, 562, 1838.
Hypochnus filamentosus Burt, Ann. Missouri Bot. Gard, *13*. 320, 1926.

Hymenophore annual, arachnoid, adnate, effused, forming small, irregular areas to 8 x 3 cm.; surface sulphur- or chrome-yellow, farinose, not creviced: margin thinning out, arachnoid, concolorous, adnate, sometimes rhizomorphic. Context yellow, either composed of numerous rhizomorphic strands each of 2–6 cemented hyphae, with a loose weft of solitary hyphae between, forming a loose reticulated tissue to 30μ deep; or of mainly vertical hyphae arising from a few repent hyphae and embedding numerous spores; generative hyphae 3–6μ diameter, wall 0 2μ thick, often crystal coated, hyaline, sparsely branched, septate, sometimes inflated between septa, with clamp connections. Hymenial layer either a continuous palisade, or composed of short lateral branches arising from rhizomorphs and bearing 2–5 basidia and paraphyses. Basidia cylindrical or subclavate, 8–12 x 6–7μ, 4-spored, soon collapsing; sterigmata slender, to 6μ long. Paraphyses subclavate, smaller than the basidia. Spores subglobose, oval, or broadly elliptical, 5–7 x 4 5–5μ (including spines), wall finely closely echinulate. spines to 1μ long, hyaline, 0 2μ thick.

TYPE LOCALITY. Europe.

DISTRIBUTION Europe, Great Britain, North America, West Indies, New Zealand.

HABITAT. Effused on decorticated decaying wood, or fern stipes.

Cyathea dealbata (Forst. f.) Swartz. Auckland: Waikaretu, 400ft., October, 1946, E. E. Chamberlain.

Unknown Host. Wellington: Ruahine Ranges, October, 1946, A. P. Druce.

Confusion exists in literature as to whether the species should be placed under *Corticium* or *Tomentella.* Because spores are hyaline and the hymenium is frequently in the form of a definite palisade, it has been placed under *Corticium* herein. The collection from Ruahine Ranges exhibits the *Tomentella*-type structure, that from Waikaretu the *Corticium* form seen in many European collections at Kew. The species may be separated from *C. tulasnelloideum* by the different shape of the echinulate spores, conspicuous yellow colour of the surface and usually presence of rhizomorphs either in the context or at the periphery. Colour sometimes fades from the central portions, but remains in the marginal region An extensive synonymy is given by Rogers & Jackson (1943, 308) together with a discussion as to the specific name to be employed for this species

18 **Corticium tulasnelloideum** Hoehnel & Litschauer, Sitzgb. K. Akad. d Wiss.-Wien, Math.-Nat. Kl., *117*, 1118, 1908. Text-figs. 16, 16b.
Corticium incanum Burt, Ann Missouri Bot. Gard., *13*, 205, 1926.
Hypochnus tulasnelloideum (H. & L.) Rea, Trans. British Myc. Soc, *12*, 222, 1927

Hymenophore annual, closely adnate, arachnoid, effused, forming irregular areas to 5 x 3 cm.; surface at first dingy white, becoming grey or bluish-grey, irregularly granular, not creviced; margin thinning out, arachnoid, white, adnate Context white, 10–100μ thick, commonly 10–20μ, composed of a narrow base of densely arranged parallel hyphae; generative hyphae 3–3·5μ diameter, wall 0·2μ thick, sometimes inflated between septa, naked, hyaline, branched, septate, with clamp connections Hymenial layer to 30μ deep, of basidia and paraphyses Basidia subclavate or subcylindrical, 8–16 x 4–6μ, 4-spored; sterigmata slender, to 7μ long. Paraphyses subclavate, smaller than the basidia Spores globose, subglobose, or obovate, 4 5–5 5 x 4–4 5μ, wall finely distinctly echinulate, hyaline 0.5μ thick

TYPE LOCALITY. Germany.

DISTRIBUTION Europe, Great Britain, North America, New Zealand

HABITAT. Effused on bark or decorticated dead wood.

Agathis australis Salisb. Auckland: Piha Valley, August, 1953, J. M. Dingley.

Beilschmiedia tawa (A. Cunn.) Hook f & Benth Auckland Titirangi, Waitakeres, 1,000ft., July, 1951, J M. Dingley, Hick's Bay. 300ft, May, 1952, G. H. C.

Cupressus macrocarpa Hartn Auckland Campbell's Bay, November, 1946, Mrs E. E Chamberlain

Dacrydium cupressinum Sol Wellington Ohakune, 2,000ft., December, 1953, J. M. Dingley.

Fuchsia excorticata L.f. Auckland. Lake Okataina, 1,500ft., June, 1951, J. M. Dingley

Nothopanax arboreum (Forst f) Seem Taranaki. Mt Egmont, 3,000ft March, 1951, J M Dingley, same locality. February, 1952, G H C, January, 1953, J. M. Dingley.

Oxylobium sp. Auckland: Campbell's Bay, November, 1946, Mrs. E E. Chamberlain.

Wintera colorata (Raoul) Ckn. Taranaki: Mt. Egmont, 2,500ft., January, 1953, J. M. Dingley.

Specific features are the small, echinulate, subglobose or obovate spores, small basidia, subclavate paraphyses, and non-creviced surface of the hymenophore which on a dark substratum appears as a delicate grey or bluish-grey arachnoid film. In these features our collections agree with authentic specimens seen at Kew. Appreciable variations were noted in specimens examined, particularly in thickness of context, shape and size of spores, and presence or absence of ampullate swellings between septa. Context hyphae are mainly parallel, turning abruptly to produce the hymenium, an intermediate layer being scanty or absent They soon collapse, so that context structure may be seen as a rule only near margins. Spores are similar in size and markings to those of *C. sulphureum*, differing mainly in shape and the finer echinulations.

19. **Corticium confluens** Fries, Epicrisis Systematis mycologici . 564, 1838
Text-fig. 19.

Thelephora confluens Fr., Syst. Myc., *1*, 447, 1821.
Coniophora avellanea Burt, Ann. Missouri Bot. Gard., *4*, 251, 1917
Corticium rubellum Burt, Ann. Missouri Bot. Gard., *13*, 232, 1926.

Hymenophore annual, closely adnate, ceraceous, composed at first of numerous small colonies, soon merging to form linear areas to 25 x 10 cm ; surface at first white, soon cream, then alutaceous, finally often pinkish-buff, following closely the surface of the substratum, sparsely creviced when old; margin thinning out, rather indefinite, byssoid, concolorous, adnate. Context white, 100–300μ thick, composed of a moderately thick basal layer of parallel compact hyphae and an intermediate layer of mainly vertical hyphae, compacted and sometimes with cavities at the base which may be packed with crystals; generative hyphae to 4μ diameter, wall 0 2μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 80μ deep, of basidia and paraphyses forming a dense palisade. Basidia subclavate, 40–60 x 6–9μ, 2–4-spored; sterigmata stout, to 8μ long. Paraphyses cylindrical, somewhat scanty, about half the size of the basidia. Spores oval, subglobose, a few globose, 7–11 x 6–9μ, apiculate, wall smooth, hyaline, 0 5μ thick.

TYPE LOCALITY. Europe.

DISTRIBUTION. Europe, Great Britain, North America, West Indies, Africa, Australia, New Zealand.

HABITAT. Effused on dead bark or decorticated wood.

Beilschmiedia tarairi (A. Cunn.) Benth & Hook f. Auckland: Smith's Bush, Henderson, May, 1952, S. D. Baker.

Beilschmiedia tawa (A Cunn.) Hook f & Benth. Auckland. Off Konini Road, Waitakeres, 1,000ft., July, 1947, J. M. Dingley

Clematis indivisa Willd Wellington: Ohakune, 2,500ft., December, 1953, J M. Dingley.

Dysoxylum spectabile (Forst. f.) Hook. f. Auckland: Huia, July, 1953, J. M Dingley.

Hedycarya arborea Forst. Auckland: Kauwaka, May, 1949, J. M. Dingley.

Nothofagus menziesii (Hook. f.) Oerst. Auckland: Lake Waikareiti, 2,200ft., September, 1950, G. H. C.

Nothopanax arboreum (Forst. f.) Seem. Auckland: Mountain Road, Henderson, 600ft., July, 1950, J. M. Dingley.

Rubus australis Forst. Auckland: Otau, Hunua Range, April, 1950, J. M. Dingley; Lake Okataina, 1,500ft., May, 1952, G. H. C.

Collections agree with authentic material examined in Kew herbarium Plants first appear as numerous small colonies, soon merging to form linear fructifications which may attain to a length of 25 cm. Crystals are common in old specimens, usually lying between basal and intermediate layers, sometimes in lenses or conical cavities. Old specimens sometimes may be stratose, exhibiting two or three layers somewhat vaguely defined. Hyphal walls become cemented or partly gelatinized and pseudoparenchymatous. Surface colour varies through cream, argillaceous, alutaceous to pinkish-buff. The species is separated from *C. rickii,* which resembles it in most features, by the larger spores of different shape and larger basidia.

20. **Corticium rickii** Bresadola, Oesterreichische botanische Zeitschrift, *48*, 136, 1898. Text-fig. 19a.

Hymenophore annual, adnate, ceraceous, effused, forming linear areas to 20 x 4 cm.; surface cream, becoming pinkish-buff, even, at length creviced; margin thinning out, somewhat pelliculose, cream, adnate. Context white, 100–500μ thick, composed of a stout basal layer of parallel compact hyphae and an intermediate layer of vertical hyphae compactly arranged and often cemented; generative hyphae 3–4μ diameter, wall 0·2μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 40μ deep, of basidia, paraphyses and occasional paraphysate hyphae arranged in a dense palisade. Basidia subclavate, 25–35 x 7–9μ, 4-spored; sterigmata slender, to 6μ long. Paraphyses subclavate, smaller than the basidia. Spores globose or subglobose, apiculate, 6–8μ diameter, wall smooth, hyaline, 0·5μ thick.

TYPE LOCALITY. Vorarlberg, Austria.

DISTRIBUTION. Western Europe, Great Britain, New Zealand.

HABITAT. Effused on bark of dead branches.

Coriaria ruscifolia L. Auckland: Titirangi, Waitakeres, 700ft., February, 1951, J. M. Dingley.

Hakea saligna Knight Auckland · Campbell's Bay, 200ft., May, 1952, G. T. S. Baylis.

Podocarpus totara Don. Auckland: Upper Piha Valley, August, 1953, J. M. Dingley.

Close to *C. confluens,* differing mainly in the nearly spherical smaller spores, smaller basidia and subclavate paraphyses. In macrofeatures they are barely separable. Collections listed agree with a specimen from Sussex seen in Kew herbarium.

21. **Corticium commixtum** Hoehnel & Litschauer, Sitzgb. K Akad d Wiss - Wien, Math.-Nat. Kl., *116*, 821, 1907. Text-fig. 18.

Hymenophore annual, adnate, chalky, effused, forming numerous linear colonies from 5mm. to 15mm. long and 3 mm. broad, or merging to form linear areas to 15 cm.; surface chalk white, sometimes tinted cream, even, not creviced, occasionally finely faveolate; margin thinning out, membranous, white, sharply defined, adnate. Context white, 10–120μ thick, composed of a few parallel repent

hyphae and an intermediate layer of upright hyphae embedded in masses of crystals which extend between basidia and paraphyses; generative hyphae 2·5–3μ diameter, wall 0·2μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 50μ deep, of basidia and paraphyses. Basidia clavate, 30–45 x 9–12μ, 2–4-spored; sterigmata stout, to 8μ long. Paraphyses subclavate, smaller than the basidia. Spores subglobose or oval, 7–9μ diameter, or 7–9 x 6–7μ, apiculate, wall smooth, hyaline, 0·5μ thick.

TYPE LOCALITY. Europe.

DISTRIBUTION. Northern Europe, New Zealand.

HABITAT. Effused on bark or decorticated wood of living or dead trunks and branches.

Coprosma foetidissima Forst. Taranaki: Mt. Egmont, 2,800ft., February, 1952, G. H. C.

Dodonaea viscosa Jacq. Auckland: Rangitoto Island, July, 1950, J. M Dingley.

Dysoxylum spectabile (Forst. f.) Hook. f. Auckland: Huia, March, 1953, J. M. Dingley.

Fuchsia excorticata L.f. Auckland: Te Araroa, 650ft., May, 1952, G. H. C Wellington: Featherston, November, 1951, J. M. Dingley.

Podocarpus hallii Kirk. Wellington: Mt. Holdsworth, 4,000ft., December, 1952, G. H. C.

Tissues are so packed with crystals, which extend between basidia and paraphyses, that the hymenophore appears chalky and is difficult to section unless crystals are removed with HCl. As with many species of *Corticium,* different collections vary appreciably from one another in certain features. Thus those from *Dodonaea* and *Podocarpus* consist of numerous small elliptical colonies 5–15 mm. long growing on bark of living trees; from dead wood of *Coprosma foetidissima* they are continuous and extend to 15 cm.; from dead wood of *Fuchsia excorticata* both conditions are present. In thickness the context varies from 10μ to 120μ, with consequent differences in structure, thin plants being practically without an intermediate layer, whereas in thick specimens this tissue is well developed. Margins are often outlined, when plants are growing on decorticated wood, by brown or black lines in the wood. Surface tissues are readily devoured by snails or insects. In collections listed spores are more subglobose or oval than those seen in an European specimen, but in other features they agree. Basidia with two or four spores occur in both, so that it would appear as if the original description and illustration were drawn from an immature specimen, since they called for basidia with two sterigmata with an occasional aborted third.

22. **Corticium kauri** n.sp. Text-fig. 20; Plate 13, Fig. 1

Hymenophorum membranaceo-coriaceum, adnatum, stratosum; coloniis inaequaliter crebris, 2–10 mm. longis; superficie alba deinde pallide cremea, alte rimosa. Contextus 20–30 stratis zonis tinctis collapsorum textuum. Hyphae fibulatae, 2·5–3μ diam., nudae. Basidia 12–18 x 6–8μ, 4 sporis. Hyphae paraphysatae adsunt. Sporae ellipticae vel suballantoides, 7–9 x 4–4·5μ, laeves, hyalinae.

Hymenophore perennial, stratose, adnate, membranous-coriaceous, at first effused, forming small areas to 6 x 2 cm., becoming deeply areolately angularly fissured when each segment becomes separated, each appearing as a separate

colony irregular in shape and 2–10 mm. long; surface white, becoming pallid cream, deeply creviced; margin at first thin, white, crustose, becoming thick and cliff-like. Context white, 0·7–2 mm. thick, arranged in 20–30 vague layers delimited by tinted zones of collapsed parallel hyphae, fertile layer of mainly vertical hyphae widely spaced with collapsed partly pseudoparenchymatous hyphae between; other layers of collapsed hyphae arranged into a coarsely cellular pseudoparenchyma; generative hyphae 2 5–3μ diameter, wall 0·25μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer to 35μ deep, of basidia, paraphyses and paraphysate hyphae. Basidia subclavate, 12–18 x 6–8μ, 4-spored; sterigmata slender, to 6μ long. Paraphyses scanty, subclavate, about half the size of the basidia. Paraphysate hyphae filiform, projecting, with rounded or acuminate apices. Spores elliptical or suballantoid, 7–9 x 4–4·5μ, wall smooth, hyaline, 0·2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Adnate on much decayed decorticated wood.

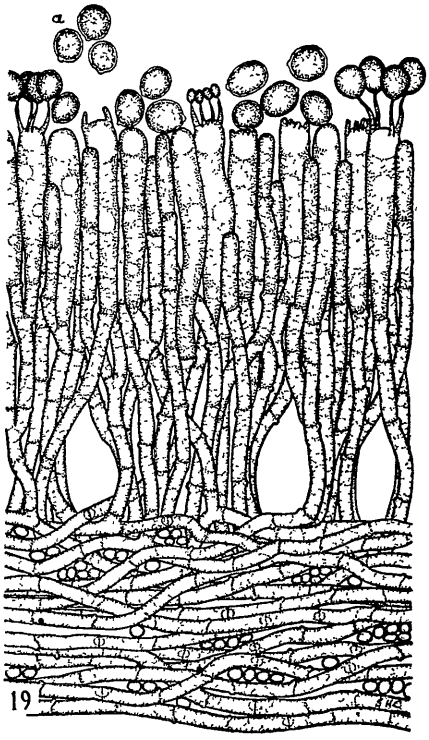
Agathis australis Salisb. Auckland: Titirangi, Waitakeres, 900ft., April, 1947, J. M. Dingley; Waipoua Kauri Forest, April, 1947, J. M. Dingley; Huia, July, 1947, J. M Dingley, *type collection*, P.D.D. herbarium, No. 5568; same locality, October, 1953, J. M. Dingley; Puketi Forest, Bay of Islands, June, 1948, J. M. Dingley; Clevedon, August, 1949, J. M. Dingley; Huia, 100ft., January, 1954, E. E. Chamberlain.

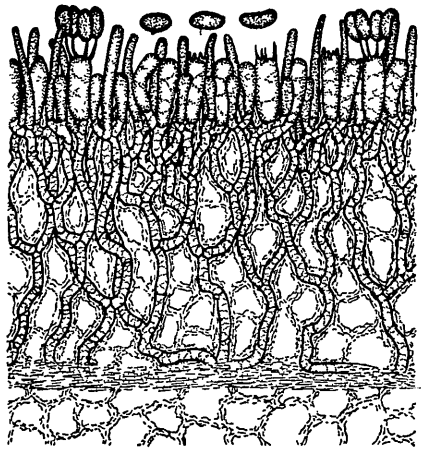
Readily recognised by the numerous small, tuberculate, white colonies crowded on rotten decorticated wood. They arise from fructifications which at first are plane and continuous. Soon these become deeply fissured, each segment continuing to develop as a separate entity, the plant being perennial, edges becoming rounded somewhat, though still retaining their vertical faces Sections show thick specimens to consist of 20–30 rather vague layers, all save the fertile layer being composed of collapsed gelatinized hyphae arranged into a coarsely cellular pseudoparenchyma, separated by bands of parallel gelatinized collapsed hyphae tinted brown. The species appears to be confined to the one host, *Agathis australis*, the Maori name for which is kauri, hence the specific epithet

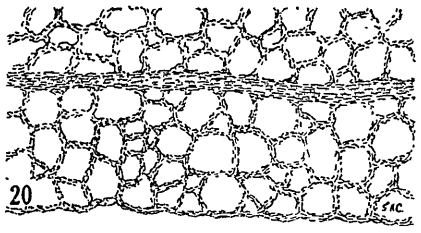
23. **Corticium comedens** (Nees) Fries, Epicrisis Systematis mycologici 565, 1838. Text-fig. 22.

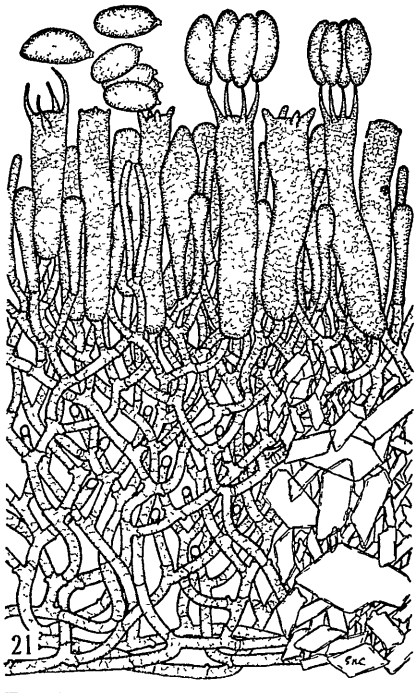
Thelephora comedens (Nees) Fr., Syst Myc., *1*, 447, 1821
T. decorticans Pers., Myc. Eur., *1*, 137, 1822.
Corticium carlylei Mass., Jour. Linn. Soc, *27*, 148, 1890
Vuillemina comedens (Nees) Maire. Bull. Soc Myc Fr. *18*, 81. 1902

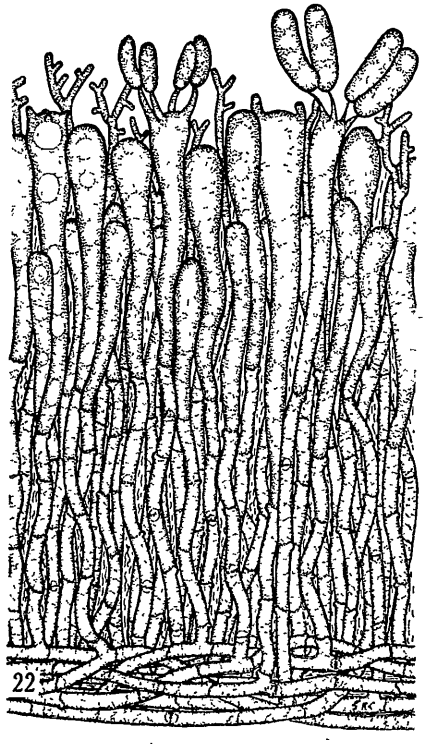
Hymenophore annual, adnate, ceraceous, erumpent from beneath bark, effused, forming linear areas to 30 x 10 cm ; surface at first orange, becoming reddish-brown, Indian red or latericious, even, becoming scantily creviced, or not, gelatinous when wet; margin irregular, orange, floccose or sometimes scantily rhizomorphic. Context reddish-brown, 60–100μ thick, composed of a basal layer of parallel hyphae scantily developed and an intermediate layer of vertical hyphae compacted with mucilage; generative hyphae 3–4μ diameter, wall 0 25μ thick, coated with orange mucilaginous granules, hyaline, branched, septate, flexuous, with clamp connections. Hymenial layer 60–120μ deep, of basidia, paraphyses and paraphysate hyphae coated with mucilaginous granules Basidia clavate, 35–112 x 6–16μ, 2–4-spored; sterigmata stout, to 10μ long. Paraphyses sub-











TEXT-FIG. 19.—*Corticium confluens.* TEXT-FIG. 19a.—*Corticium rickii*, spores. TEXT-FIG. 20.—*Corticium kauri.* TEXT-FIG. 21.—*Corticium ampullosporum.* TEXT-FIG. 22.—*Corticium comedens. Original*, × 500.

clavate, about half the diameter of the basidia. Paraphysate hyphae projecting, apically scantily or freely branched. Spores suballantoid with rounded ends, 16–24 x 5–7μ, wall smooth, hyaline, 0·25μ thick.

TYPE LOCALITY. Europe.

DISTRIBUTION. Europe, Great Britain, New Zealand.

HABITAT. Effused beneath bark of dead branches, becoming erumpent.

Nothofagus menziesii (Hook. f.) Oerst. Auckland: Upper Mohaka Valley, 2,000ft., May, 1953, J. M. Dingley. Hawke's Bay: Poronui, Kaiweka Range, 2,500ft., June, 1953, J. M. Dingley. Westland: Marble Hill, Maruia, 2,500ft., May, 1943, G. H. C. Otago: Near Otautau, November, 1946, G. B. Rawlings.

The species is unusual in several particulars. It develops beneath bark, soon becoming erumpent, the ruptured bark then curling away to expose the semi-gelatinous hymenophore. At first bright orange, especially near margins, the surface soon changes to the colour of deeply burned brick, finally becoming reddish-brown. Though sections are reddish in colour, context hyphae are hyaline, colour being supplied to sections by masses of orange or reddish-brown mucilage granules which lie upon hyphal walls, basidia, paraphyses and fill interstices between. Basidia are large, some extending to 110μ, and bear 2–4 large allantoid spores, which exceed in length those of any other species present in the Dominion. Spores were held by Maire to produce conidia on germination, instead of infection hyphae, and for this reason he placed the species under *Vuilleminia*. Paraphyses, though numerous, are often overlooked, since in sections they are almost hidden by the larger projecting basidia. Sometimes they develop deeply within the intermediate layer when they may be mistaken for gloeocystidia. Associated with them, and projecting above the basidia, are numerous paraphysate hyphae with simple or branched apices. Because of these the species might be sought under *Vararia;* but these bodies are not dendrophyses, and basidia differ from those of the latter genus. Because of the large basidia and presence of paraphysate hyphae the species might also be considered as an *Aleurodiscus,* for as Bourdot & Galzin have shown (1928, 339) in these particulars it resembles *A. macrosporus* and *A. dryinus*.

24. **Corticium ampullosporum** n.sp. Text-fig. 21.

Hymenophorum cretaceum, adnatum, coloniis crebris et plenis, ellipticis, 2 x 1 cm.; superficie cremea, aequa, non rimosa. Hyphae contextus in crystallis conglomeratis et in sporis collapsis sitae, fibulatae, 2·5–3μ diam., nudae. Basidia 40–56 x 6–10μ, 4 sporis. Hyphae paraphysatae adsunt. Sporae longo-ellipticae, obovatae vel maxime obovata attenuato-epiculatae, 16–20 x 6–8μ, laeves, hyalinae.

Hymenophore annual, adnate, chalky, effused, forming numerous small, elliptical colonies 2 x 1 cm., which may merge into linear areas to 10 x 2 cm.; surface cream, even, not creviced; margin thinning out, white, arachnoid, adnate Context white, 50–180μ thick, composed of a narrow basal layer of a few parallel hyphae, and an intermediate layer of woven hyphae branched at a wide angle, numerous collapsed spores and embedded masses of crystals, especially towards the base; generative hyphae 2·5–3μ diameter, wall 0·25μ thick, naked, hyaline, septate, with small, inconspicuous clamp connections. Hymenial layer to 45μ deep, of basidia, paraphyses and paraphysate hyphae. Basidia cylindrical, a few subclavate, occasionally fusiform, 40–56 x 6–10μ, projecting, 4-spored; sterigmata

stout, to 16μ long. Paraphyses clavate, scanty, less than half the size of the basidia. Paraphysate hyphae numerous, filiform, with rounded apices, scarcely projecting. Spores long-elliptical, a few ovate, obovate, or pip-shaped, 16–20 x 6–8μ, strongly apiculate, wall smooth, hyaline, 0·25μ thick, often adhering in fours.

DISTRIBUTION. New Zealand.

HABITAT. Scattered as small colonies usually on bark of living trunks or branches.

Brachyglottis repanda Forst. Auckland: Hick's Bay, 300ft., May, 1952, G. H. C.

Fuchsia excorticata L.f. Otago: Morrison's Creek, Dunedin, 500ft., June, 1952, G. T. S. Baylis.

Leptospermum ericoides A. Rich. Auckland: Glen Esk Valley, Piha, May, 1951, J. M. Dingley; Great King Island, January, 1952, E E. Chamberlain; Atkinson Park, Titirangi, 1,000ft., June, 1953, J. M. Dingley.

Metrosideros robusta A. Cunn. Auckland: White's Stream, Piha, January, 1951, J. M. Dingley, *type collection*, P.D.D. herbarium, No. 11428; Oratia, Waitakeres, 1,000ft., July, 1951, J. M. Dingley; Mountain Road, Henderson, 1,000ft., September, 1953, J. M. Dingley.

Characterized by the small elliptical chalky colonies usually growing upon living bark, woven context embedded in masses of crystals, large projecting basidia and large, elliptical, strongly apiculate spores. Because of the masses of crystals sections are difficult to prepare; in some collections they occupy the basal portions of the context, in others they may extend between the basidia and even occupy superficial layers of the substratum. Spores soon collapse, though remaining often adhering in fours, and are to be seen in sections scattered through the context. The surface of the collection from Great King Island is colliculose, and the specimen from *Fuchsia excorticata* is on decorticated wood Both agree in microfeatures with the type.

The species resembles in several features *C. amylaceum* B. & G., differing in the much larger nonamyloid spores of distinctive shape, features of the context, and non-coniferous hosts.

25. **Corticium filicinum** Bourdot, Revue scientifique de Bourbonnais et du Centre de la France *23*, 10, 1910. Text-fig. 23.

Hymenophore annual, adnate, membranous, effused, forming linear areas to 6 x 1 cm.; surface white, even, becoming deeply creviced laterally; margin thinning out, white, arachnoid, adnate Context to 80μ thick, composed of a few parallel basal hyphae and an intermediate layer of loosely woven hyphae branched at a wide angle; generative hyphae 2·5–3μ diameter, wall 0·25–0·5μ thick, naked, hyaline, septate, sometimes inflated between septa, with clamp connections Hymenial layer to 20μ deep, of basidia and paraphyses. Basidia subclavate, 10–18 x 4–7μ, 4-spored; sterigmata slender, to 8μ long. Paraphyses pyriform, a few fusiform or subclavate, smaller than the basidia. Spores elliptical, obovate, with rounded apex and attenuate base, a few suballantoid, 7–8 x 3–3 5μ, apiculate, wall smooth, hyaline, 0·2μ thick, sometimes adhering in fours.

TYPE LOCALITY. Aveyron, France.

DISTRIBUTION. Western Europe, New Zealand.

HABITAT. Effused on dead pendent stipes and stems of tree ferns.

Blechnum fraseri (A. Cunn.) Luerss. Auckland Mountain Road, Henderson, 1,000ft, September, 1953, J. M Dingley.

Cyathea dealbata (Forst. f.) Swartz. Wellington Lake Papaetonga, 50ft., September, 1953, G. H C.

Hemitelia smithii Hook. Auckland: Lake Rotoehu, 1,200ft., May, 1952, G. H. C.; Mountain Road, Henderson, 1,000ft., September, 1953, J. M. Dingley

Pteridium esculentum (Forst f.) Ckn Auckland Mt. Te Aroha, 1,100ft, December, 1953, G. H. C.

At first milk white, the surface of the fructification may become pallid cream when old, occasionally tinted pallid mauve and finally laterally creviced Specific features are the thin context with scanty, widely branched hyphae, shallow hymenial layer, small broad basidia which do not project, pyriform paraphyses with acuminate apices, and elliptical spores Collections agree with an authentic specimen seen in Kew herbarium; though paraphyses are more often pyriform, and the surface more coloured in New Zealand specimens, features of minor significance. Here found on dead pendent stipes of tree ferns, in France it occurs on stipes of *Pteris aquilina* growing in similar humid habitats.

26. **Corticium confusum** Bourdot & Galzin, Bulletin de la Societe Mycologique de France, *27*, 250, 1911. Text-fig. 24

Hymenophore annual, adnate, membranous, effused, forming linear areas to 8 x 1 cm., with a few outlying islands; surface white, even, not creviced; margin thinning out, arachnoid, white, adnate Context white, to 80μ thick, composed of a narrow basal layer of parallel hyphae, and an intermediate layer of loosely arranged woven hyphae branched at a wide angle, becoming vertical and dense beneath the hymenium; generative hyphae 2 5–3μ diameter, wall 0 2μ thick, naked, hyaline, septate, with clamp connections. Hymenial layer to 30μ deep, of basidia, paraphyses and paraphysate hyphae Basidia subclavate, 10–16 x 5–6μ, not projecting, 2–4-spored; sterigmata slender, to 6μ long Paraphyses subclavate, same length but narrower than the basidia Paraphysate hyphae projecting, with rounded or acuminate apices, scanty. Spores allantoid, or navicular, base rounded, apex often acuminate, 5–8 x 1 5–2μ, wall smooth, hyaline, 0 2μ thick, often adhering in pairs or fours

TYPE LOCALITY. Aveyron, France.

DISTRIBUTION Western Europe, New Zealand

HABITAT Effused on dead pendent stipes of tree ferns

Dicksonia squarrosa (Forst f) Swartz. Auckland. Earthquake Flat, Rotorua, 1,500ft., June, 1952, G. H. C.; Mairoa, Wairakei, March, 1953, J M Dingley Wellington: Pohangina Reserve, 250ft., September, 1953, G H C Otago: Stewart Island, Fern Gully, February, 1954, J. M. Dingley.

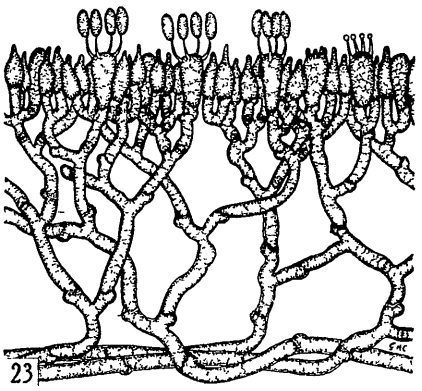
Spores are allantoid or navicular, and often attenuated from rounded base to apex. Occasional crystals were noted in some specimens though absent from others The species differs from *C. filicinum* in the unusual spores, presence of paraphysate hyphae, and subclavate paraphyses. Context hyphae are also more strongly developed, slightly thinner, and are without ampullate swellings

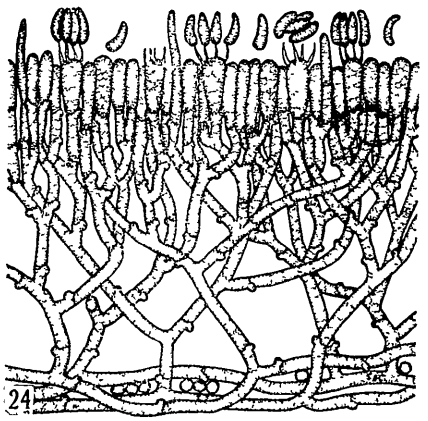
Collections resemble closely a specimen named *C. confusum* by Bresadola seen at Kew, spores differing in being more allantoid. Though treated as a sub-

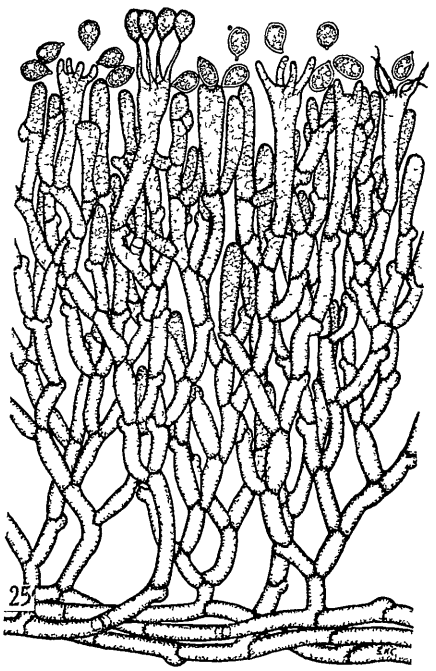
species of *C. lembosporum* Bourd. by Boudot & Galzin (1928, 208) the species is nevertheless quite distinct and well worth retaining.

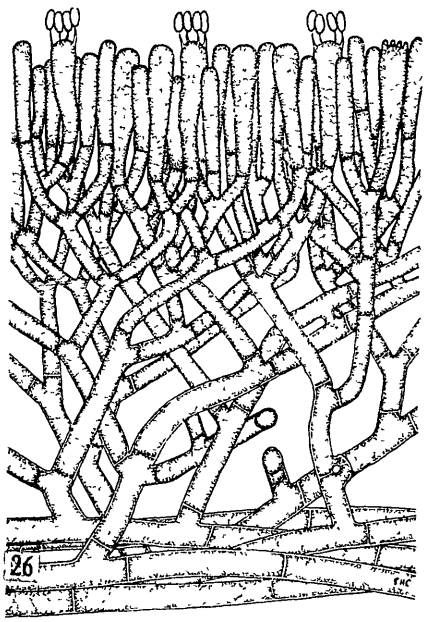
27. **Corticium fallax** n.sp Text-fig. 25.

Hymenophorum membranaceum, adnatum, effusum; superficie colore phocae, non rimosa Hyphae contextus 1–5 obscuris parallelis zonis brunneae mucilaginis, fibulatae, 4–6μ diam., inter septas inflatae, nudae Basidia 20–36 x 6–9μ, 2–4 sporis. Sporae pyriformes vel obovatae attenuato-apiculatae, 6 5–9 x 6 5–7μ, laeves, hyalinae.









TEXT-FIG. 23.—*Corticium filicinum.* TEXT-FIG. 24.—*Corticium confusum.* TEXT-FIG. 25.—*Corticium fallax* TEXT-FIG 26.—*Corticium singulare.* Note solitary clamp connection at right *Original,* × 500.

Hymenophore annual or biennial, adnate, membranous, effused, forming irregular linear areas to 18 x 3 cm.; surface seal-brown, even, not creviced; margin thinning out, adnate, byssoid, pallid greyish-brown. Context mouse-brown, 200–450μ thick, composed of 1–5 obscure zones, each consisting of a basal layer of a few parallel hyphae and an intermediate layer of mainly vertical hyphae partly cemented and collapsed when old, embedded in masses of brown mucilage; generative hyphae irregular, often inflated between septa, 4–6μ diameter, wall 0·2μ thick, naked, hyaline (a few tinted near the base), branched, septate, with large clamp connections. Hymenial layer irregular, of basidia and paraphyses. Basidia clavate, 20–36 x 6–9μ, 2–4-spored; sterigmata stout, to 12 x 4μ, often inserted laterally. Paraphyses cylindrical with rounded ends, narrower than the basidia. Spores commonly pyriform, some pip-shaped or subglobose, 6 5–9 x 6·5–7μ, apiculate, wall smooth, hyaline, 0 5μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on decorticated decaying wood.

Beilschmiedia tawa (A. Cunn.) Hook. f. & Benth. Auckland: Lake Rotoehu, 1,200ft., May, 1952, G. H. C., *type collection,* P.D.D. herbarium, No. 11475; same locality, December, 1953, G. H. C.

Although surface and context are brown, context hyphae are hyaline, colour being produced by masses of fuscous mucilage which lie between hyphae and upon them at intervals, forming coloured zones which are conspicuous in sections.

The species is somewhat primitive; for the hymenial layer is composed not of a dense palisade, but of scattered basidia and paraphyses arising from different levels of the context Paraphyses often develop at a wide angle, and may also be seen scattered through the context. Sterigmata are stout, and often inserted almost laterally Spores do not appear until sterigmata are about three-quarters their full length. Spores are copiously developed, and occur scattered through the context.

The other brown species, *C. singulare,* differs in that hyphae are coloured brown, spores are smaller and elliptical, and clamp connections are extremely rare.

28. **Corticium lividum** Persoon ex Fries, Epicrisis Systematis mycologici . . . 563, 1838. Text-fig. 27.
Thelephora livida Pers., Myc. Eur., *1*, 148, 1822.

Hymenophore annual, adnate, ceraceous, effused, forming linear areas to 20 x 3 cm.; surface at first dingy white, becoming alutaceous, buff, bluish-grey or reddish-brown, pelliculose, sometimes colliculose, even or eventually creviced sparsely; margin thinning out, membranous, vernicose, cream, adnate. Context white or finally reddish-brown and glistening in sections, 100–250μ thick, composed of a thick basal layer of densely arranged parallel hyphae and an intermediate layer of closely compacted vertical hyphae often coated with brown gelatinous granules; generative hyphae 3 5–4μ diameter, wall 0·25–0·5μ thick, hyaline, branched, septate, with clamp connections. Hymenial layer to 40μ deep, of densely arranged basidia and paraphyses. Basidia subclavate, 24–34 x 4–6μ, 2–4-spored; sterigmata slender, to 6μ long. Paraphyses subclavate, about half the size of the basidia. Spores broadly elliptical, 6–8 x 3–4μ, some apiculate, wall smooth, hyaline, 0·2μ thick.

TYPE LOCALITY. Europe.

DISTRIBUTION. Europe, Great Britain, North and South America, Australia, New Zealand.

HABITAT. Effused on bark or decorticated wood of decaying branches.

Albizzia lophantha Benth. Auckland: Campbell's Bay, November, 1947, Mrs E. E. Chamberlain.

Alectryon excelsum Gaertn. Auckland: Alfriston, September, 1947, J. M. Dingley.

Beilschmiedia tarairi (A. Cunn.) Benth. & Hook. f. Auckland: Kawau Island, December, 1947, J. D. Atkinson.

Coprosma pseudocuneata Oliver. Auckland: Whakapapa, Mt. Ruapehu, 3,000 feet, October, 1949, J. M. Dingley.

Knightia excelsa R.Br. Auckland: Waikaretu, October, 1946, E. E. Chamberlain.

Leptospermum ericoides Raoul. Auckland: Huia, November, 1952, J. M. Dingley.

Leptospermum scoparium Forst. f. Auckland: Whakarewarewa, November, 1945, J. M. Dingley

Nothopanax arboreum (Forst. f.) Seem. Hawke's Bay: Poronui, 2,000ft., June, 1953, J. M. Dingley.

Oxylobium sp. Auckland: Campbell's Bay, October, 1947, Mrs. E. E. Chamberlain.

Pseudopanax crassifolium (Sol.) Koch. Auckland: Titirangi, Waitakeres, 1,000ft., November, 1930, M. Hodgkins.

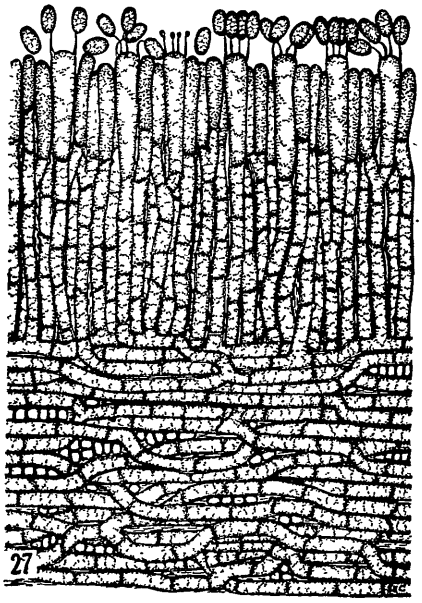
Weinmannia racemosa L.f. Auckland: Wairongomai Valley, Te Aroha, October, 1948, J. M. Dingley.

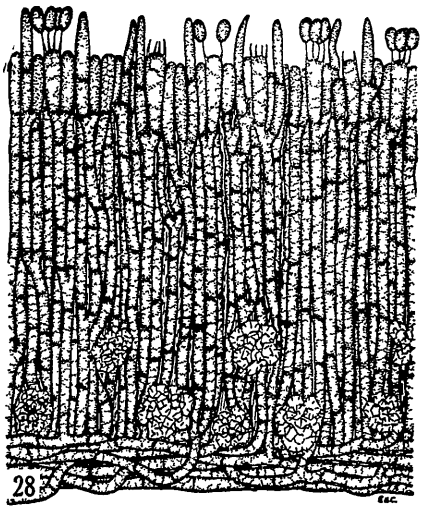
Collections listed agree with European specimens seen in Kew herbarium, differing in minor features such as the larger spores and more vivid colours of the surface. In this variable species such differences are negligible. In two Australian collections so named at Kew spores were of the same size as in New Zealand forms, and a wide range of colour was seen in European plants, all of which might be present in a single collection from our mountain regions. At first plants are pelliculose, thin, alutaceous, waxy and firmly adnate; in more mature specimens they appear livid or reddish-brown, pruinose and often plum coloured where fertile, context tissues are coated with gelatinous granules and interstices are filled with mucilage so that sections appear reddish-brown and glistening. In old specimens the surface may be creviced, though sparingly. The basal layer is normally thick, occupying about half the context; but in several collections is thin or on the other hand, tissues may appear to be zoned with two or three narrow bands of parallel hyphae and vertical intermediate hyphae alternating. Occasional plants display a few paraphysate hyphae with apices briefly branched. Bridging hyphae are not uncommon in addition to abundant clamp connections. From *C. leptospermi* and *C. vitellinum*, which also possess elliptical spores and mucilage dispersed as granules on hyphal walls, the species may be separated by the larger basidia, thicker context hyphae, larger spores and different structure of the context.

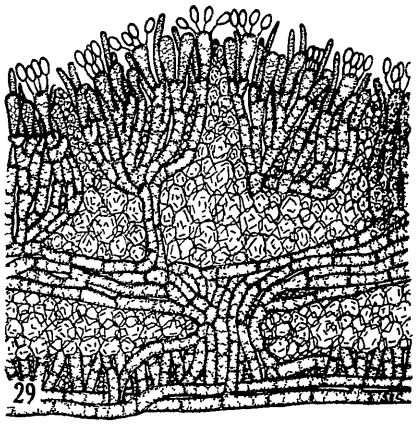
29. **Corticium leptospermi** n.sp. Text-fig. 28.

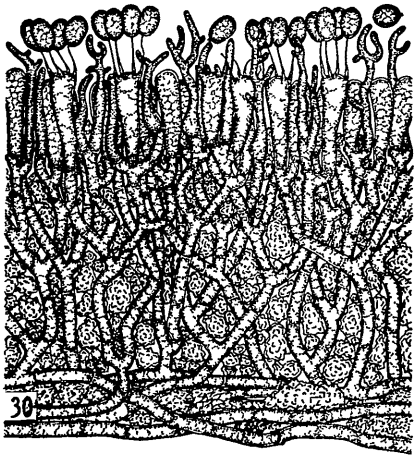
Hymenophorum ceraceum, adnatum, effusum; superficie primo crocea, siccitatae bubalina vel hinnulea, deinde alte areolato rimosa et saepe in lamellis decorticans. Contextus flavus, hyphis in conglomeratis crystallis sitis et flavis granulis mucilaginis tectis, fibulatis, 2 5–3μ diam. Basidia 14–25 x 3–5μ, 2–4 sporis. Hyphae paraphysatae copiosae adsunt. Sporae late ellipticae, 4–5·5 x 2 5–3μ, laeves, hyalinae.

Hymenophore annual, adnate, ceraceous, effused, forming irregular areas to 10 x 5 cm.; surface when fresh saffron- or chrome-yellow, drying buff or fawn, even, becoming deeply areolately creviced, and tending to peel away in flakes,









TEXT-FIG. 27.—*Corticium lividum*. TEXT-FIG. 28.—*Corticium leptospermi*. TEXT-FIG. 29.—*Corticium bullatum*. TEXT-FIG. 30.—*Corticium cornuculatum*. *Original*, × 500

margin thinning out, adnate, concolorous, vernicose when fresh. Context yellow, 100–200μ thick, composed of a narrow basal layer of parallel hyphae and an intermediate layer of compacted vertical hyphae coated with yellow mucilage granules, masses of crystals embedded in lower portions; generative hyphae 2·5–3μ diameter, wall 0 2μ thick, naked, branched, hyaline, septate, with abundant clamp connections. Hymenial layer to 35μ deep, of basidia, paraphyses and paraphysate hyphae closely compacted. Basidia subclavate, 14–25 x 3–5μ, not projecting, 2–4-spored; sterigmata slender, to 6μ long. Paraphyses cylindrical or subclavate, narrower than the basidia. Paraphysate hyphae cylindrical or aculeate, abundant, projecting to 10μ. Spores broadly elliptical, 4–5 5 x 2 5–3μ, abundant, wall smooth, hyaline, 0·2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on dead standing decorticated trunks.

Leptospermum ericoides A. Rich. Auckland: Kaimanawa Ranges, 2,500ft., March, 1952, G H. C, *type collection*, P.D.D. herbarium, No. 11427.

Podocarpus hallii Kirk. Taranaki: Mt Egmont, 2,500ft., January, 1953, J. M Dingley.

Separated from other ceraceous species bearing mucilage by the chrome-yellow colour (when fresh) of the deeply areolated surface, small basidia and presence of abundant paraphysate hyphae projecting to 10μ. Both context hyphae and tissues of the hymenium are coated with fine granules of yellow mucilage, which gives colour to the plant; and the lower part of the context contains additionally islands of crystals which may be scattered or arranged in the form of lenses. Type specimens were taken from bases of fire-killed decorticated trunks on which the fungus formed encircling sheets at or below the level of surrounding mosses.

In several features the species resembles the description of *Peniophora sacchari* Burt which was recorded from Porto Rico on sugarcane trash; but is not so referred since type material has not been examined.

30 **Corticium vitellinum** n.sp Pl. 13, Fig. 2.

Hymenophorum membranaceo-ceraceum, laxe adjunctum, effusum; superficie primo vitellina deinde centrale rubro-brunnea, margine flavea, vernicosa, demum raro rimosa. Contextus albus, hyphis in conglomeratis crystallis sitis et flavis granulis mucilaginis tectis, fibulatis, 2·5–3μ diam. Basidia 16–24 x 5–6μ, 2–4 sporis. Sporae ellipticae, 4–5 5 x 2–2·5μ, laeves, hyalinae.

Hymenophore annual, loosely attached, membranous-ceraceous, pelliculose, effused, forming many irregularly orbicular colonies 0·5–5 cm diameter, or linear areas to 16 x 2 cm.; surface at first egg-yolk yellow, becoming reddish-brown in the centre with yellow periphery, vernicose, finally scantily creviced; margin thinning out, tending to lift, at first white, becoming yellow, byssoid, vernicose Context white, 300–800μ thick, commonly 300–400μ, composed of a narrow basal layer of compact parallel hyphae, an intermediate layer of woven hyphae embedded in crystals, occupying the greater part of the context, and a subhymenium of densely compacted, closely septate, often obliquely arranged hyphae coated with mucilage granules which extend to the tissues of the hymenium; generative hyphae 2 5–3μ diameter, wall 0 2μ thick, naked, hyaline, branched, septate, with abundant clamp connections. Hymenial layer to 40μ deep, of basidia and

paraphyses. Basidia subclavate, 16–24 x 5–6μ, 2–4-spored; sterigmata slender, to 6μ long. Paraphyses subclavate, narrower than the basidia. Spores elliptical, 4–5·5 x 2–2·5μ, wall smooth, hyaline, 0·2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on bark of dead standing saplings and stems.

Nothofagus cliffortioides (Hook. f.) Oerst. Auckland: Kaimanawa Ranges, 2,300ft., March, 1952, G. H. C., *type collection,* P.D.D. herbarium, No 11424.

Rubus australis Forst. Westland: Staircase Creek, Reefton, 2,000ft, December, 1952, S. D. Baker.

In size and shape of spores and basidia the species resembles *C leptospermi;* it differs in context structure, surface features and absence of paraphysate hyphae Context tissues are arranged in three distinct zones: a basal narrow layer of compact mainly parallel hyphae, an intermediate layer of woven (not vertical) hyphae, and a narrow, compact subhymenium, cells of which are cubical and cemented together. Masses of crystals are packed between hyphae of the intermediate layer, and additionally granules of mucilage coat hyphae and basidia in the collection from *Rubus.* In young plants the surface is bright egg-yolk yellow, smooth and varnished; as specimens age the centre turns reddish-brown though still retaining its polished appearance, and finally deep fissures appear, though somewhat sparingly.

31. **Corticium bullatum** n.sp Text-fig 29.

Hymenophorum cretaceum, adnatum, effusum; superficie cremea deinde alutacea, subtiliter colliculosa, non rimosa. Hyphae contextus in conglomeratis crystallis sitae, fibulatae, 3–4μ diam, crystallis tectis. Basidia 8–12 x 3–5μ, 4 sporis. Hyphae paraphysatae copiose adsunt Sporae ellipticae, 3–4 5 x 2–2 5μ, laeves, hyalinae.

Hymenophore annual, closely adnate, chalky, effused, forming linear areas to 15 x 2 cm.; surface cream, then alutaceous, sometimes tinted pallid heliotrope, finely colliculose, not creviced; margin thinning out, concolorous, byssoid, adnate Context white, 25–100μ thick, composed of a delicate basal layer of a few repent hyphae, and an intermediate layer of mainly vertical hyphae embedded in masses of crystals; generative hyphae 3–4μ diameter, wall 0 2μ thick, crystal coated, hyaline, branched, septate, with clamp connections. Hymenial layer to 20μ deep, of basidia, paraphyses and paraphysate hyphae Basidia subclavate, 8–12 x 3–5μ, 4-spored; sterigmata slender, to 5μ long. Paraphyses subclavate, smaller than the basidia. Paraphysate hyphae cylindrical with rounded apices, or acuminate, projecting. Spores elliptical, 3–4 5 x 2–2 5μ, wall smooth, hyaline, 0 2μ thick.

DISTRIBUTION. New Zealand.

HABITAT Effused on bark or decorticated decaying wood

Leptospermum ericoides A Rich Auckland Hunua Falls, October, 1946, G. H. C., *type collection,* P.D.D herbarium, No. 4702.

Nothofagus fusca (Hook f) Oerst. Auckland: Turangi, Lake Taupo, October, 1949, J. M. Dingley.

Weinmannia racemosa L f. Auckland: Kauaeranga, Thames, October, 1950, J. M. Dingley. Taranaki: Mt. Egmont, 3,000ft, March, 1951, J M Dingley

Crystals are produced in such masses as to obscure tissues completely They are packed between hyphae, coat them, and extend to the hymenium masking

basidia and paraphyses. The context develops first as a tenuous layer of densely compacted hyphae. Among these crystals appear, and about the time basidia are formed develop as lenses among the hyphae, compressing them. Lenses gradually increase in size until blisters are formed which force the hymenial layer upwards above the surface level. Finally this ruptures and the crystal masses become exposed, giving plants a blistered, chalky appearance. In the collection from *Nothofagus fusca,* spores are appreciably larger, some being 7 x 3μ; but as it agrees with the type in other features, it has been included herein

32. **Corticium scutellare** Berkeley & Curtis, Grevillea, *2*, 4, 1873. Text-fig. 31, Pl. 13, Fig. 3.

Hymenophore annual, adnate, chalky, effused, forming linear areas to 10 x 3 cm., frequently less, with a few linear outlying islands, surface cream, sometimes becoming pallid buff, deeply and finely areolately creviced; margin thinning out, white, adnate, arachnoid or provided with stout brief rhizomorphs which may also develop towards the centre Context white, 200–300μ thick, sometimes 500–600μ, when vaguely layered, composed of a narrow basal layer of parallel hyphae, and an intermediate layer of vertical hyphae embedded in masses of crystals, mucilage also present on and between hyphae; generative hyphae 4–6μ diameter, commonly about 4μ, wall 0·5–1μ thick, crystal coated, branched, septate, with clamp connections. Hymenial layer to 40μ deep, of basidia, paraphyses and paraphysate hyphae. Basidia subclavate, 12–24 x 4–6μ, 4-spored; sterigmata slender, to 5μ long. Paraphyses subclavate, similar to but shorter than the basidia. Paraphysate hyphae cylindrical with rounded apices, projecting, occasionally crystal coated at or near apices. Spores elliptical, a few suballantoid, 6–8 x 3–4μ, wall smooth, hyaline, 0 25μ thick.

TYPE LOCALITY. South Carolina, U.S.A.

DISTRIBUTION. North America, West Indies, South Africa, New Zealand.

HABITAT. Effused on bark or decorticated dead branches and stems

Beilschmiedia tawa (A. Cunn.) Hook. f. & Benth. Auckland: Lake Okataina, 1,500ft., June, 1952, G. H. C.; Lake Rotoehu, 1,200ft., December, 1953, G. H. C.

Leptospermum ericoides A. Rich. Auckland: Sprague's Hill, Henderson, 600ft., May, 1947, J. M. Dingley; Mt. Tongariro, 2,500ft., March, 1952, G. H. C , Orere, Hunua Range, 500ft., March, 1953, J. M. Dingley; Hautepe, Lake Taupo, March, 1953, J. M. Dingley; Atkinson Park, Titirangi, 1,000ft., June, 1953, J. M. Dingley.

Leptospermum scoparium Forst. Auckland: Swanson, November, 1945, J. M. Dingley; Birkenhead Kauri Park, July, 1946, J. M. Dingley; Henderson, April, 1947, J. D. Atkinson; Cutty Grass Road, Waitakeres, 1,100ft., October, 1947, J. M. Dingley; Parahaki, Whangarei, May, 1949, J. M. Dingley; off Anawhata Road, Waitakeres, 1,200ft., September, 1949, J. M Dingley; Walker's Bush, Waitakeres, 800ft., August, 1940, J. M. Dingley; Upper Mohaka River, Kaimanawa Ranges, 2,000ft., May, 1953, J. M. Dingley; Mt. Te Aroha, 1,100ft., December, 1953, G. H. C.

Nothofagus cliffortioides (Hook f) Oerst. Wellington · Ohakune, 2,000ft., December, 1953, J. M. Dingley.

Nothofagus fusca (Hook. f.) Oerst Westland Staircase Creek, Reefton, 2,000ft , December, 1952, S D. Baker.

Nothofagus solandri (Hook. f.) Oerst. Otago: Routeburne Valley, February, 1948, J. M. Dingley.

Nothofagus truncata (Col.) Ckn. Auckland. Te Aroha, October, 1948, J. M Dingley; Orere, Hunua Range, March, 1953, J. M. Dingley.

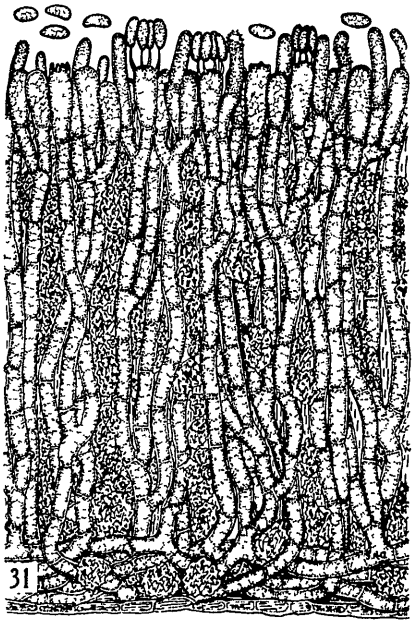
Olearia avicenniaefolia (Raoul) Hook. f. Westland: Weheka, 600ft., November, 1946, J. M. Dingley.

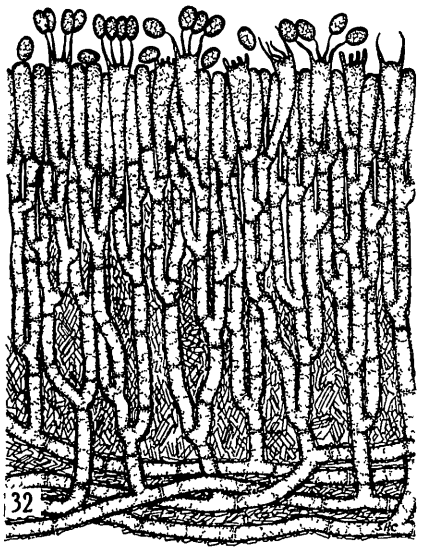
Prunus persica Sieb. & Zucc. Auckland: Henderson, April, 1947, J. D. Atkinson.

Vitex lucens Kirk. Auckland. Buffalo Beach, Whitianga, November, 1947, E. E. Chamberlain.

Weinmannia racemosa L.f. Auckland: Whakarewarewa, June, 1950, J. M. Dingley; Mamaku Forest, 1,800ft., December, 1953, G. H. C. Taranaki. Mt. Egmont, 3,000ft., March, 1951, J M. Dingley; Wellington: Ohakune, 2,000ft, December, 1953, J. M. Dingley. Westland. Weheka, 600ft., November, 1946, J. M. Dingley.

Collections match the type at Kew, ex South Carolina No. 2473, save that paraphysate hyphae are more strongly developed, a feature without significance, since in different New Zealand collections they may be well developed or scanty Occasional paraphysate hyphae bear crystals either at apices or arranged in a band beneath the naked apex. Consequently the species might be regarded as a *Peniophora* though without justification, since these bodies are not cystidia and crystals are accidental, being present or absent from the hyphae in different sections from the same specimen. In the context crystals are copiously developed and give to sections a chalky appearance. Several collections exhibit rhizomorphs which are at first peripheral but later may become covered by the developing





TEXT-FIG. 31.—*Corticium scutellare* TEXT-FIG. 32.—*Corticium tuberculatum*. Original, × 500.

hymenium. Specimens are often sterile, especially if large The species is liable to confusion only with *C. corniculatum,* but may be separated readily by the narrower elliptical spores and cylindrical paraphysate hyphae

33. **Corticium corniculatum** n.sp. Text-fig. 30.

Hymenophorum cretaceum, adnatum, effusum; superficie alba deinde pallide cremea, subtiliter colliculosa, alte subtiliter areolate rimosa Hyphae contextus in conglomeratis crystallis sitae, fibulatae, 2 5–3 5μ diam., nudae. Basidia 16–24 x 5–6μ, 4 sporis. Hyphae paraphysatae apice uno vel aliquot ramulis. Sporae ovatae vel obovatae, 6–9 x 5–6μ, apiculatae, laeves, hyalinae.

Hymenophore annual, or biennial, adnate, chalky, effused, forming linear areas to 24 x 3 cm., or as frequently numerous small elliptical crowded colonies 1–25 mm. long; surface white, pallid cream when old, finely colliculose, deeply finely areolately creviced; margin thinning out, white, arachnoid, adnate. Context white, 100–140μ thick, composed of a thin basal layer of parallel hyphae and an intermediate layer of somewhat loosely arranged upright hyphae embedded in masses of crystals which may extend between tissues of the hymenium; generative hyphae 2 5–3 5μ diameter, wall 0 5μ thick, hyaline, naked, branched, septate, with clamp connections. Hymenial layer to 40μ deep, of basidia, paraphyses and paraphysate hyphae. Basidia clavate, 16–24 x 5–6μ, 4-spored; sterigmata slender, to 10μ long. Paraphyses scanty, subclavate, smaller than the basidia Paraphysate hyphae projecting, simple or more usually finely apically branched. Spores oval or obovate, 6–9 x 5–6μ, apiculate, wall smooth, hyaline, 0 5μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused over bark of dead branches.

Leptospermum ericoides A. Rich. Auckland: Western Hills, Whangarei, May. 1949, J. M. Dingley; Glen Esk Valley, Piha, May, 1951, J. M Dingley; Kauri Glen, Northcote, August, 1951, J M Dingley, *type collection,* P.D.D. herbarium, No. 11339; same locality, September, 1951, J. M Dingley; Orere, Hunua Range, March, 1953, J. M. Dingley; Huia, October, 1953, J. M. Dingley.

Leptospermum scoparium Forst. Auckland: Rangitoto Island, June, 1947, J. M. Dingley; Mairangi Bay, August, 1949, J. M. Dingley; Mt Maunganui, 200ft., June, 1950, M. Hodgkins; Mt. Karioi, Raglan, March, 1951, J. M. Dingley; Kauri Glen, Northcote, August, 1951, J. M. Dingley.

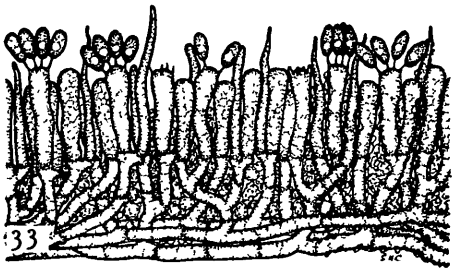
Leucopogon fasciculatus (Forst f.) A. Rich Auckland: Piha Valley, August, 1953, J. M. Dingley; Mountain Road, Henderson, 1,000ft, September, 1953, J M. Dingley.

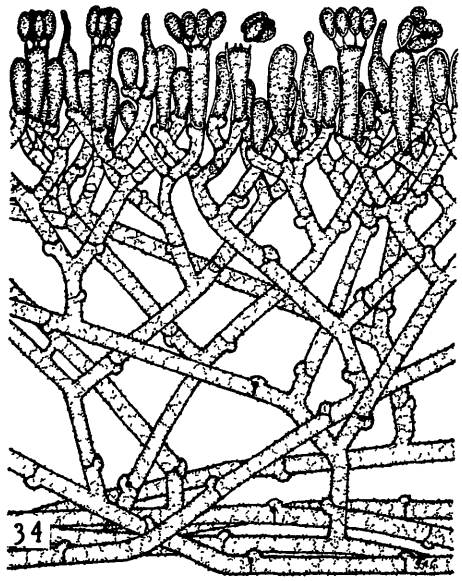
Both this species and *C. scutellare* possess a finely areolately creviced hymenophore and masses of crystals in the context. Occasional specimens exhibit two or three layers, somewhat vaguely defined by a few parallel compacted hyphae *C corniculatum* may be separated from *C scutellare* by the oval spores and branched projecting paraphysate hyphae. The latter are branches of the context hyphae with apices simple or irregularly finely branched into two to five often curved arms. Sometimes they are basally inflated near the septum. Because of these branched paraphysate hyphae the species might be sought under *Vararia.* They are not dendrophyses, however, nor are basidia of the *Vararia* type; and as the species closely resembles *C scutellare* it is herein regarded as a *Corticium.*

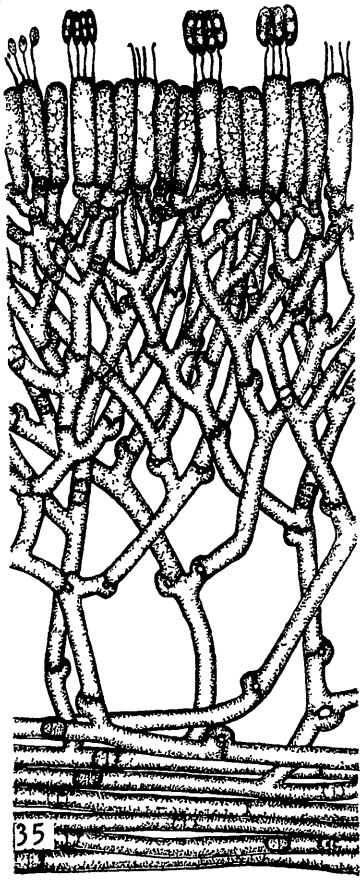
34. **Corticium contiguum** Karsten, Acta Societas pro Fauna et Flora fennica, *2*, 39, 1881. Text-fig. 33.

Xerocarpus crustaceus Karst, Hedw., *35*, 45, 1896.
Corticium crustaceum Karst., Bidr. Kann. Finl. Nat. Folk, *62*, 93. 1903.
C. subcinereum Burt, Ann. Missouri Bot. Gard., *13*, 277, 1926.

Hymenophore annual, adnate, membranous, effused forming linear areas to 24 x 2 cm., with numerous outlying islands; surface white, becoming cream, somewhat pruinose, even, not or at length scantily creviced; margin thinning out, white, arachnoid, adnate. Context white, 10–30μ thick, composed of a few basal parallel hyphae and a brief intermediate layer of upright hyphae embedded in masses of crystals which also extend between and coat tissues of the hymenium; generative hyphae 2·5–3μ diameter, wall 0·25μ thick, coated with coarse crystals, hyaline, branched, septate, with clamp connections. Hymenial layer to 30μ deep, of basidia, paraphyses and scanty paraphysate hyphae. Basidia subclavate or cylindrical, 12–24 x 4–6μ, 2–4-spored; sterigmata slender, to 4μ long. Paraphyses scanty, subclavate, smaller than the basidia. Paraphysate hyphae projecting to 15μ, with long acuminate apices, some bearing scattered crystals. Spores elliptic-oblong, 5–7 x 3–4μ, wall smooth, hyaline, 0·2μ thick.







TEXT-FIG. 33.—*Corticium contiguum.* TEXT-FIG. 34.—*Corticium polyporoideum.* TEXT-FIG. 35.—*Corticium cebennense. Original,* × 500.

TYPE LOCALITY. Mustiala, Finland.

DISTRIBUTION. Europe, North America, New Zealand.

HABITAT. Effused on bark of dead branches.

Brachyglottis repanda Forst. Auckland: Taneatua Reserve, 40ft., May, 1952, G. H. C.

Leptospermum scoparium Forst. Auckland: Mt Te Aroha, 1,100ft., December, 1953, G. H. C.

Crystals are produced in such quantities as to obscure the tissues, basidia, paraphyses and paraphysate hyphae sometimes becoming coated with them. In this particular the species resembles the preceding three. The collections listed agree with a European specimen examined (labelled *C. crustaceum*) save that paraphysate hyphae are more strongly developed. Rogers & Jackson (1943, 289) have shown that *C. crustaceum* is a synonym of *C. contiguum.*

35 **Corticium polyporoideum** Berkeley & Curtis, Grevillea, *1*, 177, 1873. Text-fig. 34.

Coniophora polyporoidea (B. & C.) Burt, Ann. Missouri Bot. Gard., *4*, 245, 1917.
Hypochnus polyporoideus (B. & C.) Overh, Mycologia, *30*, 275, 1938.

Hymenophore annual, loosely attached, membranous, composed of numerous irregular colonies 1–6 x 1–3 cm.; surface at first white, becoming yellowish, yellow with a greenish tinge, tan, or pallid buff, even, at length sparsely creviced, margin thinning out. 3–5 mm. wide, white, byssoid, often with radiating mycelial strands, loosely attached. Context white, 300–700μ thick, composed of a few loosely arranged parallel basal hyphae and an intermediate layer of loosely woven hyphae becoming more compact beneath the hymenium; generative hyphae 4–5μ diameter, commonly 3–4μ, wall 0 2μ thick, finely crystal coated, branching at a wide angle, hyaline, septate, with prominent clamp connections. Hymenial layer to 40μ deep, of basidia and paraphyses. Basidia subclavate, 12–24 x 4–6μ, 4-spored; sterigmata slender, to 4μ long. Paraphyses subclavate when about half the size of the basidia, or pyriform and terminating in long-acuminate projecting apices. Spores elliptical or obovate, 6–8 x 3·5–4μ, some apiculate, wall delicately and irregularly asperulate, tinted, to 0 75μ thick, often adhering in fours.

TYPE LOCALITY. Alabama, U.S.A.

DISTRIBUTION. North America, New Zealand.

HABITAT Effused on bark of decaying branches.

Podocarpus totara Don Auckland: Waipoua Kauri Forest, September, 1949, J M. Dingley.

Differing from preceding species in this section in that crystals are minute and confined to walls of the context hyphae. Hyphae branch at a wide angle, and septa are widely spaced save in hyphae of the subhymenium. Bridging hyphae are not uncommon. Spores often adhere in fours; walls of some are hyaline, others faintly tinted brown, seen most clearly in unstained preparations mounted in lactic acid Many are delicately, somewhat irregularly asperulate, though others are smooth or with delicate markings confined to the apical region. Some of the paraphyses are provided with long-acuminate projecting apices, others are subclavate. Because of the loosely woven context hyphae crystal coated, somewhat primitive hymenium often lacking a definite palisade arrangement and tinted spores the species might be sought under *Tomentella*. As it lacks the

definitely coloured echinulate spores of members of that genus, it is treated herein as a *Corticium*.

Our collection agrees with the type seen in Kew herbarium. The species differs from the related *C. albo-ochraceum* Bres. of Europe in that markings of the spores are much finer and context hyphae are not ampullate.

36. **Corticium cebennense** Bourdot, Revue scientifique de Bourbonnais et du Centre de la France, *23*, 7, 1910. Text-fig. 35.

Hymenophore annual, somewhat loosely attached, membranous, effused, forming small linear colonies 2–6 x 3 cm.; surface white, drying cream or pallid straw colour, even, not creviced; margin thinning out, white, arachnoid, adnate Context white, 100–200μ thick, composed of a basal layer of parallel hyphae and an intermediate layer of upright loosely arranged hyphae branched at a wide angle and more freely branched (corymbose) beneath the hymenium; generative hyphae 4–5μ diameter, wall 0·25μ thick, naked, hyaline, septate, with prominent clamp connections. Hymenial layer to 50μ deep, of basidia and paraphyses. Basidia subclavate or subcylindrical, 20–26 x 5–7μ, 2–4-spored; sterigmata slender, 7–10μ long. Paraphyses subclavate, resembling the basidia in size and shape. Spores suballantoid, or rod-shaped with rounded ends, 7–9 x 1 5–2μ, wall smooth, hyaline, 0·2μ thick.

Type Locality. Aveyron, France.

Distribution. Europe, New Zealand.

Habitat. Effused on decorticated decaying wood.

Pseudopanax crassifolium (Sol.) Koch. Auckland: Ruatewhenua, Waitakeres. August, 1949, J. M. Dingley.

Context hyphae are naked and the context is without crystals or granules of mucilage. Specific features are the long and narrow suballantoid spores with two prominent guttulae, moderately thick hyphae branched at a wide angle and becoming corymbose beneath the hymenium, and small elliptical colonies with cream or ochre, even, non-creviced surface. Our specimens agree with a collection of *C. cebennense* ex Stockholm seen at Kew, differing in being more coloured, not creviced, and growing upon a different host, the type being recorded from pine. In microfeatures they agree closely

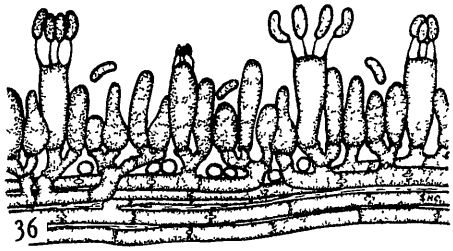
37. **Corticium vescum** Burt, Annals of the Missouri Botanic Garden, *13*, 204, 1926. Text-fig. 36.

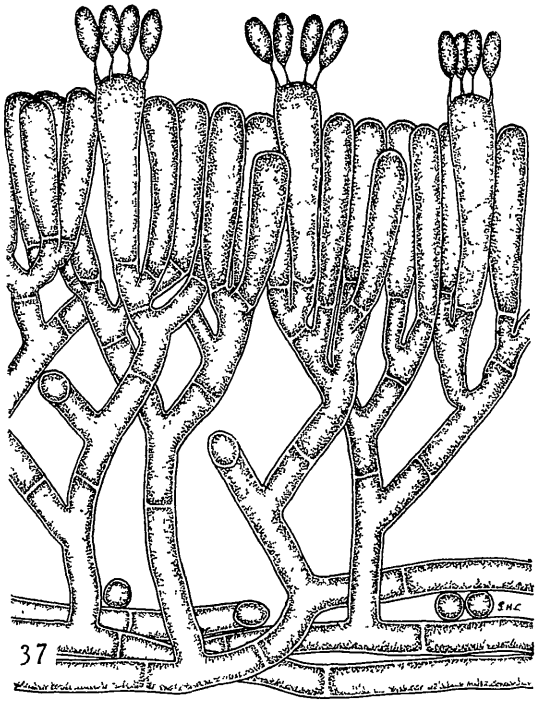
Hymenophore annual, adnate, arachnoid, closely following contours of the substratum, effused, forming linear areas to 20 x 4 cm.; surface white, delicately pruinose, not creviced; margin arachnoid, white, adnate. Context white, composed of a delicate basal layer of parallel hyphae from which the hymenium arises directly; generative hyphae 2μ diameter, wall 0 2μ thick, naked, hyaline, branched, septate, with clamp connections. Hymenial layer 15–20μ deep, of basidia and paraphyses. Basidia subclavate, 10–12 x 3–4μ, 4-spored, soon collapsing; sterigmata delicate, to 4μ long. Paraphyses commonly pyriform, ovate, or cylindrical, much smaller than the basidia. Spores allantoid, 3–4 x 1–1 5μ, wall smooth, hyaline, 0·1μ thick.

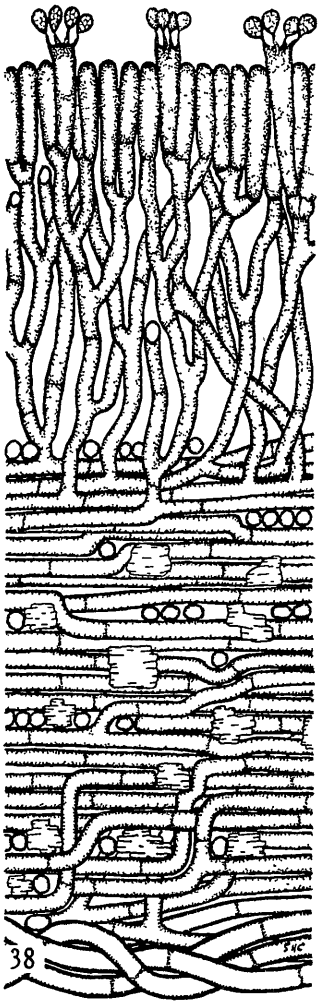
Type Locality. Alabama, U.S.A.

Distribution. North America, New Zealand.

Habitat. Effused on bark of decaying branches and stipes of tree ferns.







TEXT-FIG. 36.—*Corticium vescum*, × 1000. TEXT-FIG. 37.—*Corticium corymbatum*, × 1000 TEXT-FIG. 38.—*Corticium cordylines*, × 500. *Original*

Cyathea medullaris (Forst. f) Swartz. Auckland Huia, October, 1953, J. M. Dingley.

Rubus cissoides A Cunn Otago Morrison's Creek, Dunedin, 500ft , June, 1952, G. T. S. Baylis

Suttonia australis A. Rich. Auckland . Purewa Bush, August, 1948, D. W McKenzie.

This delicate species possesses the smallest spores of any described herein The hymenophore appears as a tenuous white film firmly attached to the substratum, following closely its irregularities and resembling a light grey wash of water colour. Context hyphae are scanty consisting of a few mainly parallel threads which soon collapse and become partly gelatinized. An intermediate layer is wanting, hymenial tissues arising upon short branches of the repent

hyphae. Pyriform or ovate paraphyses are common and form the bulk of the hymenial layer. In the collection from *Rubus cissoides* nearly all paraphyses are pyriform or ovate, whereas in that from *Suttonia australis* they are ovate, pyriform, cylindrical or subglobose.

38. **Corticium fuciforme** (Berkeley) Wakefield, Transactions of the British Mycological Society, *5*, 481, 1916.

Isaria fuciformis Berk., Jour. Linn. Soc., *13*, 175, 1873.
I. graminiperda Berk. & Muell., Gard. Chron., 1596. 1873.
Hypochnus fuciformis (Berk.) McAlp., Ann. Myc., *4*, 549, 1906
Epithele fuciformis (Berk.) Hoehn. & Syd., Ann. Myc.. *4*, 551, 1906.

Hymenophore annual, ceraceous, growing from surfaces of culms and leaves of grasses, as clavariform or fuciform single or branched sometimes antler-like processes, each long-aculeate or subulate, 5–25 mm. long; surface flesh-pink or coral-pink, remaining so or drying pallid tan. Context composed of many closely compacted parallel hyphae often near apices breaking into oidia, on culms arachnoid, white, tenuous; generative hyphae 6–7μ diameter, wall 0·2μ thick, hyaline, naked, or coated with orange mucilage granules, sparsely branched, without clamp connections Hymenial layer developing both upon the exterior of the host tissues and subulate processes, basidia and paraphyses arising directly from the parallel hyphae forming a delicate layer to 40μ deep. Basidia subclavate, 16–20 x 5–6μ, 4-spored; sterigmata stout, to 6μ long. Paraphyses subclavate, a few slightly capitate, similar in size to the basidia. Spores elliptical, with rounded ends, a few irregularly suballantoid, 8–11 x 4–5μ, apiculate, wall smooth, hyaline, 0·2μ thick.

TYPE LOCALITY. Mt. Gambier, South Australia.

DISTRIBUTION. Great Britain, North America, Australia, Tasmania, New Zealand.

HABITAT. Parasitic on culms and leaves of grasses

Agrostis tenuis Sibth. Auckland. Rotorua, 1,200ft., September, 1950, G. H. C.

Lolium multiflorum Lam Hawke's Bay. Waipara, July, 1920, G. H. C

Lolium perenne L. Auckland: Birkenhead, July, 1943, W McKella; Auckland City, July, 1951, unknown donor; Kaikohe, July, 1952, E. H. Latimer. Hawke's Bay: Napier, September, 1932, R. D. Stevenson Wellington: Masterton, June, 1946, W. Hadfield.

Although represented in the herbarium by only a few collections, the species is common throughout the North Island on certain European grasses of pastures, lawns, golf courses and bowling greens. It kills plants, forming discoloured orbicular areas from a few inches to upwards of two feet in diameter. First found in 1854 at Mt. Gambier, it has become widespread in Australia, Tasmania, and New Zealand, and established in Great Britain and the eastern coast of the United States.

C. fuciforme may be recognized readily by the bright flesh-pink or coral-pink, clavariform, semigelatinous bodies produced upon killed culms and leaves These are sometimes sterile, or produce only oidia; they are as frequently fertile, bearing a palisade hymenium. Consequently the species cannot be placed under *Epithele*, since in the latter genus, fascicles are always sterile. Possibly its proper taxonomic position is under *Clavaria*.

39. **Corticium tuberculatum** Karsten, Hedwigia, *35*, 45, 1896. Text-fig. 32.

Hymenophore annual, adnate, ceraceous, effused, forming linear areas to 12 x 5 cm.; surface cream, pallid alutaceous, or ochre, becoming deeply areolately creviced, then appearing tuberculate; margin thinning out, concolorous, byssoid, adnate. Context white, 100–400μ thick, composed of a narrow basal layer of rather loosely arranged mainly parallel hyphae, and an intermediate layer of erect hyphae more dense beneath the hymenium, embedded in masses of crystals which may be arranged in layers, and crystal coated in the lower part of the context; generative hyphae 3·5–4μ diameter, wall 0·2μ thick, crystal coated, hyaline, freely branched, septate, without clamp connections. Hymenial layer to 40μ deep, of basidia and paraphyses. Basidia subclavate, 14–32 x 4–6μ, 2–4-spored; sterigmata slender, to 8μ long. Paraphyses mostly cylindrical, or subclavate, narrower than the basidia. Spores oval, ovate, or broadly elliptical, 4·5–6 x 3·5–4μ, wall smooth, hyaline, 0·2μ thick.

TYPE LOCALITY. Finland.

DISTRIBUTION. Europe, Great Britain, New Zealand.

HABITAT. Effused on bark of decorticated wood of decaying branches.

Coprosma linariifolia Hook. f. Auckland: Upper Mohaka Valley, Kaimanawa Ranges, 2,000ft., May, 1953, J. M. Dingley.

Griselinia lucida Forst. f. Auckland: Whakapapa, Mt Ruapehu, 3,000ft., October, 1949, J. M. Dingley.

Nothofagus cliffortioides (Hook. f.) Oerst. Auckland: Chateau, Mt Ruapehu, 3,000ft., October, 1949, J. M. Dingley.

Collections listed agree with a specimen of *C. tuberculatum* in Kew herbarium, differing mainly in the brighter colour of the surface and, particularly, in the masses of crystals present in the context. Microfeatures are so similar that they are regarded as forms of the same species. In specimens from *Griselinia lucida* crystals are confined to the basal portion of the context; whereas in those from *Nothofagus cliffortioides* they extend to the hymenial layer, lying between and partly coating basidia and paraphyses. In old specimens margins of the crevices often lift slightly and give to plants an odontoid appearance; the surface is even, however, when plants are actively growing, though deeply creviced.

40. **Corticium cordylines** n.sp. Text-fig. 38.

Hymenophorum membranaceum, fragile, laxe adjunctum, effusum; superficie carnea vel roseo-bubalina, colliculosa, maequaliter rimosa centrali siccitate. Contextus pallide roseus, hyphis in conglomeratis crystallis sitis, afibulatis, 3·5–7μ diam., nudis. Basidia 16–26 x 4–5μ, 4-sporis. Sporae obovatae vel obovatae attenuato-apiculatae, 4·5–6 x 3–3·5μ, laeves, hyalinae.

Hymenophore annual, membranous, fragile, loosely attached, effused, forming orbicular or irregular areas to 10 x 4 cm.; surface flesh-pink, or pinkish-buff, becoming tinged vinaceous, colliculose, creviced irregularly, mainly centrally when dry; margin thinning out, white, to 3mm. broad, fibrillose, loosely attached. Context pallid pink, 250–350μ thick, composed of a stout basal layer of mainly parallel hyphae densely compacted and embedded in masses of crystals, hyphae in contact with the substratum thickened, partly sclerotioid and densely woven, intermediate layer of loosely arranged mainly upright hyphae embedded in scattered crystals; generative hyphae 3·5–4μ diameter, 6–7μ at the base, wall

0·25μ thick, naked, hyaline, branched, septate, without clamp connections Hymenial layer to 50μ deep, of basidia and paraphyses forming a dense palisade. Basidia subclavate, projecting slightly, 16–26 x 4–5μ, 4-spored; sterigmata slender, to 5μ long. Paraphyses cylindrical or subclavate, narrower than the basidia. Spores obovate, or pip-shaped, 4 5–6 x 3–3 5μ, apiculate, wall smooth, hyaline, 0 2μ thick.

DISTRIBUTION. New Zealand.

HABITAT. Effused on bark of dead stems

Cordyline australis (Forst. f.) Hook. f Auckland. Purewa Bush, December, 1948, D. W. McKenzie; South-west King Island, January, 1950, G. T. S. Baylis, *type collection*, P.D.D. herbarium, No 7405.

Specific features are the loosely attached hymenophore with broad fibrillose margin, flesh-pink becoming vinaceous colliculose surface, small obovate or pip-shaped spores and broad basal layer of the context. Where in contact with the substratum hyphae are densely woven, sclerotioid and walls are thickened to 1μ. Crystals are embedded freely in the basal layer and scattered through the intermediate layer, but do not occur in masses as in *C. scutellare*, *C. tuberculatum* and related species.

41. **Corticium corymbatum** n.sp. Text-fig. 37.

Hymenophorum membranaceum, adnatum, effusum; superficie cremea aequa, non rimosa. Hyphae contextus in corymbis ordinatae, afibulatae, 4 5–5μ diam., nudae. Basidia 16–20 x 4–5μ, 4 sporis. Sporae obovatae vel ellipticae, 6–7 x 3–3·5μ, laeves, hyalinae.

Hymenophore annual, adnate, membranous, effused, forming linear areas to 40 x 3 cm. with numerous outlying islands; surface cream, even, not creviced; margin thinning out, white, arachnoid, adnate. Context white, 40–80μ thick, composed of a narrow basal layer of parallel hyphae, and an intermediate layer of erect hyphae sparsely branched below, freely branched (corymbose) beneath the hymenium; generative hyphae 4 5–5μ diameter, wall 0 5μ thick, naked or occasional hyphae coated with fine crystals, hyaline, septate, without clamp connections. Hymenial layer to 40μ deep, of basidia and paraphyses compacted into a dense palisade. Basidia subclavate, slightly projecting, 16–20 x 4–5μ, 4-spored; sterigmata slender, to 4μ long. Paraphyses subclavate, similar to the basidia but narrower. Spores obovate or elliptical, with rounded apex and acuminate base, 6–7 x 3–3 5μ, apiculate, wall smooth, hyaline, 0 2μ thick

DISTRIBUTION New Zealand.

HABITAT. Effused on decorticated decaying wood.

Brachyglottis repanda Forst. Auckland· Hick's Bay, 300ft., May, 1952, G. H. C., *type collection*, P.D.D. herbarium, No 11474.

Pittosporum sp. Auckland: Whakapapa, Mt Ruapehu, 3,000ft., October, 1949, J. M. Dingley.

In the type collection the hymenophore is closely adnate, with an even, non-creviced cream surface, thin context with hyphae scantily branched below, corymbose beneath the hymenium, arising from a narrow basal layer of parallel hyphae, naked save for occasional hyphae which are finely crystal coated. The collection from *Pittosporum* differs in that the fructification is loosely attached, has a deeply creviced surface, hyphae are thinner, with thinner walls, and the basal layer is

stouter. Occasional hyphae bear crystals, but most are naked. When further collections come to hand it may prove to be distinct.

42. **Corticium singulare** n.sp Text-fig. 26.

Hymenophorum membranaceum, laxe adjunctum, effusum; superficie pallide alutacea, vernicosa, raro rimosa siccitate. Contextus ferrugineous, hyphis afibulatis, fuscis, 3–4μ diam sub hymenio, 6–8μ prope basim, nudis. Basidia 20–35 x 5–7μ, 4 sporis. Sporae ellipticae, 4 5–6 x 2–2 5μ, laeves, hyalinae.

Hymenophore annual, membranous, loosely attached, effused, forming irregular areas to 10 x 6 cm.; surface pallid tan, polished, even, sparsely creviced when dry; margin thinning out, fibrillose, crenate, tan or bay brown, loosely attached. Context ferruginous, 300–400μ thick, composed of a narrow layer of basal parallel hyphae, and an intermediate layer of woven hyphae branched at a wide angle, becoming vertically arranged beneath the hymenium; generative hyphae 6–8μ diameter at the base, tapering towards the hymenium where 3–4μ diameter, wall 0 25–0·5μ thick, naked, fuscous, septate, practically without clamp connections. Hymenial layer to 60μ deep, of basidia and paraphyses arranged in a dense palisade. Basidia subclavate, 20–35 x 5–7μ, 4-spored, not projecting; sterigmata slender, to 4μ long. Paraphyses cylindrical or subclavate, narrower than the basidia, often with fuscous walls. Spores elliptical, 4 5–6 x 2–2 5μ, wall smooth, hyaline, 0 2μ thick.

DISTRIBUTION. New Zealand

HABITAT. Effused on bark and decorticated decaying wood

Litsaea calicaris (Sol) Benth. & Hook. f. Auckland Waiotapu, June, 1950, J M Dingley, *type collection*, P.D.D herbarium, No. 10589.

Recognized readily by the fuscous hyphae, since it is the only species in the region with coloured hyphae. Context hyphae are 6–8μ diameter at the base and taper gradually until beneath the hymenium they are 3–4μ. Though listed in the section without clamp connections these are present, but occur so rarely that the plant would normally be sought herein Only one clamp connection was seen in a section which contained 430 septa, and in other sections of similar size none was noted Bridging hyphae are common.

EXCLUDED SPECIES OF CORTICIUM

Colenso collected many specimens of fungi which he forwarded to Kew for identification. Names for these plants were published in several volumes of *Transactions* of the New Zealand Institute, those containing records of *Corticium* species being *19*, 304, 1887; *23*, 394, 1890 and *26*, 321, 1893 In the same periodical Massee (*39*, 28–31, 1906) published brief descriptions of eight species, most based on these previous records. I have examined all available collections from New Zealand in Kew herbarium, and give below particulars regarding these earlier namings.

1. *albidum*, *Corticium* Mass A new combination employed by Massee (*39*, 29, 1906) for *Aleurodiscus albidus* Mass. to which he referred collections " N.Z., Colenso, b. 528, b. 590 and b. 729 " previously named by Cooke *Aleurodiscus oakesii* and filed at Kew under that cover The cover of *A albidus* Mass. contains only the type, ex " Brisbane, Bailey, No 620 " New Zealand specimens are not of this species but resemble *A. oakesii*.

2. *auberianum, Corticium* Mont Collections at Kew so named by Cooke are " N.Z., Colenso, b. 662, b. 772 " and " N.Z., Currey ". All are of species of *Peniophora.*

3. *calceum, Corticium* (Pers) Fr Recorded by Colenso (*19,* 304, 1886). No specimens from the region are in Kew herbarium.

4. *ceraceum, Corticium* Berk & Rav. Recorded by Colenso (*26,* 321, 1893). No specimens from the region are in Kew herbarium

5. *cretaceum, Corticium* Pers. ex Fr. The only collection from New Zealand at Kew, " Colenso, b. 404 " consists of a sheet of creviced resin spread over bark of *Dacrydium cupressinum*

6. *laeve, Corticium* Pers. ex Fr. Under this cover are filed eight collections " N.Z." and " N.Z., Sinclair," so named by Berkeley, are species of *Peniophora;* " N.Z., Colenso," named as above by Berkeley, consists of three specimens, two being of *Hymenochaete unicolor,* the third of an unidentifiable *Corticium* " Colenso, b. 55 ", " Colenso, b. 402 " and " Colenso, b. 386 " placed under this cover by Cooke are of three species; the first is of *Peniophora crustacea,* the second an undescribed *Aleurodiscus,* the third *Corticium scutellare.*

7. *luteo-aurantiacum, Corticium* Wakef. The type, ex Mamaku, New Zealand, is a species of *Peniophora.*

8. *molle, Corticium* Fr. Recorded by Colenso (*26,* 321, 1893) No specimens from the region are in Kew harbarium

9. *nudum, Corticium* Fr. Recorded by Colenso (*23,* 394, 1890) No specimens from the region are in Kew herbarium.

10. *ochraceum, Corticium* Fr Recorded by Colenso (*23,* 394, 1890). No specimens from the region are in Kew herbarium

11. *polygonium, Corticium* (Pers.) Fr. Collections filed under this cover are of several species. " N.Z , Colenso, b. 670, b. 2082," are undescribed species of *Aleurodiscus;* " N.Z., Colenso, b 447 " is of *Peniophora vinosa;* one labelled " Ex Curtis, U.S.A." is of our endemic *Aleurodiscus berggreni*

12. *sebaceum, Corticium* (Pers.) Mass. Recorded by Colenso (*26,* 321, 1893). No specimens from the region are in Kew herbarium. The name is a synonym of *Sebacina incrustans.*

13. *serum, Corticium* (Pers.) Fr. Two collections were placed under the cover by Cooke. " N.Z., Waitaki, No 260 " is of *Polyporus dichrous;* " N.Z., Wellington, Travers, No 375 " is of *Septobasidium simmondsii* Couch

14. *sparsum, Corticium* Berk. & Br. A specimen so labelled by Massee and filed under *Peniophora sparsa,* ex " N Z , Kirk No 318 " is the conidial stage of *Nectria otagensis* Currey

15 *spumeum, Corticium* Berk & Rav Under the cover of *Stereum ochroleucum* is filed a specimen ex " N.Z , Colenso. b 948 " which was labelled by Cooke *C. spumeum* and recorded by Colenso (*19,* 304, 1887) as *C. ochroleucum* var *spumeum.* It is a specimen of *C confluens.*

16. *sulfureum, Corticium* Fr. Collection " b 507 " placed under this cover by Cooke, and so recorded by Colenso (*23,* 394, 1890) is a specimen of *Coniophora arida.*

17. *terreum, Corticium* Berk., Fl. N.Z, *2,* 184, 1855. The type at Kew, ex " Raumahanga, Colenso, growing on bark of Knightia excelsa " is a species of *Septobasidium.*

18 *violaceo-lividum, Corticium* Fr. Recorded by Colenso (*26,* 321, 1893). No specimens from the region are in Kew herbarium.

19. *viride, Corticium* Berk, Fl. N.Z., *2,* 184, 1855. The type at Kew, ex " N.Z., Colenso " is a *Coniophora, C. viridis* (Berk) Sacc.

20. *viscosum, Corticium* Fr. Recorded by Colenso (*19,* 304, 1887). No specimen from the region is in Kew herbarium.

LITERATURE CITED

BOURDOT, H. and GALZIN, A. 1928 Hymenomycetes de France. 761 pp
COLENSO, W., 1886 Trans N.Z Inst., *19,* 301–310.
——— 1890. Trans. N.Z. Inst., *23,* 391–398
——— 1893. Trans N Z Inst. *26,* 320–323
CUNNINGHAM, G. H, 1953 Trans. Royal Society of N Z. *81,* 165–188
MASSEE, G. E., 1906 Trans. N.Z Inst, *39,* 1–49
ROGERS, D. P. and JACKSON H S, 1943. Farlowia. *1,* 263–336
WAKEFIELD, E. M. 1914 Trans Brit. Myc. Soc. *4* 341–342.