

SOME SOUTH AFRICAN VALSACEAE.

By Ethel M. Doidge.

Very little is known of fungi, on South African hosts, belonging to the genus *Diatrype* and related genera, except for a small number of species collected in the later years of the 19th century by MacOwan and Medley Wood; most of these were named and described by Kalchbrenner and Cooke (6).

Part of the type collections of some of these fungi is to be found in the Cryptogamic Herbarium at Pretoria or in the South African Museum in Cape Town. The type material of other species appears to consist of small fragments in the Kew Herbarium or in the Berlin Herbarium.

As opportunity offered, a search has been made for fresh material of MacOwan's fungi and those of Medley Wood; in one or two cases the search was successful, and amongst the specimens examined there were a number of species apparently undescribed. Some of these were recently described by Sydow (8) and further species are described in the present paper, in which are included descriptions of all fungi of this group recorded from South Africa.

Some of the type collections made by MacOwan and Medley Wood are in excellent condition, but others are fragmentary and confused, more than a single fungus being included under a single collector's number. A careful study has been made of the material available, and it has been possible in most cases to write a detailed description of the older species. Berlese's drawings (1) have proved very helpful, and three of them are reproduced. I am indebted to the Director of the Imperial Mycological Institute for photographs of the original plates.

During recent years a number of workers, including von Höhnel, Sydow, Theissen, Petrak and others, have studied the morphology and taxonomy of the stromatic Sphaeriales. Several systems of classification have been proposed, based in some cases on the imperfect forms associated with the ascus stage. In particular may be mentioned von Höhnel's classification of the Allantosphaeriaceae and Diaportheae (9) and the cultural studies of Wehmeyer (10).

Except in the case of parasites of cultivated plants, some of which occur only in the conidial stage in South Africa, information is lacking with regard to the imperfect forms of the South African species. There has been no opportunity for making cultural studies, and no conidial forms have been found occurring naturally in association with the ascus forms. In this preliminary study, therefore, no attempt could be made at a natural classification and an artificial key to the genera is given. The genera included are those classified in the family Valsaceae in Volume XXIV of Saccardo's *Sylloge Fungorum*.

I am indebted to Miss E. M. Wakefield, to Mr. E. W. Mason and to Dr. H. Sydow for help and advice in connection with some of the species, and to Mr. A. H. V. King for the excellent photographs illustrating the paper.

A note seems necessary about the interpretation of the term "ostiole"; there seems to be no general agreement among mycologists as to the definition of this term. In the recent description published by Sydow, it is applied to the whole papilla or neck of the perithecium, and it is used in that sense in this paper.

VALSACEAE.

KEY TO GENERA RECORDED FROM SOUTH AFRICA.

A.—Spores allantoid, hyaline or sub-hyaline.

(a) Perithecia caespitose, without distinct stroma.

1. Perithecia beaked..... *Calosphaeria*.
 2. Perithecia not beaked..... *Erostella*.

(b) Perithecia in a stroma.

1. Asci with tapering, persistent stalks, forming a definite, persistent layer ; ostioles sulcate.

(aa) Stroma formed from the changed matrix, asci 8-spored..... *Eutypella*.

(bb) Stroma different from the matrix.

(i) Asci 8-spored..... *Diatrype*.

(ii) Asci many-spored..... *Diatrypella*.

2. Asci with evanescent stalks, soluble in water, often almost filling the perithecial cavity,

(aa) Ostioles fasciculate, long, protruding, entire or sulcate..... *Peroneutypella*.

(bb) Ostioles converging, not protruding or slightly so, entire..... *Valsa*.

B.—Spores 1-celled, hyaline, not allantoid, stroma valsiform, perithecia circinate.... *Cryptosporella*.

C.—Spores hyaline, 1-septate..... *Diaporthe*.

D.—Spores brown, 1-septate.

(a) Stroma phyllogenous..... *Pseudothis*.

(b) Stroma not phyllogenous..... *Valsaria*.

E.—Spores hyaline, 2- or more-septate.

(a) Stroma superficial..... *Holstiella*.

(b) Stroma immersed..... *Calospora*.

CALOSPHERIA Tul.

Select. Fung. Carp. (1861-1865).

Stroma none, perithecia free or seated on the inner bark, scattered, or more frequently collected in more or less distinctly circinate groups. Ostioles more or less elongated. Asci clavate, generally racemose-fasciculate, sessile or stipitate, 8-spored. Paraphyses usually much longer than the asci, stout, evanescent. Spores allantoid.

Calosphaeria princeps Tul.

Sel. Fung. Carp. II. p. 109 ; Sacc. Syll. Fung. I. p. 95 ; Ellis and Everhart, North. Amer. Pyren. (1892) p. 507.

Plate I.

Stroma none. Perithecia lying on the surface of the inner bark, and attached to it in groups which are round to elliptic in outline, scattered and mostly up to 5 mm. diam.

Perithecia densely crowded, black, smooth, shining, globose, circinate, 450-600 μ diam., narrowing suddenly above into the ostioles. Ostioles prolonged into long necks, which are centripetal, converging towards a crack in the outer bark which is slightly raised, very long,

flexuous, cylindrical, about 150μ thick; becoming fasciculate, ascending and finally erect near the apex in the centre of the group. Perithecial wall blackish-brown, sub-opaque, firm, membranous, $30-50\mu$ thick, composed of roundish-angular, rather thin-walled cells $4-7.5\mu$ diam.; at the point of attachment to the inner bark, the wall is continuous with a short foot of smaller-celled tissue (cells $2-2.5\mu$ diam.) which penetrates into the tissue of the host, and resolves itself into light brown, tortuous, branching hyphae $2-2.5\mu$ thick, which penetrate more deeply into the host tissues.

Asci very numerous, 8-spored, clavate, rounded above, tapering below into a slender hyaline stalk, sp. part $18-26 \times 3.5-5\mu$. Paraphyses very numerous, simple, hyaline, rather thick, far exceeding the asci. Spores loosely conglobate, hyaline, allantoid, rounded at the ends, $4-6 \times 1.25-1.5\mu$.

on *Prunus armeniaca* L., on dead branches, Swinburne near Harrismith, *Petty*, 2237; Dundee, *Doidge*, 15499.

Prunus persica Stokes, Marianthall, Ixopo, *Pole Evans*, 5609; Parys, *Town Clerk*, 14107.

Erostella (Sacc.) Trav.

Fl. ital. Crypt. Fung. Pyren. fasc. I (1906) p. 155.

Syn. *Togninia* Berl. Icon. Fung. III (1900) p. 9.

Calosphaeria, sub-gen. *Erostella* Sacc. Syll. Fung. I (1882) p. 101.

Like *Calosphaeria*, but perithecia not beaked.

Erostella quaternarioides (Berl.) Sacc.

Syll. Fung. XXII (1913) p. 353.

Syn. *Togninia quaternarioides* Berl. Icones Fung. III (1900) Tab. XIV fig. 1.

Plate 4 a.

Perithecia developed in the cortex, in valsiform acervulae, in groups of 4-5, covered by the raised periderm, ovoid, or, not infrequently, angular through compression, black, 500μ diam., constricted above into a thick ostiole traversed by a pore.

Asci clavulate, $30-40 \times 6-7\mu$, tapering below into a long, slender stalk. Spores allantoid, pale greenish yellow, $8-12 \times 3-4\mu$.

on branches, South Africa; associated with *Peroneutypella cylindrica* (Kalch. et Cke.) Berl.

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This fungus was not detected on the type material of *P. cylindrica* in Kew Herbarium nor was it found in recent collections of this fungus. The above description is after Berlese and his drawing is reproduced.

Eutypella Nits. (ut sub-gen.)

Pyren. Germ. 2 (1870) p. 163; Sacc. Consp. Gen. Pyr. (1876) p. 4.

Stroma usually well developed, effuse or isolated, bounded by a dark marginal zone, formed from fungus hyphae permeating the host tissues which are more or less altered. Perithecia usually erumpent in groups; ostioles not protruding or slightly so, sulcate. Asci 8-spored. Spores allantoid, 1-celled, yellowish to brownish.

KEY TO SPECIES.

- A.—Stroma effuse, spores $8-15 \times 2-2.5 \mu$ *Eu. Acaciae*.
- B.—Stroma limited.
- (a) Ostioles 400μ long or more, usually longer than the perithecia.
1. Spores $5-6.5 \times 1 \mu$, on *Lycium*..... *Eu. Lycii*.
 2. Spores $4-9 \times 1.5-2 \mu$.
 - (i) on deciduous trees..... *Eu. stellulata*.
 - (ii) on *Citrus*..... *Eu. citricola*.
- (b) Ostioles up to 350μ long, usually shorter than the perithecia.
- (i) Perithecia $500-700 \mu$ diam..... *Eu. MacOwani*.
 - (ii) Perithecia $200-400 \mu$ diam..... *Eu. Doidgeae*.

Eutypella Acaciae Doidge nov. sp.

Plate 6 c.

Stromata widely effuse, developing in the cortex, ca. 2-8 cm. long and up to 2 cm., broad, irregular, the limits being indicated by black lines in the outer layers of the wood; consisting of a pale to dark fungous tissue amongst the cells of the host, which are unaltered or only slightly so.

Perithecia monostichous, scattered or in irregular series, sometimes solitary, but usually in groups of 2-5, rarely up to 8, completely immersed, globose to ovate, occasionally flat-sided through mutual pressure, $330-550 \mu$ diam., $400-529 \mu$ high, narrowing suddenly above into rather thick, cylindrical ostioles. Ostioles more or less convergent, rather closely connate and fused with the tissue of the stroma, seldom single, usually in groups, $300-350 \mu$ long, protuding slightly but definitely through cracks in the periderm, delicately 3-5-sulcate, traversed by a pore which is lined with copious fine, hyaline, spreading periphyses. Perithecial wall firm, membranous, blackish-brown, composed of several layers of compressed cells, about 20μ thick at the base and sides, giving place within to a rather loosely woven, hyaline, filamentous, concentric layer about equal in thickness. Asci very numerous, clavate, 8-spored, sp. part ellipsoid to fusoid, rounded above, $35-40 \times 6-6.5 \mu$ tapering below into a long slender stalk. Spores distichous to tristichous, pale olivaceous, allantoid, continuous, rounded at the ends, more or less curved, outer wall often semi-circular, $8-15 \times 2-2.5 \mu$.

on dead branches of *Acacia ataxacantha* D.C., Kromrivier, Rustenburg Distr., Doidge and Bottomley, 30476.

Eutypella Lycii Doidge, nov. sp.

Stromata scattered; or in irregular rows paralld with the axis of the stem, discrete, rather distant from one another, black, carbonaceous, up to 1.5 mm. diam., conical truncate on a circular or broadly elliptic base, grossly verrucose at the surface, immersed in the cortex from which the ostioles only are erumpent.

Lower part of the stroma consisting of a hyaline or sub-hyaline, filamentous, more or less closely interwoven fungous tissue, interrupted by the golden yellow, slightly altered remnants of the tissue of the host; becoming more closely interwoven and brown above, where it is traversed by the ostioles, and at the sides, where the periderm of the host is firmly adherent; at the surface, from which the ostioles protude, there is a carbonaceous crust consisting of blackish-brown, opaque, round to angular, parenchymatous cells, $4-6 \mu$ diam.

Perithecia monostichous, usually 1-7, rarely 8-13 in each stroma, arranged in a circle or somewhat irregularly, globose to ovate, or flat-sided through mutual pressure, $350-450 \mu$ diam., $400-475 \mu$ high, narrowing suddenly above into the ostioles. Ostioles more or less

curved, 500–550 μ long, convergent, cylindrical below, broadening somewhat towards the apex, which is rather deeply 3–5-sulcate and which protrudes slightly from the stroma; traversed by a narrow funnel-shaped pore, which is about 60 μ broad at the base and widens upwards and is lined with numerous, fine, hyaline, ascending periphyses. Perithecial wall firm, membranous, about 25 μ thick, composed of several layers of rather thin-walled, blackish-brown, compressed cells, which give place internally to a concentric, hyaline, filamentous layer of about equal thickness; in the ostioles, the cells are light yellow-brown, translucent, elongated, in more or less regular rows following the course of the ostioles, becoming darker and shorter upwards and terminating in a blackish-brown, opaque tissue similar to that of the stromatic crust. Asci very numerous, 8-spored, clavate, less frequently sub-fusiform, total length 35–40 μ , rounded above, tapering below into a slender stalk of varying length, sp. part 25–28 \times 3.75–5 μ . Spores distichous, continuous, allantoid, rounded at the ends, more or less curved, rarely almost straight, sub-hyaline, pale olivaceous in mass, 5–6.5 \times 1 μ . Paraphyses not seen.

on branches of *Lycium echinatum* Dun., Aliwal North, Pienaar, 2094.

Spegazzini has described *Eutypella andicola* (Syll. Fung. 24 p. 723) on *Lycium* spp. from the Argentine. No specimen of this species has been available for comparison, but judging from the description, it differs considerably from the fungus described above.

Eutypella MacOwani Doidge nov. sp.

Plate 8 a.

Stromata single, scattered irregularly or somewhat crowded over large areas of the branch, usually discrete, rarely becoming confluent, more or less circular in outline, occasionally elliptic, broadly truncate conoid, 1–2 mm. diam., pushing up the periderm into raised pustules which split in more or less stellate fashion; the surface of the stroma becomes more or less erumpent, often remaining partly veiled by the torn periderm.

The lower part of the stroma consists of a filamentous, more or less closely interwoven fungous tissue among the golden yellow to brown elements of the host, which are not altered or only slightly so. At the surface there is a brittle, black, opaque, carbonaceous crust, 45–80 μ thick, traversed by the ostioles and consisting of blackish-brown, irregularly angular cells 4–6 μ diam. With age, the outer crust often breaks away, leaving the ostioles and the upper part of the perithecia exposed.

Perithecia monostichous, 3–6, rarely up to 10 in a single stroma, globose or broadly ovate, rarely flat sided through lateral pressure, 500–700 μ diam., 600–800 μ high, narrowing suddenly above into thick, cylindrical ostioles. Ostioles 200–300 μ long, 200–300 μ thick, usually separately erumpent, not protruding or very slightly so, 3–5-sulcate, traversed by a broad pore which is lined with numerous hyaline periphyses. Perithecial wall rather thick, membranous, blackish-brown, opaque, 20–25 μ thick, less frequently up to 30 μ thick, giving place internally to a pale yellowish concentric, filamentous layer 8–10 μ thick. Asci very numerous, 8-spored, clavate, rounded above, tapering below into a long, slender stalk, sp. part 20–30 \times 5–6 μ . Spores distichous, allantoid, more or less curved, rarely almost straight, sub-hyaline, light yellow brown in mass, 7.5–10 \times 1.75–2.5 μ . Paraphyses not seen.

on branches of unknown tree (? Somerset East), MacOwan 1334b, 22005. In Herb. Kew sub *Diatrype Durieui* Mont. [Grevillea X (1882) p. 146].

According to Ellis and Everhart (3, p. 570) *D. Durieui* is a synonym for *D. albopruinosa*, which is a true *Diatrype* with 10–30 perithecia in a stroma and spores 12–16 \times 2.5–4 μ . MacOwan 1344b differs in external appearance from the type of *Diatrype Durieui* in Kew Herbarium and the host is different; the type is on oak branches from Algeria.

It is difficult to obtain accurate measurements of the asci, as they disintegrate very readily in the old material.

Eutypella stellulata Fr. (Sacc.).

Syll. Fung. I (1882) p. 149; Ell. and Ev., North Amer. Pyren. (1892) p. 489; Hopkins, Trans. Rhod. Sc. Ass. 35 (1938) p. 101.

Syn.: *Valsa stellulata* Fr. Summ. Veg. Scand. p. 311; Medley Wood, Rept. Natal Bot. Gdns. (1898) p. 19.

Plate 7 b, c.

Stromata scattered over large areas of the stem, minute, round to elliptic in outline, 1–2 mm. diam., sometimes becoming confluent in small groups, black, carbonaceous, verrucose; developing in the cortex, pushing up the periderm into raised pustules which soon crack irregularly or in stellate fashion; the periderm remains partly veiling the stroma, from which only the groups of black sulcate ostioles are erumpent.

The inner part of the stroma consists of a fungous tissue formed of more or less closely interwoven, sub-hyaline to dark brown hyphae, interrupted by the unaltered or slightly altered cells of the host. At the surface this becomes more closely compacted, and forms an irregular, carbonaceous, opaque, black crust, 20–35 μ thick, interrupted by the groups of ostioles.

Perithecia usually 2–12 in a single stroma, ovate to oblong, closely crowded, often flat-sided through mutual pressure, 200–375 μ diam., 500–600 μ high, narrowing above suddenly or rather gradually into rather long, cylindrical ostioles. Ostioles cylindrical, convergent, fasciculate, 400–700 μ long, erumpent in groups, connate—at least below—protruding up to 500 μ from the stroma, traversed by an irregular pore, 15–25 μ diam., which is rather sparsely lined with short, hyaline periphyses. Perithecial wall firm, membranous, opaque, blackish-brown, 20–30 μ thick, formed of several layers of compressed, angular, dark brown cells ca. 4–5 μ diam.; giving place internally to a sub-hyaline, concentric, filamentous layer ca. 10 μ thick. Asci numerous, 8-spored, clavate, rounded above, tapering below into a long, slender stalk, sp. part 35–50 \times 5–6 μ . Spores distichous, allantoid, tapering somewhat to rounded ends, slightly curved, rarely almost straight, sub-hyaline, light yellowish brown in mass, 4–8 \times 1.5–2 μ , rarely up to 11 \times 2 μ .

on dry sticks, Inanda, *Medley Wood* 574, 9493, 11109.

on branch of *Pyrus malus* L., Concession, S. Rhodesia, *Hopkins* 3646.

This fungus seems to agree well with *Eu. stellulata*, which occurs commonly on limbs of deciduous trees in the United States and in Europe. The spore measurements agree with those given by Ellis and Everhart (loc. cit.) rather than with those in Saccardo's description. I am indebted to Dr. J. C. Hopkins for a portion of his material of *Eu. stellulata* on *Pyrus*.

Eutypella citricola Syd.

Hedwigia XLIX (1909) p. 80; Sacc. Syll. Fung. XXII, p. 357.

Plate 7 d, e.

Stromata crowded, round to elliptic in outline, 0.75–2 mm. diam., black, pulvinate, often becoming confluent and fused into larger, compound bodies; developing in the cortex and pushing up the periderm, which becomes raised, pustuliform and finally raptures irregularly, exposing the 3–5-sulcate ostioles. The stroma remains veiled by torn fragments of the periderm.

The lower part of the stroma consists of a pale to dark brown fungous tissue, formed of more or less closely interwoven hyphae, 3–4 μ thick, interrupted by the slightly altered or unaltered cells of the host. This becomes more firmly compacted above and at the sides, forming a blackish-brown, opaque, carbonaceous crust, 50–75 μ thick.

Perithecia monostichous, 6–12 in a single stroma, ovate to oblong, closely crowded and usually flat-sided through lateral pressure, 250–400 μ diam., 550–600 μ high, narrowing suddenly, or rather gradually above into the cylindrical ostioles. Ostioles fasciculate, connate, 400–450 μ long, erumpent in groups and protruding 200–400 μ from the stroma; usually ca 200 μ broad; Traversed by a pore 40–60 μ broad lined with numerous,

hyaline periphyse. Perithecial wall firm, membranous, blackish-brown, sub-opaque, 15–25 μ thick; composed of several layers of closely interwoven, rather thin-walled hyphae 3–4 μ thick, giving place rather gradually within to a hyaline or sub-hyaline, filamentous, concentric layer about half its thickness. Asci 8-spored, very numerous, clavate, rounded above, tapering below into a long, slender stalk, sp. part ellipsoid to clavate, 30–40 \times 4–5 μ . Spores distichous, allantoid, broadly rounded at the ends, slightly curved, rarely almost straight, fuscous, yellow brown in massa, 6–9 \times 1.75–2 μ .

on dead wood of *Citrus sinensis* Osbeck, Maritzburg, Natal, *Ackerman* (*Rump* 150) 28468a.

Compared with a specimen from the Philippines identified by Rehm (Baker's Fungi Malayana 137). The South African fungus agrees very well with this collection.

Eutypella Doidgeae Syd.

Ann. Myc. 37 (1939) 189–190.

Plate 8 b, c.

Stromata single, scattered irregularly; or in irregular groups of varying size, and then often closely crowded, and not infrequently confluent or fused in groups of two or more; more or less circular in outline, broadly truncate-conoid, 0.5–1.5 mm. diam., pushing up the periderm into raised pustules, which split irregularly or in stellate fashion; usually only the groups of ostioles are erumpent.

The lower part of the stroma consists of a filamentous, small-celled, more or less closely woven fungus tissue, interrupted by vestiges of the substratum, which are not altered or only slightly; above there is a rather brittle, carbonaceous crust, traversed by the ostioles, and consisting of an almost opaque, blackish-brown, parenchymatous tissue of irregularly angular, rather thick-walled cells, 4–8 μ diam.

Perithecia monostichous, usually 2–6, seldom more, completely immersed in the stroma, globose or broadly ovate, often flat-sided through lateral pressure, 200–400 μ diam., 400–500 μ high, narrowing suddenly above into the thick, cylindrical ostioles; ostioles somewhat elongated, usually definitely protruding, 150–200 μ thick, up to 350 μ long, seldom single, usually erumpent in groups and rather closely connate below, delicately or rather deeply 3–5-sulcate. Perithecial wall rather thick, membranous, mostly about 20 μ thick, composed of closely compressed, rather thick-walled, translucent, blackish-brown cells, which give place internally to a hyaline, concentric, filamentous layer of about equal thickness. Asci very numerous, 8-spored, clavate, less frequently sub-fusiform, broadly rounded above, tapering gradually downwards into a stalk which varies in length, sp. part 28–45 \times 5–7 μ . Spores distichous or imperfectly tristichous, obtusely rounded at the ends not tapering or very slightly so, weakly allantoid, seldom straight, 1-celled, light yellow-brown, rather dark reddish brown in mass, 7–10.5 \times 2–2.5 μ . Paraphyses comparatively numerous, but early collapsing and becoming unrecognisable.

on dead branches of *Halleria lucida* L., Trigaartspoord, Pretoria distr., *Doidge* and *Bottomley*, 30378; Boschfontein, Rustenburg distr., *Doidge* and *Bottomley*, 30897.

Diatrype Fr. emend. Wehm.

Amer. Jour. Bot. XIII (1926) p. 637.

Stroma usually well developed, effuse or isolated. Ectostroma strongly developed and deciduous. Entostroma forming a widely erumpent disk, dark marginal zone present. Perithecia immersed in the stroma, ostioles parallel or scarcely converging, sulcate. Asci 8-spored, with more or less elongated, persistent stalks, resulting in a definite, persistent layer of ascilining the walls of the perithecium. Ascospores allantoid, 1-celled, yellowish-hyaline.

KEY TO SOUTH AFRICAN SPECIES.

- A.—Ostioles long, protruding 200–250 μ from the stroma.
- (a) Ostioles 300–400 μ long; spores $6-8 \times 1.75-2 \mu$ *D. Doryalidis*.
 (b) Ostioles 450–550 μ long; Spores $6-10 \times 2-2.5 \mu$ *D. xumenensis*.
- B.—Ostioles 150–300 μ long, protruding slightly; spores $10-15 \times 2.5-3 \mu$ *D. conferta*.
- C.—Ostioles comparatively short, not protruding or barely so.
- (a) Inner stroma yellow to orange..... *D. auristroma*.
 (b) Inner stroma sub-hyaline to brown.
- (1) Perithecia 300–600 μ diam.; spores $7-11.5 \times 1.75-2.5 \mu$ *D. caulina*.
 (2) Perithecia 180–300 μ diam.; spores $7.5-10 \times 2-2.75 \mu$ *D. MacOwaniana*.
 (3) Perithecia 300–400 μ diam.; spores $10-12.5 \times 2-2.5 \mu$ *D. Leonotidis*.
 (4) Perithecia 300–450 μ diam.; spores $10-15 \times 2.5-3 \mu$ *D. caminata*.

Diatrype Doryalidis Doidge, nov. sp.

Plate 9 a.

Stromata at first scattered, then more or less closely crowded in groups of varying size; immersed in the cortex and pushing up the periderm into raised pustules, which finally rupture irregularly or instellate fashion, exposing the deeply 3–5-sulcate ostioles; the stroma remains partly veiled by the closely adhering periderm. Stromata small, round to elliptic, 0.5–1 mm. diam., discrete, or confluent in groups of 2–3 or more and becoming fused.

The ground tissue of the stroma is hyaline to light yellowish brown, without definitely recognisable structure; at the surface and sides, this gives place to a dark brown, sub-opaque outer crust, 30–75 μ thick, composed of golden brown to dark brown, round to angular cells 2.5–5 μ diam.; at the sides it forms a line of demarcation between individual stromata; on the surface it is partly veiled by torn remnants of the periderm, which adhere to it.

Perithecia 2–6 in a single stroma, arranged in a circle or line, ovate to oblong, often flat-sided through mutual pressure, 300–450 μ diam., 450–500 μ high; narrowed suddenly or rather gradually above into long, cylindrical ostioles. Ostioles parallel or converging slightly, traversing the outer crust of the stroma and fused with it, 300–400 μ long, of which ca. 250 μ protrudes from the stroma, broadening somewhat at the sulcate apex which is 200–250 μ diam.; traversed by a pore ca. 100 μ diam. and lined with numerous, fine hyaline periphyses. Perithecial wall firm, membranous, dark brown, sub-opaque, 20–35 μ thick, composed of golden brown to blackish-brown, thin-walled, angular cells 2.5–5 μ diam.; giving place gradually within to a sub-hyaline, concentric, filamentous layer of about equal thickness. Asci very numerous, 8-spored, clavate, rounded above, tapering below into a very long, slender, hyaline stalk, $30-40 \times 5-6 \mu$. Spores distichous, allantoid, sub-hyaline, yellow brown in mass, rounded at the ends, not tapering, more or less curved, rarely almost straight, $6-8 \times 1.75-2 \mu$.

on stems of *Doryalis rhamnoides* (Burch.) Harv., Knysna, *Bottomley*, 231060.

Diatrype xumenensis Doidge, nov. sp.

Plates 2 b. and 9 b.

Stromata scattered widely and irregularly, sometimes quite discrete, but usually more or less closely massed together and forming parallel rows or series of varying length, following the direction of the fibres of the host; at first covered, erumpent only at the apex through irregular fissures in the periderm; finally becoming more or less free, but still covered by adhering shreds of the tissues of the host. Stromata round or elliptic in outline, verrucose or pulvinate, about 1 mm. diam.; when closely crowded, becoming more or less completely fused, and forming compound, linear stromata up to 1 cm. long; these often occur in closely crowded groups, and finally form larger stromatal cushions up to 3 cm. long and 5 mm. wide.

Outer crust of the stroma carbonaceous, rather brittle when old, consisting of round or angular, thick-walled, translucent, blackish-brown cells about $5-8 \mu$ diam. ; ground tissue light to dark brown, at the sides composed of cells elongated in a vertical direction ; structure between the perithecia not readily recognisable.

Perithecia completely immersed in the stroma, 2-8 in each individual stroma, arranged more or less in a circle or in a row, monostichous, closely crowded, becoming more or less flat-sided and irregular through lateral pressure, $200-450 \mu$ diam., $450-550 \mu$ high, often somewhat flattened at the base, where they are seated on the woody elements of the host ; narrowing suddenly or rather gradually above into the cylindrical ostioles. Ostioles parallel or somewhat convergent, connate below and fused to the stromatal crust, $450-550 \mu$ long, protruding ca. 200μ from the stroma, $150-300 \mu$ thick, entire or delicately sulcate, traversed by a pore $70-90 \mu$ broad and lined with fine hyaline periphyses. Perithecial wall firm membranous, variable in thickness, mostly $16-25 \mu$ thick at the base and sides, composed of several layers of blackish-brown, compressed, sub-opaque cells, becoming paler and less definite in structure internally and gradually giving place to a hyaline, filamentous, concentric layer. Asci very numerous, 8-spored, clavate, sp. part ellipsoid or somewhat fusoid, $40-45 \times 5.5-6.5 \mu$, rounded above, tapering below into a long, slender stalk. Spores distichous or imperfectly tristichous, cylindrical, rounded at the ends, allantoid, more or less curved, sub-hyaline, light yellow-brown in mass, $6-10 \times 2-2.5 \mu$.

on dead branches, Xumeni Forest near Donnybrook, *Morgan* and *Doidge*, 28919.

***Diatrype auristroma* Doidge nov. sp.**

Plates 2 a and 11 a, b.

Stromata usually in groups, less frequently more or less scattered ; at first immersed in the cortex with only the black-shining ostioles visible ; finally becoming more or less free. The bark breaks away, leaving the stromata exposed, but with shreds of the hoist tissues adhering to them and partly veiling the surface. Stromata round to elliptic, or elongated in the direction of the fibres of the host, 1-6 mm. long, 1-1.5 mm. broad, pulvinate, up to 1.5 mm. high ; usually crowded together in groups up to ca. 2 cm. long and 5 mm. broad.

Stroma seated on the wood or the inner layers of the cortex, attached all along the base, or base more or less contracted ; in the latter case the basal part is sterile and is traversed by remnants of the host tissues ; the ground tissue between the perithecia consists of cells elongated in a vertical direction. The stroma is bounded by a dark brown layer, $12-15 \mu$ thick, composed of small parenchymatous cells $3-5 \mu$ diam. ; this is sharply defined at the sides, but at the upper surface, where it is interrupted by the ostioles of the perithecia, it goes over gradually into the ground tissue of the stroma. The ground tissue is golden to orange brown (in Ridgway, Colour Standards and Nomenclature, raw sienna shading in places, especially at the base to xanthine orange) ; the outer stromatal crust often becomes brittle with age and breaks away, revealing the yellow inner stroma.

Perithecia 5-30, closely crowded, monostichous or sub-distichous (the latter more frequent in stromata with contracted base), ovate, oblong or irregular in shape through mutual pressure, $450-900 \mu$ high, $220-450 \mu$ diam. ; narrowing above, suddenly or rather gradually into a very short, thick ostiole. Ostioles usually broadly funnel-shaped, less frequently cylindrical, $120-180 \mu$ long, barely protruding, $100-150 \mu$ broad at the base and broadening upwards to about 200μ at the 3-5-sulcate apex ; traversed by a broad pore, lined with numerous hyaline periphyses. Perithecial wall equal in thickness throughout, even in the ostioles, $10-12 \mu$ thick, dark brown, sub-opaque, composed of several layers of thin-walled, slightly compressed, parenchymatous cells ca. $10-12 \mu$ diam., giving place suddenly within to a pale golden layer of equal thickness. Asci very numerous, 8-spored, clavate, rounded and somewhat thickened at the apex, sp. part $30-36 \times 5-6 \mu$, tapering below into a very long, slender stalk. Spores distichous, sub-hyaline or yellowish, olive ochre in mass, allantoid, curved, rarely almost straight, rounded at the ends, not tapering $6-8.5 \times 1.5-1.75 \mu$.

on dead branches of *Xymalos monospora* Baill., Marwaqa Forest, near Bulwer, *Morgan* and *Doidge*, 31073; Xumeni Forest, near Donnybrook, *Morgan* and *Doidge*, 28929.

on dead branches of *Minusops Zeyheri* Sond., Boschfontein, Rustenburg Distr., *Doidge* and *Bottomley*, 30171.

Diatrype caulina Syd.

Ann. Myc. 37 (1939) pp. 184-186.

Plates 3 b and 9 c.

Stromata in dark spots on the stems, rarely solitary, usually more or less crowded in groups of two or more; these groups are usually irregular, but elongated in the direction of the stem axis, often combining to form irregularly undulating stromatal ribbons of varying breadth. Stromata round to broadly elliptic in outline, rather strongly convex, verrucose or pulvinate, folded or grooved at the surface, 0.7-1.5 mm. diam., or up to 2 mm. long and 1-1.5 mm. broad; sometimes they are placed in short parallel rows, become confluent and fused and form larger compound stromata.

Outer crust of stroma brittle, carbonaceous, 25-80 μ thick, parenthymatous in structure, composed of cells which are almost opaque, blackish-brown, rather thick-walled, irregularly angular, 6-14 μ diam. The ground tissue between the perithecia is almost hyaline, without definitely recognisable structure.

Perithecia few, usually 1-6 in a single stroma, monostichous, rather distant from one another, hence globose, rarely flattened by lateral pressure, 300-600 μ diam., seldom somewhat larger. Ostioles rather short, broadly cylindrical, not protruding from the stroma or very slightly so, entire or very delicately sulcate, traversed by a pore ca. 50-70 μ broad and lined with copious, hyaline, short, spreading periphyses. Perithecial wall membranous, becoming brittle with age, of varying thickness, usually 20-30 μ thick, composed of more or less numerous layers of strongly compressed cells; these are translucent, blackish-brown, irregularly angular, up to 15 μ diam., giving place suddenly within to a sub-hyaline, concentric, filamentous layer. Asci very numerous, clavate or sub-fusiform, broadly rounded above, tapering gradually below into a rather long, delicate stalk, sp. part 26-38 \times 4.5-6.2 μ . Spores distichous or incompletely tristichous, cylindrical, rounded at both ends, allantoid, only slightly curved, seldom almost straight, continuous sub-hyaline, light yellowish-brown in mass, 7-11.5 \times 1.7-2.5 μ . Paraphyses rather numerous, but breaking down early and becoming unrecognisable.

on dead stems of *Asparagus* sp., Dooley, near Mont-aux-Sources, *Doidge*, 13792.

Diatrype MacOwaniana Thüm.

Fungi austro-africani V No. 117, in Flora (1877) p. 4; Sacc. Syll. Fung. I. p. 196.

Syn: *Diatrype capensis* Kalch. et Cke. (not as figured by Berlese) Grevillea IX (1880) p. 28; Sacc. Syll. Fung. I. p. 195;

Diatrype Bona-spei Berl. Icon. Fung. III (1900) p. 87; t. 106, f. 2; Sacc. Syll. Fung. XVII (1905) p. 571; "in herb. Berol, sub nomine err. '*Diatrype capensis*'".

Plate 10.

Stromata scattered over the surface of the stem, often numerous, more or less crowded and becoming coalescent in small groups of 2-3, round to irregular in outline, minute, rarely exceeding 1 mm. in diam., sometimes up to 1.5 mm.; at first completely immersed in the cortex, pushing up the periderm into raised pustules; the periderm finally ruptures, remaining adherent to the sides of the stroma, but exposing its black, pulvinate or somewhat verrucose surface.

Outer crust of stroma rather brittle, opaque, brownish-black, carbonaceous; ground tissue between the perithecia sub-hyaline to pale yellowish-brown and without recognisable structure.

Perithecia 2-8 in a single stroma, arranged in a circle or more or less irregularly, monostichous, sub-globose to ovate, often becoming ellipsoid to oblong through mutual lateral pressure, 180-300 μ diam., 300-400 μ high, narrowing suddenly above into rather short, thick, cylindrical ostioles. Ostioles parallel or somewhat convergent, 150-200 μ long, not protruding from the stroma or very slightly so, fused at the apex with the black outer crust of the stroma; traversed by a pore 50-60 μ diam., which is lined with numerous, fine, hyaline periphyses. Perithecial wall firm, dark brown, sub-opaque, about 10 μ thick. Asci numerous, lining the perithecial cavity, clavate, 8-spored, sp. part 35-40 \times 5-6.5 μ , tapering below into a long, slender stalk. Spores distichous or imperfectly tristichous, very pale, olivaceous, light yellow brown in mass, continuous, allantoid, rounded at the ends, only very slightly curved, 7.5-10 \times 2-27.5 μ .

on stems of *Cassinopsis capensis* Sond., Boschberg, Somerset East, MacOwan 1264, 20951a.

Diatrype MacOwaniana was described by von Thümen (loc. cit.) in 1876; the type collection was MacOwan 1264, the host being given as *Cassine capensis*. It seems evident that a clerical error was made in transcribing the name of the host, which is *Cassinopsis capensis* Sond. *Cassine capensis* L. is a shrub limited to the south-western Cape, and it is unlikely that it would be found growing in the Boschberg, near Somerset East.

In Grevillea X (1882) the same collection, MacOwan 1264, was quoted by Kalchbrenner and Cooke as the type of *Diatrype capensis*, the host being correctly given as *Cassinopsis capensis*.

Berlese (Icones III, p. 95) quoted the original description of *D. MacOwaniana*, which he said he had not seen. He found two different fungi included in the type collection of *D. capensis*, and described and figured under this name a fungus with spores 4-5 \times 1.5 μ (In the original description of *D. capensis*, the spores are said to be 10 \times 2 μ).

Berlese also described and figured as a new species *Diatrype Bona-spei*, "Ex specim. *Diatrype capensis* a cl. MacOwan lectis in Herb. Musaei Berol. servatis et mihi a cl. Prof. J. Urban benevole communicatis". This fungus has spores 9-11 \times 2-2.5 μ that is to say,, they agree in measurement with those of *D. capensis* as described by Kalchbrenner and Cooke.

In a recent letter Dr. Sydow stated that the portions of MacOwan's collections in the Berlin Herbarium were very small and in poor condition, and an examination of these failed to clear up the species described by Berlese.

The material in Kew Herbarium is also somewhat fragmentary. The portion of the collection MacOwan 1264 in the cryptogamic herbarium at Pretoria consists of a small branch of *Cassinopsis capensis* and two small pieces of bark from a different tree. The former has been given the number 20951a, and is obviously part of the collection from which both *D. MacOwaniana* and *D. Capensis* were described. The latter (20951b) is identical with a specimen at Kew under the name "*Diatrype cangesta* K. et Cke, Cape, Kalchbrenner R 23". I am unable to find any description of this species, and as the material is in very poor condition, being too old to show either spores or asci, it must be disregarded.

The fungus on *Rubus*, MacOwan 1350, 1344 (Herb. Kew and Pretoria Nos. 21998, 22005) quoted under the name *Diatrype capensis* in Grevillea (l.c.) differs from that on *Cassinopsis capensis*; the material is all too old for detailed study, lacking both asci and spores, and must be disregarded until it can be found again in better condition.

The name *Diatrype MacOwaniana* Thüm. must therefore be adopted for the collection MacOwan 1264, which is on *Cassinopsis capensis*; *D. capensis* K. et Cke. is the same fungus.

Berlese's species *D. Bona-spei* agrees in spore measurements with those given in the original description of *D. capensis*, and his other details and drawings conform with the general structure of that species; the name *D. Bona-spei* must also be regarded as a synonym for *D. MacOwaniana*. Berlese's drawing is reproduced, for comparison with a photograph of a section made from MacOwan 1264.;

It is impossible to say what Berlese described and figured as *Diatrype capensis*, with spores 4-5 \times 1.5 μ .

Diatrype Leonotidis Doidge nov. sp.

Plate 9 d.

Stromata usually scattered fairly evenly over the surface of the stem, usually discrete, round or somewhat elongated, minute up to 2.5μ diam.; occasionally, when numerous and crowded, 2 or more become fused and form larger, irregular compound stromata. Stromata at first completely immersed in the cortex, pushing up the periderm into raised pustules; the periderm finally ruptures in stellate fashion or irregularly, remaining closely adherent at the sides, but exposing more or less the black, pulvinate or verrucose surface of the stroma, which often remains partially veiled by torn fragments of the periderm.

The stroma consists of a rather brittle, sub-opaque, carbonaceous outer crust, about 50μ thick, composed of roundish-angular, blackish-brown cells $3.5-5 \mu$ diam.; within the ground tissue between the perithecia is sub-hyaline to pale yellowish brown, compact, but without recognisable structure.

Perithecia usually 3-5, rarely up to 8 in a single stroma, arranged in a circle or more or less irregularly, monostichous, globose to ovate, often flattened laterally by mutual pressure, $300-400 \mu$ diam., narrowing suddenly above into the rather short, thick, cylindrical ostioles. Ostioles parallel or somewhat convergent, $100-150 \mu$ long, not protruding from the stroma, or protruding slightly, and then rather shining black and deeply 3-5 sulcate; traversed by a pore about $50-75 \mu$ broad, which is cylindrical, or broadens upwards to ca. $85-87.5 \mu$; it is lined with comparatively coarse, spreading hyaline periphyses. Perithecial wall firm, membranous, mostly $12-15 \mu$ thick, composed of several layers of compressed, angular, blackish-brown, rather thin-walled, translucent cells; giving place internally to a hyaline, concentric, filamentous layer of about equal thickness. Asci numerous, clavate, 8-spored, sp. part fusiform, $35-45 \times 6-8 \mu$, rounded above, tapering below into a long slender stalk. Spores distichous, continuous, allantoid, light yellow brown, slightly curved, $10-12.5 \times 2-2.5 \mu$. Paraphyses hyaline, filiform, about 1μ thick.

on dying stems of *Leonotis* sp., Hlabini, Polela Distr., Doidge, 29821.

Diatrype caminata Kalch. et Cke.

Grevillea IX (1880) p. 28; Sacc. Syll. Fung. I, p. 197; Berlese, Icon. Fung. III (1900) p. 92, t. CXIII, fig. 2.

Plate 12 a, b.

Stromata scattered or in groups, discrete or becoming confluent in small groups or series, irregularly round, up to 1 mm. diam., or broadly elliptic and up to 2 mm. long; at first completely immersed in the cortex, rupturing the periderm and exposing the surface of the stroma, which is black, carbonaceous, pulvinate or verrucose, with dull black, 3-5-sulcate, ostioles barely protruding; finally the bark breaks away, leaving the stromata exposed, attached to the wood or to the inner layers of the cortex.

Ground tissue of stroma hyaline or sub-hyaline, without definitely recognisable structure. Outer crust black, carbonaceous, irregular in thickness, $50-130 \mu$ thick, formed of thin-walled, blackish-brown, globose to angular, parenchymatous cells, $3-5 \mu$ diam. The Torn periderm of the host adheres closely to the sides of the stroma.

Perithecia 4-12 in a single stroma, rather large, oblong to ovate, not laterally compressed or very slightly so, $300-450 \mu$ diam., $450-600 \mu$ high, narrowed above into short broad ostioles. Ostioles parallel, narrow funnel-shaped, $200-250 \mu$ long, 150μ broad at the base, broadening to about 200μ at the sulcate apex which is fused to the outer crust of the stroma and protrudes only slightly; traversed by a pore lined with numerous, fine, hyaline periphyses. Perithecial wall opaque, blackish-brown, $15-20 \mu$ thick, composed of a number of layers of compressed cells, which are thin-walled, blackish-brown and up to 15μ diam.; giving place suddenly within to a sub-hyaline, concentric, filamentous layer. Asci numerous, 8-spored, clavate, rounded and somewhat thickened at the apex, tapering below into a slender stalk, sp. part $40-50 \times 6-8 \mu$. Spores distichous or sub-tristichous, allantoid

slightly curved, rarely almost straight, rounded at ends, not tapering or very slightly so, sub-hyaline, pale olivaceous in mass, $10-14 \times 2.5-3 \mu$. Paraphyses sparse, disappearing early.

on branches, Cape, *MacOwan* 1263, Type in Herb. Kew.

on branch of *Halleria lucida* L., Knysna, *Bottomley*, 31059.

The type collection, *MacOwan* 1263, is missing from the Cryptogamic Herbarium at Pretoria, and I am indebted to the Director of the Royal Botanic Gardens for a fragment of the type specimen in Kew Herbarium. This material is unfortunately old and no asci or spores could be found, but after studying the stroma and perithecia in section and comparing with Berlese's description and illustrations, little doubt remains that the Knysna collection No. 31059 is *Diatrype caminata*. Berlese's drawing is reproduced for comparison with a photograph of a section through the stroma of No. 31059.

***Diatrype conferta* Doidge, nov. sp.**

Plate 13 a, b.

Stromata in irregular groups or more or less scattered, developing in the cortex but soon becoming erumpent, black, carbonaceous, pulvinate, 1-3 mm. diam., round to elliptic, frequently crowded together and becoming coalescent in small groups. The torn periderm adheres closely to the sides of the stroma, and fragments remain adhering to the surface, which is dull black and rugulose with slightly protruding ostioles.

Stromata seated on the wood, sometimes narrowing somewhat towards the base; inner part light brown at the base, consisting of a fungous tissue composed of rather closely interwoven, thin-walled, yellow brown hyphae, $2.5-3 \mu$ thick; above and between the perithecia it is white, hyaline, and its structure not easily recognisable. At the surface there is an opaque crust, which is firm, black, carbonaceous, irregular in thickness, $30-90 \mu$ thick, composed of blackish-brown, rather thin-walled, angular cells, ca. $2.5-4 \mu$ diam.

Perithecia numerous, up to 30 in a single stroma, crowded, distichous to monostichous, ovate, oblong or irregular through mutual pressure, $250-400 \mu$ diam., up to 550μ high, narrowed rather gradually above into cylindrical or narrow funnel-shaped ostioles. Ostioles $150-300 \mu$ long, fused at the apex with the outer crust of the stroma from which they protrude very slightly, or more decidedly (up to 120μ); in the latter case the ostioles are dilated and sub-spherical at the apex and up to 200 or 250μ diam.; traversed by a pore $50-100 \mu$ broad, which is lined with rather coarse, hyaline paraphyses. Perithecial wall firm, membranous, blackish-brown, $18-30 \mu$ thick, composed of several layers of compressed cells, giving place inwardly to a sub-hyaline, concentric, filamentous layer $7-10 \mu$ thick. Asci very numerous, clavate, 8-spored, rounded and thickened at the apex, tapering below into a long, slender stalk, sp. part $40-50 \times 7.5-8 \mu$. Spores distichous, pale olive yellow, allantoid, more or less curved, rounded at the ends, $10-15 \times 2.5-3 \mu$; light yellow brown in mass.

on dead branches of tree undet., Xumeni Forest, Donnybrook, *Morgan* and *Doidge*, 30420.

***Diatrypella* Ces. et de Not. emend Wehm.**

Amer. Jour. Bot. 13 (1926) p. 637.

Stroma effuse or isolated. Entostroma well developed, often pustulate, but not usually widely erumpent, bounded by a dark marginal zone. Perithecia immersed in the stroma, clustered or separately erumpent. Ostioles sulcate. Asci with long stalks, polysporous. Spores allantoid, 1-celled, yellow-hyaline.

KEY TO SOUTH AFRICAN SPECIES.

| | |
|--|--------------------------|
| Spores $10-16 \times 2.5-4 \mu$ | <i>D. Morganae</i> . |
| Spores $9-12 \times 2-3 \mu$ | <i>D. oligostroma</i> . |
| Spores $4.5-8 \times 1.5-2.3 \mu$, Perithecia $400-750 \mu$ diam..... | <i>D. Agaves</i> . |
| Spores $5-7.5 \times 1-1.2 \mu$, Perithecia $250-400 \mu$ diam..... | <i>D. natalensis</i> . |
| Spores $2.5-5 \times 1 \mu$ | <i>D. pretoriensis</i> . |

Diatrypella Agaves Syd.

Ann. Myc. 37 (1939) pp. 186-187.

Plates 3 a and 14 b.

Stromata widely and irregularly scattered, sometimes quite discrete, sometimes more or less closely massed together and forming parallel, longitudinal rows or series of varying length, following the direction of the fibres of the host; usually remaining covered, erumpent only at the apex through fissures in the periderm, finally becoming more or less free, but still covered by adhering shreds of the tissues of the host; less frequently the covering layer of the host tissues fall away completely, and the stromata are apparently superficial. Stromata round, elliptic or irregular in outline, finely verrucose or pulvinate, convex, dull black or blackish-brown, 0.75 to 1.5 mm. diam., or up to 2 mm. long and 1.5 mm. broad; when closely crowded, becoming confluent and more or less completely fused and forming larger, composite stromata.

Parenchymatous tissue of the stroma rather brittle and carbonaceous when old, consisting of round or angular, thick-walled, translucent, blackish-brown cells, 3-6 μ diam.; the ground tissue between the perithecia is often very light yellowish-brown.

Perithecia immersed in the stroma, monostichous, globose or broadly ovate, often somewhat irregular through lateral pressure, very variable in size, usually 400-750 μ diam., narrowing above into comparatively short, thick ostioles. Ostioles not protruding, or protruding slightly from the surface of the stroma, truncate or stellately 5-sulcate, traversed by a pore which is lined with numerous, short, filamentous periphyses. Perithecial wall membranous, usually 20-40 μ thick, composed of a number of layers of rather closely compressed cells; cells thick-walled, translucent, blackish-brown, up to 8 μ diam.; giving place suddenly within to a sub-hyaline, indefinitely concentric, filamentous layer. Asci very numerous, many-spored, clavate, broadly rounded above, tapering below into a delicate, rather long stalk, sp. part 68-85 \times 8-12 μ . Spores conglobate, cylindrical, broadly rounded at the ends, not tapering or very slightly so, allantoid, slightly curved, less frequently almost straight, 1-celled, hyaline, honey yellow in mass, 4.5-8 \times 1.5-2.3 μ . Paraphyses sparse, very broadly filamentous, early collapsing and becoming mucilaginous.

on dying peduncles of *Agave americana* L., The Willows, Pretoria Distr., Doidge and Bottomley, 28899.

Diatrypella natalensis Doidge nov. sp.

Plate 14 c.

Stromata scattered irregularly, sometimes quite discrete, sometimes more or less closely massed together in irregular groups or in short series; more or less circular in outline, up to 1 mm. diam., or elongated and up to 3 mm. long and 1 mm. broad; at first covered, then more or less free, black, convex, pulvinate, the surface roughened by clinging fragments of the ruptured periderm.

At the surface, the stroma is firm, black, opaque, carbonaceous and rather brittle, composed of more or less angular, translucent, blackish-brown, parenchymatous cells ca. 6-8 μ diam.; within it becomes gradually paler and less closely compacted, and the ground tissue between the perithecia is sub-hyaline and more or less filamentous in structure. The unaltered, or somewhat altered elements of the host tissues are in places included in the stroma, especially just under the outer crust.

Perithecia 7-15 in each single stroma, arranged more or less in circles in the round stromata, or in two lines in the elongated stromata; completely immersed, monostichous, globose or ovate, but usually more or less flat-sided and irregular through mutual pressure, 250-400 μ diam., 300-500 μ high, narrowing suddenly above into the short, thick, more or less cylindrical ostioles. Ostioles 150-220 μ long, 100-150 μ broad at the base, usually broadening upwards to 150-200 μ where they protrude slightly from the stroma, shining black, delicately 3-5-sulcate at the apex; traversed by a funnel-shaped pore, which is lined with numerous, hyaline or yellowish, filamentous periphyses. Perithecial wall firm, membranous, 12.5-25 μ thick, composed of several layers of very much flattened, blackish-brown cells measuring up to 15 μ diam.; giving place internally to a concentric, hyaline, filamentous layer of about equal thickness. Asci numerous, closely packed with very numerous, minute spores, clavate, straight or curved, rounded at the apex, tapering downwards into a slender hyaline stalk, sp. part 80-100 \times 12.5-15 μ . Spores allantoid, continuous, more or less curved, rounded at the ends, sub-hyaline, light yellow-brown in mass, 5-7.5 \times 1-1.2 μ . Paraphyses not seen.

on stems of *Citrus nobilis* Lour., Glen Echo, Umtwalumi, Natal, *Wayne*, 21006.

Diatrypella Morganae Doidge nov. sp.

Plate 13 c.

Stromata scattered over the whole surface of the branch, usually discrete, sometimes more or less crowded, circular or sub-circular in outline, 1-2.5 mm. diam.; pushing up the periderm into raised pustules, but usually remaining covered with only the black shining ostioles erumpent; rarely the bark breaks away irregularly and leaves the stroma exposed.

Intramatrix stroma very poorly developed, consisting of the more or less altered elements of the tissues of the host, between which a fungous tissue can be detected; this is firm and dark at the surface, where there is a poorly developed outer crust, which varies greatly in thickness and is not continuous; within, the fungous tissue is hyaline or light yellow-brown, small celled and indefinitely filamentous.

Perithecia in more or less regular circles, 3-7 in a stroma, often rather irregularly spaced, completely immersed, sub-globose to ovate, either rather distant from one another, or crowded and flat-sided through mutual pressure, 250-500 μ diam., narrowed suddenly above into the thick, cylindrical ostioles. Ostioles mostly 150-200 μ thick, convergent, protruding slightly from the stroma, slightly broader above with delicately sulcate margin, lined internally with numerous, very fine, hyaline periphyses. Perithecial wall firm, membranous, uneven in thickness, mostly 20-30 μ thick at the base and sides, formed of several layers of blackish-brown, translucent, rather thin-walled, compressed cells, which are mostly 10-15 μ diam.; giving place internally to a concentric, hyaline, filamentous layer. Asci numerous, many spored, cylindrical or clavate, rounded above, sessile or briefly pedicellate, 100-125 \times 12-15 μ , at length disappearing and leaving the spores free in the perithecium. Spores allantoid, continuous, rounded at the ends, pale yellow-brown, almost red-brown in mass, 10-16 \times 2.5-4 μ . Paraphyses hyaline, filamentous, disappearing early.

on dry branches of undet. tree, Hlabini, Polela Distr., Natal, *Morgan and Doidge*, 29820.

In old stromata, the perithecial cavity is invaded by a second ascomycete, apparently parasitic on the *Diatrypella*. This has 8-spored asci with brown, 3-septate spores, which are sub-cylindrical but tapering somewhat to the rounded ends, slightly constricted at the septa, and about 22-28 \times 6-7 μ .

Diatrypella pretoriensis Doidge, nov. sp.

Plate 15 a, b.

Stromata rather closely crowded, in large irregular groups, usually discrete, more or less circular in outline and up to 1 mm. diam.; at first immersed, then rupturing the blistered periderm and becoming more or less free, convex, pulvinate, the surface being roughened by clinging fragments of the periderm from which only the black, sulcate ostioles protrude; the torn periderm adheres closely to the sides of the stroma.

Ground tissue of stroma hyaline to yellowish-brown, without definitely recognisable structure; some of the less destructible elements of the host tissue are included in places in the stroma; outer crust black, carbonaceous, opaque, varying in thickness, mostly 50–60 μ thick, occasionally up to 75 μ .

Perithecia 2–12 in each stroma, arranged irregularly and usually remote from one another, not crowded, globose to ovate, 400–500 μ diam., narrowed suddenly above into short, cylindrical ostioles. Ostioles 150–220 μ long, about 100 μ broad, expanding at the hemispherical apex to ca. 150 μ , fused with the outer crust of the stroma and barely protruding from it; traversed by a broad pore lined with very numerous, hyaline periphyses. Perithecial wall firm, membranous, 10–12.5 μ thick, blackish-brown, sub-opaque, composed of several layers of angular, thin-walled, compressed cells, ca. 4–6 μ diam.; giving place internally to a rather loosely woven, filamentous, hyaline or pale yellow layer, ca. 15 μ thick. Asci numerous, packed with numerous minute spores, straight or curved, rounded at the apex, tapering downwards into a slender stalk, sp. part 40–60 \times 10–12.5 μ . Paraphyses not seen. Spores allantoid, more or less curved, rarely almost straight, sub-hyaline, light yellow-brown in mass, 2.5–4 \times 1 μ ; less frequently up to 5 μ long.

on roots of *Populus* sp., De Beersrust, Pretoria Distr., *Doidge*, 31072.

***Diatrypella oligostroma* Syd.**

Ann. Myc. 37 (1939) pp. 187–189.

Plate 14 a.

Stromata minute, round, broadly elliptic or rather irregular, flat and verrucose or thick and pulvinate, 1–2 mm. diam.; or more or less effuse, diatrypoid, up to 8 mm. diam., and irregular in outline. Intramatrical stroma poorly developed, consisting of the altered elements of the substratum, between which a fungous tissue can be detected; this is hyaline or light yellow-brown, small-celled and indefinitely filamentous.

Perithecia rather irregularly spaced, monostichous, completely immersed in the stroma, sub-globose, broadly ovate, or becoming flat-sided through lateral pressure, irregular in size, usually 300–600 μ diam. Ostioles broadly cylindrical, single, not fasciculate, protruding slightly but definitely, usually with a narrow funnel-shaped pore and a thickened ring-like margin, sometimes delicately and irregularly sulcate. Perithecial wall rather thick, membranous, 30–50 μ thick, consisting of several layers of very closely compressed cells, 5–8 μ diam.; these are irregularly angular, rather thin-walled, light greyish-brown, and give place internally to a hyaline, concentric, filamentous layer; in the ostiole the tissue is erect, filamentous, and consists of parallel, short-celled, thick-walled hyphae, 2–3 μ thick. Asci very numerous, clavate, broadly rounded above, tapering gradually downwards into a very delicate stalk, thin-walled, many-spored, sp. part 60–85 \times 12–15 μ . Spores conglobate, cylindrical, broadly rounded at the ends, not tapering or slightly so, weakly allantoid, seldom almost straight, light yellow or greyish brown, dark honey yellow in mass, 9–12.5 \times 2–3 μ . Paraphyses very sparse, early collapsing and becoming mucilaginous.

on dead branches of *Halleria lucida* L., Trigaartspoort, Pretoria distr., *Doidge* and *Bottomley*, 30379; Boschfontein, Rustenburg distr., *Doidge* and *Bottomley*, 30896.

associated with *Eutypella Doidgeae* Syd., on the same branches.

***Peroneutypella* Berl.**

Icones Fung. III (1900) p. 82.

Stroma effuse, black, covered by the periderm or the epidermis. Acervuli more or less pustuliform and erumpent. Perithecia more or less numerous in each group, monostichous to polystichous, prolonged into long protruding ostioles. Ostioles entire or sulcate. Asci clavate, filling the perithecial cavity. Spores continuous, allantoid, hyaline or sub-hyaline, often yellowish-brown in mass.

V. Höhnelt (9 : pp. 130, 132) includes this genus in his sub-family *Valseae*, but regards *Peroneutypella* Berl. as a synonym for *Scoptria* Nits.

KEY TO SOUTH AFRICAN SPECIES.

- Ostioles entire, sterile emergences present..... *P. cylindrica*.
 Ostioles sulcate, no sterile emergences..... *P. infinitissima*.

Peroneutypella a cylindrica (K. et Cke.) Berl.

Icones Fung. III (1900) p. 82, Tab. C (ex specimen origin. a cl. Cooke).

Syn : *Ceratostoma cylindrica* K. et Cke., Grev. IX. (1880) p. 29, t. 137, f. 28.

Calosphaeria cylindrica (K. et Cke.) Sacc., Syll. Fung. I, p. 98.

Plates 3 b and 5 a, b.

Stromata widely effuse, developing in the cortex and spreading over large areas of the branch ; acervuli numerous, scattered, irregularly round and ca. 0.5 mm. diam., or somewhat elongated and up to 1 mm. long ; sometimes crowded in short, irregular series parallel with the axis of the branch. The long ostioles, surrounded by sterile, setal-like emergences, become erumpent through longitudinal cracks in the bark and give the appearance of tufts of short, stiff, black hairs, visible to the naked eye.

The lower part of the stroma consists of a more or less closely interwoven tissue of fine hyphae, sub-hyaline to light yellowish-brown, permeating the cells of the host which are unaltered or only slightly altered. The fungous tissue becomes more compact near the upper surface, and forms, above the perithecia, a dark brown, sub-opaque, parenchymatous layer, composed of cells which are rather thin-walled and ca. 4-5 μ diam. Frequently this outer crust gives rise to erect, brown, turf-like tufts of stromatal tissue, 100-150 μ high, which remain covered by the periderm. In the immediate vicinity of the fasciculate ostioles, the stromatal tissue is prolonged into spreading or erect plates, which taper from a rather broad base ; these are composed of olive brown, parallel, rather thick-walled hyphae, 2.5-3 μ thick, irregularly and rather distantly septate and fused by their lateral walls. These sterile emergences are almost equal in length to the protruding ostioles.

Perithecia monostichous, rarely sub-distichous, deeply immersed in the stroma, usually in groups of 2-7, rarely up to 9, globose to ovate, sometimes becoming ellipsoid through lateral pressure, 350-650 μ diam., 550-750 μ high, narrowing suddenly above into long, cylindrical ostioles. Perithecial wall blackish-brown, opaque, firm membranous, mostly 45-50 μ thick ; giving place within to a sub-hyaline layer, 10-12 μ thick, composed of several layers of thin-walled, strongly compressed cells ; in the ostioles the wall consists of oblong cells, arranged in ascending, more or less vertical rows. Ostioles fasciculate, converging to the outer surface of the stroma, where they are more or less connate, then erumpent, erect or more or less divergent ; 1.5-1.7 mm. long, of which ca. 1 mm. protrudes from the stroma, readily breaking off just above the surface of the branch and becoming truncate, irregularly cylindrical, 100-150 μ thick, entire and rounded at the apex ; traversed by a pore, 50-75 μ broad, which is lined with fine, hyaline periphyses. Asci extremely numerous, almost filling the perithecial cavity, 8-spored, clavate, rounded above, tapering below into a slender stalk which is of varying length, sp. part 15-18 \times 4-5 μ . Spores distichous, allantoid, sub-hyaline, pale olivaceous in mass, curved, minute, 3-4 \times 1-1.25 μ .

on dead branches of ?*Solanum auriculatum* Ait., Xumeni Forest, Donnybrook, Natal, Morgan and Doidge, 28918, 31061, 31064 ; Woodbush, K. M. Putterill, 30753.

Compared with a fragment of the co-type in Herb. Kew sub *Calosphaeria cylindrica* (K. et Cke.) Sacc., "Cap. B.Sp. et P. Natal, comm. MacOwan." The type collection is missing from the Cryptogamic Herbarium in Pretoria.

Peroneutypella infinitissima (K. et Cke.) Doidge n. comb.

Syn. *Valsa infinitissima* Kalch. et Cke., Grevillea IX (1880) p. 28 ; Sacc. Syll. Fung. I. p. 144.
Plate 4 a, b.

Stromata scattered over the surface of the branch, usually remote, discrete, very rarely close together and becoming confluent, developing in the cortex ; acervuli pustuliform, round to irregular, minute, up to 0.5 mm. diam., remaining covered by the periderm of the host, from which only the ostioles protrude.

The inner part of the stroma consists of a fungous tissue composed of very fine, hyaline to yellowish-brown hyphae which are more or less closely interwoven and permeate the cells of the host which are not altered, or very slightly so. Above, covered by the periderm, the stroma is defined by a dark brown line, consisting of very closely interwoven dark brown hyphae about 2 μ thick, amongst which the outline of the cells of the host is plainly visible. This dark line is also evident irregularly at the base. Apex of stroma pulvinate, consisting of light brown, thin-walled hyphae 2-5 μ thick, much branched and closely interwoven, but more or less vertical ; becoming more closely compact above, and forming a close, brown parenchyma of thin-walled cells 3-5 μ diam. ; this apical tissue is traversed by the ostioles.

Perithecia usually 2-8 in each stroma, rarely up to 15, deeply immersed in the stroma, sub-globose to ovate, usually slightly separated and not compressed, 300-450 μ diam., 400-550 μ high, narrowing suddenly above into long, cylindrical ostioles. Perithecial wall dark brown, firm, membranous, sub-opaque, 20-25 μ thick, composed of several layers of dark brown, somewhat compressed cells ca. 5 μ diam. ; giving place suddenly within to a hyaline layer ca. 10 μ thick. Ostioles long, cylindrical, straight or converging to the apex of the stroma, then diverging slightly or remaining parallel, 900-1200 μ long, only about 200-250 μ being erumpent, slender, ca. 100 μ thick, slightly dilated and delicately 3-5-sulcate at the apex ; wall similar to that of the perithecial cavity ; traversed by a pore, which is lined with numerous, fine, hyaline periphyses. Asci very numerous, filling the perithecial cavity, clavate, 8-spored, sp. part 10-12.5 \times 4-5 μ . Spores allantoid, sub-hyaline, light yellow-brown in mass, rounded at ends, usually strongly curved with the outer wall almost semi-circular, 2.5-4 \times 1-1.25 μ .

on dead branches of undet. tree, Somerset East, *MacOwan 1344a*, 22006.

The long protruding, sulcate ostioles separate this fungus from the genus *Valsa*.

Valsa Fr. emend. Sacc.

Consp. Gen. Pyr. p. 4.

Stromata isolated or confluent, formed from more or less closely interwoven hyphae traversing the tissues of the cortex, which are not altered or only slightly so. Perithecia arranged in a circle, with convergent ostioles ; ostioles entire, not sulcate. Asci sessile or sub-sessile, filling the perithecial cavity. Spores hyaline, allantoid. Pycnidial stage *Cytospora*.

KEY TO SOUTH AFRICAN SPECIES.

| | |
|---|------------------------|
| Spores 9-12 \times 2-2.5 μ | <i>V. leucostoma</i> . |
| Spores 12-18 \times 2.5-4 μ | <i>V. salicina</i> . |

Valsa leucostoma (Pers.) Fr.

Summ. Veg. Scand. p. 411 ; Sacc. Syll. Fung. I (1882) p. 139 ; Ell. and Ev., N. Amer. Pyren. (1892) p. 485 ; Hopkins, Trans. Rhod. Sc. Ass. 35 (1938) p. 102.

Plate 4 b.

Stromata scattered irregularly, sometimes confluent, convex, pustuliform, 2-3 mm. diam., finally rupturing the periderm and becoming more or less erumpent, with only the disc protruding ; disc whitish, round to elliptic, traversed by the ostioles which appear black-shining, punctiform on the surface ; elsewhere the stroma is veiled by the closely adherent periderm.

Stroma not well developed, composed of more or less closely interwoven, branched hyphae 5-6 μ thick, sub-hyaline to fuscous, traversing the tissues of the cortex; more closely interwoven above, forming a pale, compact, erumpent disc which is traversed by the ostioles.

Perithecia 3-10 rarely up to 20 in a single stroma, globose or flattened-globose, 250-500 μ diam., narrowing suddenly above into the ostioles; ostioles more or less curved, convergent, pale yellow-brown, up to 750 μ long, not protruding or very slightly so; traversed by a pore which is lined with fine, hyaline periphyses. Perithecial wall rather light brown, 15-20 μ thick, composed of several layers of slightly compressed, thin-walled cells; becoming gradually paler within and finally giving place to a hyaline filamentous layer. Asci very numerous, filling the perithecial cavity, 8-spored, fusoid-clavate, 35-45 \times 7-8 μ , sub-sessile. Spores distichous, allantoid, hyaline, slightly curved, 9-12 \times 2-2.5 μ .

on branches of *Prunus domestica* L., Henley on Klip, Higginson, 21585.

on *Pyrus malus* L., Salisbury, Rh. 973.

The sub-genus *Leucostoma* to which this species belongs, is treated as a separate genus by von Höhnelt (9) and Wehmeyer (10). The conidial form, *Cytospora leucostoma* (Pers.) Sacc. occurs generally throughout the Union, especially in the south-west Cape, the Orange Free State and the Transvaal. It is common on branches of *Pyrus malus*, causing "Apple Die Back" (2), and is occasionally found on plum, peach and apricot branches. The ascus stage is rarely found.

I am indebted to Dr. J. C. Hopkins for a portion of the specimen in the Rhodesian Herbarium at Salisbury.

Valsa salicina (Pers.) Fr.

Summ. Veg. Scand. p. 412; Sacc. Syll. Fung. I p. 131; Ell. and Ev., N. Amer. Pyr. (1892) p. 477; Kalchbrenner, Grevillea X (1882) p. 146.

Stromata thickly scattered, conical-truncate on a round base, slightly prominent, pustuliform, remaining covered by the adherent periderm, except the small, whitish disc.

Perithecia 6-12 in each stroma, arranged in a circle in the inner bark, of which the elements remain unchanged; with very short, slender ostioles emerging through the disc, round the margin or scattered through it, the entire apex barely protruding; traversed by a very narrow pore. Asci narrow-oblong or clavate, 4-8-spored, sub-sessile, 40-65 \times 7-8 μ . Spores allantoid, hyaline, slightly curved, 12-18 \times 2.5-4 μ in the 8-spored asci, 20-30 \times 5-7 μ in the 4-spored asci.

on branch of *Salix* sp., Somerset East, MacOwan 1283.

This specimen is missing from the Cryptogamic Herbarium, Pretoria, and has not been found in the Kew Herbarium or in the South African Museum, Cape Town. The description given above is taken from Ellis and Everhart (l.c.)

Cryptosporella Sacc.

Syll. Fung. I (1882) p. 466.

Stromata isolated. Ectostroma forming a small conical disc. Entostroma not developed. Perithecia immersed in the unaltered bark, no marginal line present. Ascospores elliptical to fusoid, hyaline, 1-celled.

The ascus stage of *Cryptosporella* has not been observed, and only one conidial form of this genus has been recorded in South Africa.

Cryptosporella umbrina (Jenkins) Wehm.

The Genus *Diaporthe* (1933) p. 270.

Syn. *Diaporthe umbrina* Jenkins, Jour. Agric. Res. 15 (1918) pp. 593-599.

The *Phomopsis* form of this fungus, causing a stem canker of *Rosa* spp., has been recorded from Johannesburg, 30444, and from Kokstad, 30445.

Diaporthe Nitschke emend. Wehm.

Amer. Jour. Bot. 13 (1926) p. 638.

Stromata effuse or isolated. Entostromatic areas more or less differentiated and light in colour; a blackening of the sub-stratum always present, either on the surface of the substratum as a marginal zone, or as a marginal zone about the entostromatic areas. Paraphyses few and evanescent. Ascospores ellipsoid or fusoid, hyaline, 2-celled, sometimes apiculate. Imperfect stage belonging to the genus *Phomopsis*.

Certain plant diseases caused by fungi of the form genus *Phomopsis* occur in South Africa, but no ascus stage of the genus *Diaporthe* has been found.

Diaporthe citri (Fawc.) Wolf.

Jour. Agric. Res. (1926) 621-625.

is regarded by Wehmeyer (12, p. 102) as a host form of *Diaporthe Medusaea* Nits. The conidial form, *Phomopsis Citri* Fawc., occurs fairly commonly in the Union and in Rhodesia on fruit and twigs of *Citrus* spp. (2 pp. 44, 45).

Diaporthe perniciososa March.

Bull. Soc. roy. de bot. Belg. 54 (1921) is regarded by Wehmeyer (12 p. 89) as a host form of *Diaporthe eres* Nits. The *Phomopsis* stage has been observed in Rhodesia (4 p. 101) on twigs of *Pyrus malus*.

Valsaria Ces. et de Not. pro parte.

Schema sferiacei ital. (1863) p. 205; emend Wehm.

Amer. Jour. Bot. 13 (1926) p. 640.

Stromata isolated or confluent. Entostroma very strongly developed, often erumpent, bounded by a dark, marginal zone, usually coloured. Paraphyses numerous and persistent. Ascospores uniseriate, elliptic-fusoid, 2-celled, brown.

KEY TO SOUTH AFRICAN SPECIES.

- | | |
|--|------------------------|
| Spores cylindrical, not constricted..... | <i>V. Eucalypti</i> . |
| Spores fusoid, constricted..... | <i>V. natalensis</i> . |

Valsaria Eucalypti (Kalch. et. Cke.) Sacc.

Syll. Fung. I (1882) p. 746.

Syn. *Melogramma Eucalypti* Kalch. et Cke., Grevillea IX (1880) p. 31.

Plate 15 c.

Stromata developing in the bark, erumpent and early becoming superficial, attached only at the base, pulvinate, cinnamon brown; at first small, round to elliptic, up to 2 mm. diam.; developing in groups, becoming confluent and fusing to form large irregular stromatic cushions up to 2 cm. long and 5 mm. broad; surface of stroma somewhat rugulose, and seamed with irregular fissures.

Stroma diatrypoid; ground tissue consisting of a pale to light brown fungous tissue, formed of more or less closely interwoven hyphae $2.5-3.5 \mu$ thick. This becomes gradually more compact towards the surface, where it is dark cinnamon brown, sub-opaque, parenchymatous, composed of rather thin-walled, angular cells, $3-5 \mu$ diam.

Perithecia 2-6 in each individual stroma, monostichous, often rather distant from one another, globose to ovate, only slightly flat-sided through mutual pressure; or arranged irregularly, closely crowded and irregular in shape; $170-275 \mu$ diam., narrowing suddenly or rather gradually above into cylindrical ostioles ca. 150μ long (total height of perithecia including ostiole $350-500 \mu$); ostioles not sharply differentiated from the tissue of the stroma, not protruding; traversed by a pore ca. 55μ broad, lined with hyaline periphyses. Perithecial wall dark brown, membranous, ca. $10-12 \mu$ thick, composed of a few layers of somewhat compressed cells; not very sharply defined, more or less continuous outwardly with the tissue of the stroma, and giving place within to a sub-hyaline, concentric, filamentous layer. Asci fairly numerous, 8-spored, cylindrical, rounded above, tapering slightly at the base to a short club-shaped or peg-like foot, $80-100 \times 11-12.5 \mu$. Paraphyses rather numerous, hyaline, filamentous. Spores obliquely monostichous, dark brown, oblong, ellipsoid, broadly rounded at both ends, 1-septate, not constricted, $12.5-18 \times 6-8 \mu$, mostly $15 \times 7-7.5 \mu$; loculi about equal; episore minutely verrucose at maturity.

on bark from trunks of *Eucalyptus globulus* Lab., Somerset East, MacOwan 1179, (S.A.M. 33848).

I am indebted to the Director of the South African Museum for the loan of this specimen.

Valsaria natalensis Doidge nov. sp.

Plate 15 e.

Stromata scattered unevenly over the whole surface of the stem, sometimes single, more frequently more or less confluent, or fused in small or larger groups, quite immersed in the cortex with only the ostioles punctiform-erumpent, or pushing up the periderm into raised pustules and rupturing it irregularly; single stromata irregularly circular in outline, up to 1 mm. diam.

The lower part of the stroma consists of a filamentous fungous tissue, formed of tortuous, more or less closely interwoven, sub-hyaline to pale yellow-brown hyphae, up to 2.5μ thick, amongst which the unaltered or slightly altered cells of the host can be seen; this is bounded below and at the sides by a thin blackish-brown line; above there is a firm, pale yellow-brown, more closely compact tissue, forming a disc traversed by the ostioles; becoming dark brown, parenchymatous at the surface, where it is composed of irregularly round, more or less angular cells ca. $5-6 \mu$ diam.; the torn periderm adheres firmly to the sides of the stroma.

Perithecia sometimes single, sometimes 2-4 or more in a single stroma, placed in an irregular circle or quite irregularly, monostichous, globose to ovate, or becoming irregular through lateral pressure, $200-450 \mu$ diam., rather deeply immersed, narrowing suddenly above into the ostioles. Ostioles mostly straight, parallel, rarely more or less convergent, sub-cylindrical or tapering somewhat upwards, $250-350 \mu$ long, $75-100 \mu$ broad, with entire margin, not protruding from the stroma; traversed by a pore, which is sometimes more or less cylindrical, but more frequently narrow-conical, lined with rather sparse, very fine, hyaline, ascending periphyses. Perithecial wall mostly about $25-30 \mu$ thick, composed of several layers of compressed cells, which are usually yellow-brown at the base and sides, becoming darker above, and opaque, blackish-brown in the ostioles; not sharply defined outwardly, where it is continuous with the tissue of the stroma; giving place suddenly within to a concentric, hyaline, filamentous layer. Asci very numerous, 8-spored, clavate, rounded above, tapering below into a long, slender, hyaline stalk, which is quite filamentous at the base, total length $100-150 \mu$ sp. part $50-72.5 \times 11-12.5 \mu$. Spores distichous, brown, fusoid or ellipsoid, 1-septate, constricted, usually tapering more or less to the bluntly conical

or rounded ends, $12.5-16 \times 5.5-6.5 \mu$; cells usually equal or sub-equal, but sometimes the upper is slightly shorter and broader than the lower. Paraphyses numerous, hyaline, filiform, about 1μ thick.

on dead branches of *Solanum auriculatum* Ait., Xumeni Forest, near Donnybrook, Natal, Morgan and Doidge, 28931, 30373.

Pseudothis Theiss. et Syd.

Ann. Myc. 12 (1914) p. 274, and 16 (1918) p. 180.

Stromata foliicolous, seated on the unaltered palisade cells, at first covered by a black-shining, epidermal clypeus, later rupturing and throwing off the epidermis, and becoming rough, brown, conspicuous and apparently superficial. Stroma reddish brown, verruciform. Perithecia immersed, globulose, with light brown to pale walls and periphysate ostioles. Asci paraphysate, cylindrical-clavate, 8-spored. Spores brown, unequally 2-celled.

Pseudothis Pterocarpi Syd.

Ann. Myc. 13 (1915) p. 339; Petrak, Ann. Myc. 27 (1929) p. 330.

Syn. *Systremma Pterocarpi* Doidge, Bothalia 1 (1922) p. 70.

Dothidea Pterocarpi Syd., Phil. Jour. Sci. VIII (1913) p. 280.

Plate 15 c.

Stromata epiphyllous, rarely hypophyllous, on yellowish leaf spots, developing under the epidermis and becoming erumpent, scattered, round, pulvinate, black, rugulose, $0.5-1.5$ mm. diam.; usually with a concentric zone of secondary stromata surrounding the primary stroma. Stromata may also occur on twigs and midribs; these are similar to those on the leaves but are usually oval to ellipsoid and solitary.

Tissue of stroma rather loosely parenchymatous in structure, composed of light brown to blackish-brown, round to angular, thin-walled cells, mostly $5-10 \mu$ diam.; ground tissue between the perithecia paler; often becoming more firmly compacted at the surface, and forming a darker, sub-opaque crust, which is interrupted by the paler ostioles of the perithecia.

Perithecia 1-5 in a single stroma, flattened globose or ovate, deeply immersed, $120-250 \mu$ diam., narrowing suddenly above into the ostioles. Ostioles up to 150μ long, cylindrical to narrow funnel-shaped, not sharply differentiated from the stroma but ca. $45-50 \mu$ broad, widening at the apex to 75μ , not protruding or very slightly so, apex of ostiole pale, almost sub-hyaline; traversed by a pore lined with hyaline paraphyses; Perithecial wall consisting of several layers of pale, rather thin-walled, somewhat compressed cells. Asci numerous, 8-spored, cylindrical-clavate, broadly rounded above, $48-70 \times 10-16 \mu$. Spores distichous, brown, oblong, $10-13 \times 5-7 \mu$, unequally 1-septate; upper loculus $6-8.6$, lower $3.3-5 \mu$ long.

on leaves and stems of *Pterocarpus rotundifolius* (Sond.) Druce, Khami Ruins, S. Rhodesia, Bottomley, 14101.

Petrak (l.c.) pointed out that the South African fungus is identical with the species originally described by Sydow as *Dothidea Pterocarpi* from the Philippines.

Holstiella P. Henn.

Pilze Ostafrikas (1895) p. 33.

Stromata superficial, pulvinate or hemispherical; ostioles at first conical, acute, then depressed or concave; perithecia numerous, immersed. Asci clavate, pedicellate, 8-spored, paraphysate. Spores fusoid or clavate, multi-septate, more or less constricted at the septa, hyaline, with a mucous sheath.

Holstiella usambarensis P. Henn.-forma.

Pilz. Ostaf. p. 33; Sacc. Syll. Fung. XIV, p. 594; Syd., Ann. Myc. 24 (1926) p. 271.

Stromata rather closely and evenly scattered over large areas of the bark, discrete, or in short uneven rows and then becoming more or less confluent and fused; round, elongated or irregular in outline and apparently quite superficial, about 1-2 mm. diam., convex, pulvinate, with grey-brown or blackish-brown surface roughened by the punctiform-erumpent ostioles. Stroma developing in the outer layers of the cortex, which is normally about 30 μ thick and becomes thickened to about 800 μ .

Stroma flat at the base and not sharply defined; ground tissue parenchymatous, including in places shrunken vestiges of the host tissues, composed of rather small, thick-walled, angular cells; the cells are sometimes translucent, light yellowish-brown, and sometimes, especially at the surface, darker, blackish-brown or olive brown.

Perithecia numerous, monostichous, closely crowded or comparatively distant, broadly ovate or ellipsoid, 200-400 μ diam., up to 800 μ high, including the ostioles, gradually narrowed above into the ostioles. Ostioles broadly conical and truncate, about 200 μ long and 150 μ broad, punctiform erumpent, but not protruding; lined with copious periphyses. Perithecial wall carbonaceous, very variable in thickness, sometimes only 10-15 μ thick, sometimes up to 40 μ , opaque, blackish-brown, composed of small cells; at the tips of the ostioles, the cells are yellow-brown or sometimes quite hyaline. Asci numerous, broadly clavate, broadly rounded above, tapering more or less downwards, sessile or with a short thick foot, 8-spored, sp. part 95-100 \times 18-22 μ , thick-walled, slightly thickened at the apex. Spores distichous or incompletely tritichous, fusiform, tapering to blunt ends, straight or slightly bent, hyaline, 7-9-septate, not constricted, 35-42 μ long, 8-10 μ broad, not including the mucilaginous envelope which is about 2.5 μ thick; central cells narrow ellipsoid, 3.5-5 μ long, becoming shorter towards the ends; terminal cells short, conical. Paraphyses very numerous, coarsely filamentous, freely branched, about 1 μ thick.

on bark, Lourenco Marques, *Junod*, 12206.

The type was described by Hennings on branches of a tropical African tree. The fungus described above is considered by Sydow (loc. cit.) to be a form of *Holstiella usambarensis*, from which it differs in the size of the spores; they are smaller and have fewer septations; no other differences were observed. In Hennings' type, spores are seen with 11-14 septa and up to 55 μ long.

Calospora Sacc.

Syll. Fung. II (1883) p. 231.

Stromata immersed in the cortex, valsoid, pustulate. Asci typically 8-spored, paraphysate. Spores oblong or fusoid, 2-pluri-septate, hyaline.

Calospora Bottomleyae Doidge, nov. sp.

Stromata scattered, or in irregular, elongated groups, developing in the cortex, pushing up the periderm and becoming erumpent, dull black, only slightly convex, elliptic, up to 1.5 mm. long. The cortical tissues finally break away, leaving the stroma exposed and attached at the base to the wood of the host.

Inner part of stroma consisting of more or less closely interwoven hyphae, permeating the cortical cells of the host; fungous tissue sub-hyaline to pale yellow-brown, formed of hyphae 3-4 μ thick; the cells of the host are not altered or very slightly so. The fungous tissue is darker and more closely interwoven near the surface, forming a dark brown, sub-opaque crust 25-35 μ thick; the dark zone is somewhat thinner and less dense at the sides and at the base where it rests on the wood.

Perithecia 1-5 in a single stroma, distant, solitary, or arranged in a line or irregular circle, globose or globose-depressed, 180-280 μ diam., 150-200 μ high, narrowing suddenly

above into the ostioles. Perithecial wall, firm, membranous, 12–20 μ thick; dark brown and well defined at the base where it is about 15 μ thick; elsewhere more or less continuous with the stroma outwardly, and going over gradually into a hyaline, filamentous layer within; composed of rather thin-walled, angular, slightly compressed cells up to 15 μ long and ca. 5 μ thick. Ostioles cylindrical or narrow funnel-shaped, straight in the solitary perithecia, converging when the perithecia are in groups, 100–150 μ long, 70–100 μ broad, pale yellow-brown, protruding very slightly from the stroma, entire; traversed by a pore which is lined with hyaline periphyses. Asci 8-spored, oblong-clavate to oblong, rounded above, narrowing gradually or rather suddenly below into a short foot, 35–50 \times 8–10 μ . Spores distichous, hyaline, 3-septate, oblong to sub-fusoid, usually tapering somewhat to the rounded ends, 10–12 \times 2.5–3 μ ; constricted more or less at the middle septum and separating readily into two segments.

on stems of plant undet., Trigaartspoord, Pretoria Distr., *Bottomley* and *Doidge*, 31074.

***Calospora aurasiaca* (Fahr.) Sacc.**

The fungus recorded as this species on oak branches, (2, p. 41) is *Pseudovalsa longipes* (Tul.) Sacc., see *Bothalia* 4 (1941) p.

LATIN DIAGNOSES OF NEW SPECIES.

***Calospora Bottomleyae* Doidge nov. sp.**

Stromata sparsa v. in greges elongatos irregulares laxè disposita, primitus in corticem immersa, dein erumpentia atra, leniter convexa, ambitu elliptica, usque 1.5 mm. longa; inferne pro maxima parte tantum e reliquis substrati parum mutatis constantia, superne crusta atro-brunnea sat carbonacea ostiolis pertusa praedita. Perithecia 1–5 in quoque stromate, solitaria v. laxè lineare v. circinatim ordinata, globosa, plus minus depressa, 180–280 μ diam., 150–200 μ alta, superne in ostiola vix prominula subito attenuata; pariete ca. 12–20 μ crasso, e pluribus stratis cellularum leniter compressarum usque 15 μ long. et 5 μ lat. pellucide brunnearum composito. Asci octospori, oblongo-clavati, antice rotundati, breviter pedicellati, 35–50 \times 8–10 μ . Sporae distichae, hyalinae, 3-septatae, oblongae v. sub-fusoidae, ad septum primum medium constrictae, utrinque obtusae, 10–12 \times 2.5–3 μ .

Hab. in caulibus ignotis, Trigaartspoord, leg. *Bottomley* et *Doidge*, 31074.

***Diatrype auristroma* Doidge nov. sp.**

Stromata plerumque aggregata, primitus peridermio tecta deinde peridermio deciduo plus minus libera, ambitu orbicularia vel elliptica, pulvinata, 1–6 mm. longa, 1–1.5 mm. lata, ad superficiem atro-brunnea parenchymatice e cellulis 3–5 μ metientibus composita, intus aurea ad auranteo-brunnea. Perithecia omnino immersa, 5–30 in quoque stromate, conferta, monosticha v. irregulariter sub-disticha, ovata v. e mutua pressione irregularia, 450–900 μ alta, 220–450 μ lata, superne in ostiola crassa vix prominula 120–180 μ longa attenuata; pariete 10–12 μ crasso, obscure brunneo, e pluribus stratis cellularum 10–12 μ metientibus composito. Asci numerosi, octospori, clavati, antice rotundati et leniter incrassati, postice in stipitem tenuem longum hyalinum gracilem attenuati, p. sp. 30–36 \times 5–6 μ . Sporae distichae, allantoideae, utrinque rotundati, sub-hyalinae, in cumulo ochraceae, 6–8.5 \times 1.5–1.75 μ .

Hab. in ramulis emortuis *Xymalos monosporae* Baill., in silvis Marwaqa prope Bulwer, leg. *Morgan* et *Doidge*, 31073.

Diatrype conferta Doidge nov. sp.

Stromata sparsa v. aggregata, primitus peridermio tecta, mox erumpentia, atra, carbonacea, crasse verruciformia vel pulvinata, ambitu rotundata v. elliptica, 1–3 mm. diam., tunc haud raro in greges parvos connata et confluentia; crusta exteriore 30–90 μ crassa atra opaca, e cellulis atro-brunneis ca. 2.5–4 μ metientibus composita, intus sub crustam strato albo praedita, sub peritheciis luteo-brunnea. Perithecia numerosa (usque 30) in quoque stromate, conferta, disticha v. monosticha, ovata v. e mutua pressione irregularia, 250–400 μ diam., usque 550 μ alta, superne in ostiola vix vel distincte prominula 150–300 μ longa attenuata; pariete sub-opace atro-brunneo, 18–30 μ crasso, e pluribus stratis cellularum compressarum composito. Asci numerosissimi clavati octospori, antice rotundati et leniter incrassati, postice in stipitem longum gracilem attenuati, p. sp. 40–50 \times 7.5–8 μ . Sporae distichae, allantoideae, sub-hyalinae in cumulo pallide flavo-brunneolae, 10–15 \times 2.5–3 μ .

Hab. in ramis emortuis ignotis, in silvis Xumeni prope Donnybrook, leg. Morgan et Doidge, 30420.

Diatrype Doryalidis Doidge nov. sp.

Stromata sparsa vel plus minus aggregata, primitus in cortice immersa dein plus minus erumpentia, strata exteriore elevantia et disrumpentia laciniis ejus pro parte tecta, ambitu rotundata vel elliptica, 0.5–1 mm. diam.; crusta exteriore 30–75 μ crassa, atro-brunnea subopaca, carbonacea, e cellulis 2.5–5 μ diam. composita. Perithecia plerumque 2–6 in quoque stromate, monosticha, saepe circulariter disposita, ovata v. oblonga, e mutua pressione saepe applanata, 300–450 μ diam., 450–500 μ alta, superne in ostiola cylindracea prominula 300–400 μ longa attenuata; pariete 20–35 μ crasso atro-brunneo, e pluribus stratis cellularum 2.5–5 μ metientibus composito. Asci numerosi octospori clavati, p. sp. 30–40 \times 5–6 μ , antice rotundati, postice in stipitem longum gracilem attenuati. Sporae distichae allantoideae continuae singulae sub-hyalinae, in cumulo flavo-brunneolae, 6–8 \times 1.75–2 μ .

Hab. in ramulis *Doryalidis rhamnoidis* (Burch.) Harv. in silvis, Knysna, leg. Bottomley, 31060.

Diatrype Leonotidis Doidge nov. sp.

Stromata sat equaliter per caulem sparsa, subinde gregaria, primitus in cortice immersa, dein plus minus erumpentia, strata exteriore elevantia et disrumpentia laciniis ejus pro parte tecta, lateraliter firme cum peridermio connata, atra, pulvinata vel verruciformis, ambitu rotundata vel leniter elongata, 1–2.5 mm. diam.; crusta exteriore ca. 50 μ crassa, carbonacea, e cellulis atro-brunneis 3.5–5 μ metientibus composita. Perithecia plerumque 3–5 vel usque 8 in quoque stromate, circulariter v. plus minus irregulariter disposita, globosa v. ovata, e mutua pressione saepe applanata, 300–400 μ diam., superne subito in ostiola crasse cylindracea haud vel vix prominula attenuata; pariete ca. 12–15 μ crasso e pluribus stratis cellularum compressarum composito. Asci numerosissimi 8-spori, clavati, p. sp. fusiformi 35–45 \times 6–8 μ , antice rotundati, postice in stipitem longum gracilem attenuati. Sporae distichae, allantoideae, continuae, pallide flavo-brunneolae, leniter curvatae, 10–12.5 \times 2–2.5 μ . Paraphyses hyalinae, filiformes.

Hab. in caulibus *Leonotidis* sp., Hlabini, Polela distr., leg. Doidge, 29821.

Diatrype xumenensis Doidge nov. sp.

Stromata longe lateque irregulariter sparsa, interdum solitaria sed plerumque plus minus aggregata, saepe lineas breviores vel longiores parallelas formantia, primitus peridermio tecta et tantum ad verticem per rimas erumpentia, deinde peridermio deciduo fere omnino libera, ambitu orbicularia vel elliptica, crasse verruciformia vel pulvinata, ca. 1 mm. diam., subinde omnino confluentia et tunc majora; ad superficiem opace atra vel atro-

brunnea carbonacea, parenchymatice e cellulis atro-brunneis ca. 5–8 μ metientibus composita. Perithecia omnino immersa, 2–8 in quoque stromate, monosticha, ovata, e mutua pressione saepe applanata et irregularia, 200–450 μ diam., 450–550 μ alta, superne in ostiola cylindracea plerumque leniter prominula fasciculatim conjuncta, indivisa vel tenuiter sulcata, attenuata; pariete ca. 16–25 μ crasso, e pluribus stratis cellularum fere opace atro-brunnearum composito. Asci numerosissimi octospori, clavati, p. sp. ellipsoidei v. parum fusoidei, 40–45 \times 5.5–6.5 μ , antice rotundati, postice in stipitem tenuem longiusculum attenuati. Sporae distichae vel incomplete tritichae cylindraceae utrinque rotundatae, allantoideae curvatae continuae, sub-hyalinae in cumulo luteo-brunneolae, 6–10 \times 2–2.5 μ .

Hab. in ramis emortuis in silvis Xumeni, prope Donnybrook, leg. Morgan et Doidge, 28919.

Diatrypella Morganae Doidge nov. sp.

Stromata longe lateque irregulariter sparsa, plerumque solitaria, interdum in greges minutos crescentia, ambitu plus minus rotundata, pulvinata, 1–2.5 mm. diam., semper peridermio tecta et tantum cum ostioli erumpentia; contextu stromati intramatricali parcissime evoluto, pro maxima parte e substrati partibus plus minus mutatis et cellulis minutis sub-hyalinis vel dilute flavo-brunneolis constante. Perithecia monosticha 3–7 in quoque stromate, omnino immersa, globosa v. ovata, sive laxe stipata sive plus minus dense aggregata e mutua pressione applanata, 250–500 μ diam., superne subito in ostiola crasse cylindracea convergentia, 150–200 μ crassa, plerumque leniter prominula, ad marginem subinde tenuiter sulcata et nitidula attenuata; pariete inferne et ad latera 20–30 μ crasso, e pluribus stratis cellularum compressarum pellucide atro-brunnearum ca. 10–15 μ metientibus composito. Asci numerosi polyspori, cylindraceuti vel clavati, sessiles v. breviter stipitati, 100–125 \times 12–15 μ . Sporae allantoideae continuae, utrinque rotundatae, pallide luteo-brunneolae, in cumulo fere rufo-brunneae, 10–16 \times 2.5–4 μ .

Hab. in ramis emortuis, Hlabini, Polela distr., leg. Morgan et Doidge, 29820.

Diatrypella natalensis Doidge nov. sp.

Stromata sive irregulariter sparsa, sive in greges minutos v. majores vel in lineas breviores saepe densos crescentia, ambitu plus minus rotundata, usque 1 mm. diam., vel elliptici ca. 3 \times 1 mm., primitus peridermio tecta, deinde plus minus libera, atra, convexa, pulvinata; ad superficiem opace atra, carbonacea, parenchymatice e cellulis pellucide atro-brunneis 6–8 μ metientibus composita. Perithecia 7–15 in quoque stromate, omnino immersa, globosa v. ovata, e mutua pressione saepe irregularia, 250–400 μ diam., 300–500 μ alta, superne in ostiola breviuscula crasse cylindracea leniter prominula ad marginem 3–5-sulcata et nitidula attenuata; pariete obscure brunneo 12.5–25 μ crasso, e pluribus stratis cellularum fortiter compressarum composito. Asci numerosi, polyspori, clavati, recti v. curvati, ad apicem rotundati, postice in stipitem gracilem hyalinem attenuati, p. sp. 80–100 \times 12.5–15 μ . Sporae allantoideae continuae, plus minus curvatae, utrinque rotundatae, sub-hyalinae, in cumulo luteo-brunneolae, 5–7.5 \times 1–1.2 μ . Paraphyses non visae.

in caulibus *Citri nobilis* Lour., Umtwalumi, Natal, leg. Wayne, 21006.

Diatrypella pretoriensis Doidge nov. sp.

Stromata in greges majores irregulares densiore crescentia, plerumque discreta, ambitu plus minus rotundata, usque 1 mm. diam., primitus peridermio tecta deinde erumpentia, plus minus convexa pulvinata; crusta exteriori 50–60 μ crassa, nonnunquam usque 75 μ , atra, carbonacea. Perithecia 2–12 in quoque stromate, monosticha, per ratione laxe stipata, ideoque sat regulariter globosa v. ovata, 400–500 μ diam., superne in ostiola breviter cylindracea vix prominula subito attentuata; pariete atro-brunneo sub-opaco, e stratis

pluribus cellularum compressarum ca. 4-6 μ metientium composito. Asci numerosi, poly-sporei, sporis minutis dense stipati, antice rotundati, postice in stipitem gracilem attenuati, p. sp. 40-60 \times 10-12.5 μ . Sporae allantoideae, sub-hyalinae, in cumulo pallide luteo-brunneolae, 2.5-4 \times 1 μ , rarius usque 5 μ longae.

Hab. in radicibus *Populi* sp., De Beers Rust, prope Pretoria, leg. Doidge, 31072.

Eutypella Acaciae Doidge nov. sp.

Stromata in cortice late effusa, usque ad 8 cm. longa et 2 cm. lata, circa acervulos vix elevata, fere tantum cum ostiolis fasciculatim coalitis per corticis rimas erumpentia; inferne pro maxima parte tantum e reliquis substrati parum vel leniter mutatis constantia, superne crusta carbonacea opace atro-brunnea ostiolis pertusa praedita. Perithecia monosticha, plerumque 1-5 aggregata, globosa v. ovata, e mutua pressione saepe leniter applanata, 330-550 μ diam., 400-520 μ alta, superne subito in ostiola crasse cylindracea plerumque fasciculatim conjuncta et connata sulcis 3-5 tenuibus praedita attenuata; pariete opace atro-brunneo, inferne et ad latera ca. 20 μ crasso, e pluribus stratis cellularum composito. Asci numerosissimi, clavati, 8-sporei, p. sp. ellipsoidea vel fusioidea 35-40 \times 6-6.5 μ , antice rotundati, postice in stipitem longum gracilem attenuati. Sporae distichae v. sub-tristichae, pallide olivaceae, continuae allantoideae utrinque rotundatae, plus minus curvatae, 8-15 \times 2-2.5 μ .

Hab. in ramis emortuis *Acaciae ataxacanthae* D.C., Kromrivier, Rustenburg distr., leg. Doidge et Bottomley, 30476.

Eutypella Lycii Doidge nov. sp.

Stromata sparsa vel in series irregulares disposita, minuta, atra, e basi circulari conico-truncata, in cortice immersa ostiolis tantum prominulis, lateraliter firme cum peridermio connata, usque ad 1.5 mm. diam.; inferne pro maxima parte tantum e reliquis substrati parum mutatis constantia, superne crusta sat carbonacea ostiolis pertusa, parenchymatice e cellulis fere opace atro-brunneis 4-6 μ metientibus praedita. Perithecia monosticha, 1-7 raro 8-13 in quoque stromate, circulariter disposita, globosa v. ovata e mutua pressione interdum leniter applanata, 350-450 μ diam. 400-475 μ alta, superne subito in ostiola sub-cylindracea curvata sulcis 3-5 praedita attenuata; pariete inferne et ad latera ca. 25 μ crasso, e pluribus stratis cellularum compressarum pellucide atro-brunnearum composito. Asci numerosissimi, 8-sporei, clavati v. sub-fusififormi, 35-40 μ longi, p. sp. 25-28 \times 3.75-5 μ , antice rotundati postice in stipitem gracilem attenuati. Sporae distichae allantoideae continuae utrinque rotundatae, sub-hyalinae in cumulo pallide olivaceae, 5-6.5 \times 1 μ .

Hab. in ramulis *Lycii echinati* Dun., Aliwal North, leg. Pienaar, 2094.

Valsaria natalensis Doidge nov. sp.

Stromata longe lateque irregulariter sparsa, numerosissima et magnam ramorum partem obtegentia, solitaria irregulariter circularia usque 1 mm. diam. vel in greges irregulares crescentia, tunc haud raro connata et confluentia, immersa v. pustulatim erumpentia, lateraliter firme cum laciniis peridermii connata; inferne et ad latera pro maxima parte tantum e reliquis substrati parum vel leniter mutatis constantia, superne parenchymatice e cellulis pellucide brunneis 5-6 μ metientibus composita. Perithecia monosticha, in stromate omnino immersa plerumque 1-4 in quoque stromate, globosa vel late ovata vel e mutua pressione irregularia, 200-450 μ diam., superne in ostiola cylindracea v. anguste conica 75-100 μ lata attenuata; pariete inferne et ad latera ca. 25-30 μ crasso, e pluribus stratis cellularum valde compressarum pellucide brunnearum composito, intus subito in stratum hyalinum concentricum fibrosum transeunte. Asci numerosi clavati, antice rotundati, postice in stipitem longum gracilem ad basim filamentosum attenuati, in toto 100-150 μ longi, p. sp. 50-72.5 \times 11-12.5 μ . Sporae distichae, brunneae, 1-septatae,

fusoideae vel ellipsoideae, ad septum constrictae utrinque obtuse conicae v. rotundatae, $12.5-16 \times 5.5-6.6 \mu$, cellulis ut plurimum aequalibus vel subaequalibus, subinde autem superiore paulo brevioribus sed latioribus. Paraphyses numerosae, hyalinae, filiformes, ca. 1μ crasso.

Hab. in ramis emortuis *Solani auriculati* Ait., in silvis Xumeni, prope Donnybrook. leg. Morgan et Doidge 28931, 30373.

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EXPLANATION OF PLATES.

Except the reproduction of Berlese's drawings, Plates 4-15 are photographs of sections through the stromata of the species indicated; the magnification is the same in each case, $\times 224$.

- Plate 1.—*Calosphaeria princeps* Tul. a. Perithecia on bark of *Prunus armeniaca* a. ($\times 7$); b. detail from a. ($\times 14$).
- Plate 2.—a. *Diatrype auristroma*, stromata on bark; b. *Diatrype xumensis*. Both ($\times 7$).
- Plate 3.—a. *Diatrypella Agaves*, stromata on stem; b. *Diatrype caulina*; c. *Peroneutypella cylindrica*, the ostioles of the perithecia and the sterile emergences can be detected; all ($\times 7$).
- Plate 4.—a. *Erostella quaternarioides* from Berlese's drawing; b. *Valsa leucostoma*.
- Plate 5.—*Peroneutypella cylindrica*, a. from collection 28918; b. from 30164.
- Plate 6.—a, b. *Peroneutypella infinitissima*, from type collection; c. *Eutypella Acaciae*.
- Plate 7.—a. *Eutypella Lycii*; b, c. *Eutypella stellulata*, b. Medley Wood's collection; c. from Rhodesian material; d, e. *Eutypella citricola*; d. material from Philippines; e. from Natal collection.
- Plate 8.—a. *Eutypella MacOwani*; b, c. *Eutypella Doidgeae*; b. from type collection 30378.
- Plate 9.—a. *Diatrype Doryalidis*; b. *D. xumensis*; c. *D. caulina*; d. *D. Leonotidis*.
- Plate 10.—*Diatrype MacOwaniana*, a. from Berlese's drawing of *D. Bona-spei*; b. from *MacOwan* 1264.
- Plate 11.—*Diatrype auristroma*, a. stroma with contracted, sterile base; b. stroma with extended base.
- Plate 12.—*Diatrype caminata*, a. from Berlese's drawing; b. from recent collection.
- Plate 13.—a, b. *Diatrype conferta*; c. *Diatrypella Morganae*.
- Plate 14.—a. *Diatrypella oligostroma*; b. *D. Agaves*; c. *D. natalensis*.
- Plate 15.—a, b. *Diatrypella pretoriensis*; c. *Pseudotheca Pterocarpi*; d. *Valsaria Eucalypti*; e. *Valsaria natalensis*.

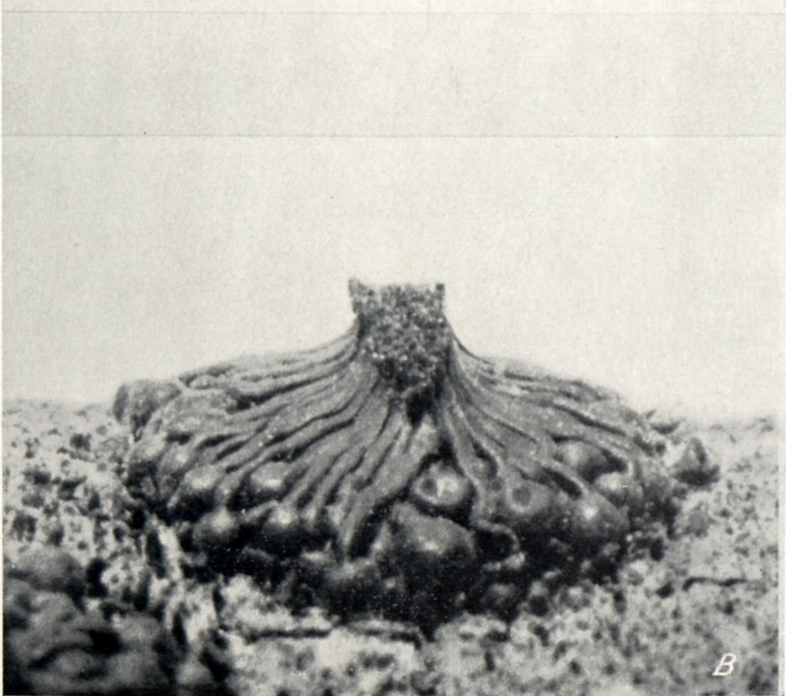
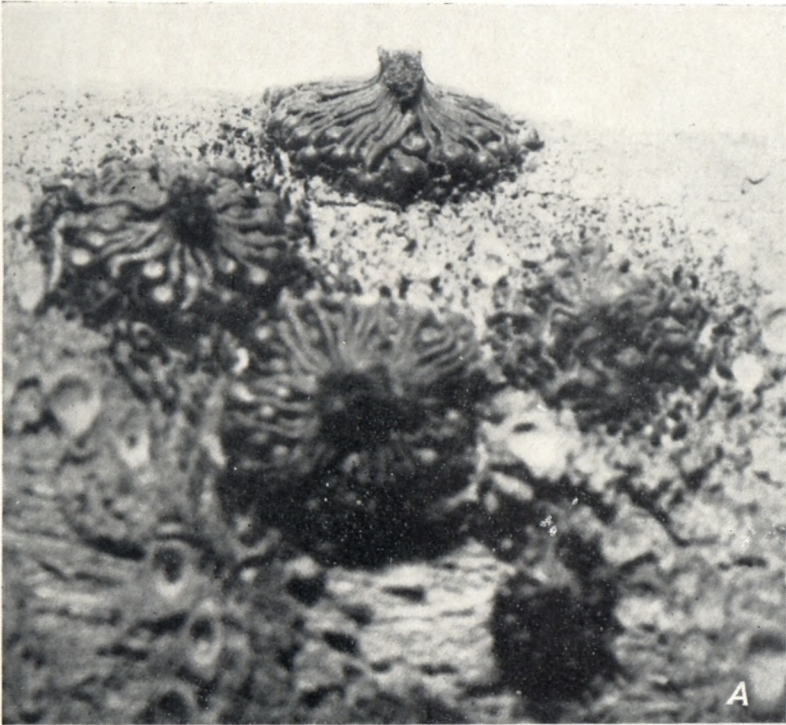


PLATE I.
Calosphaeria princeps.

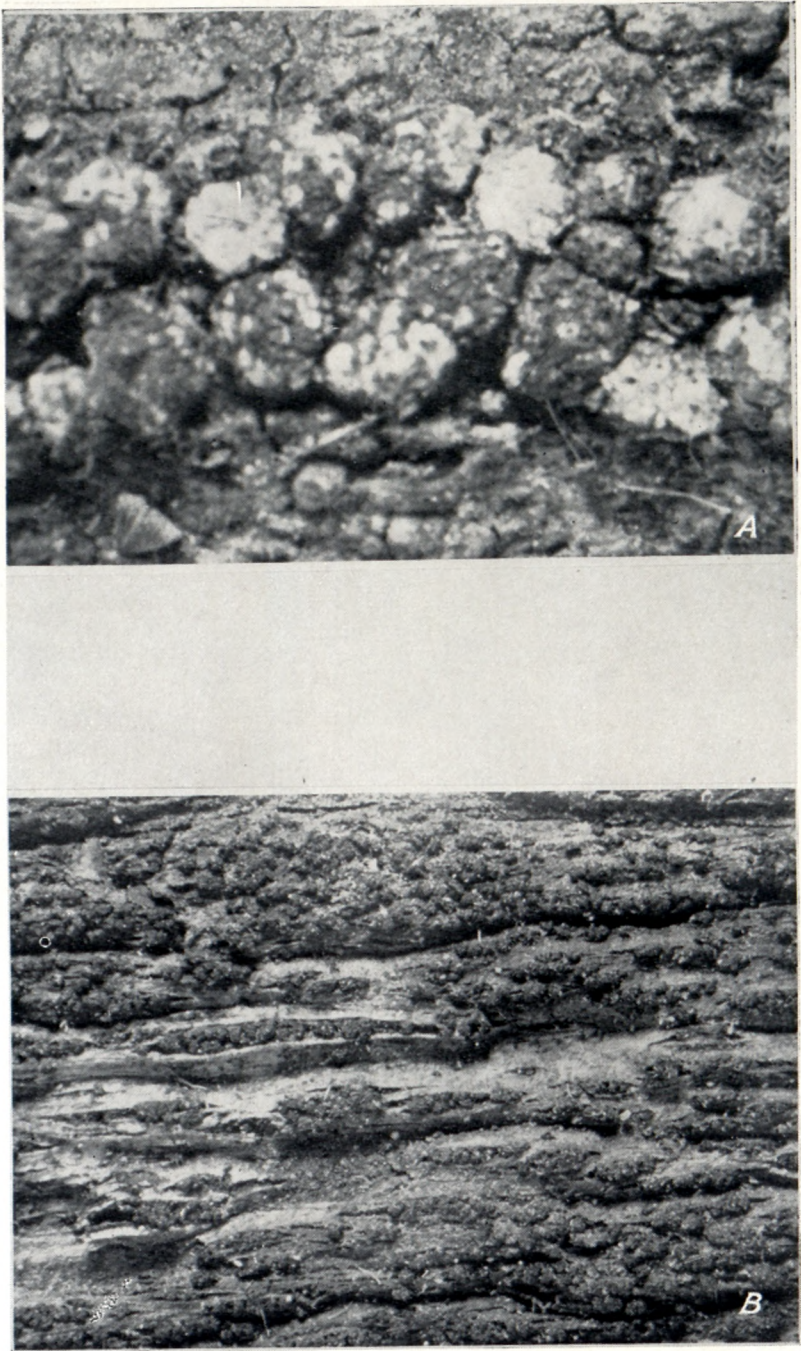


PLATE 2.

A. *Diatrype aurristroma*.

B. *Diatrype xumenensis*.

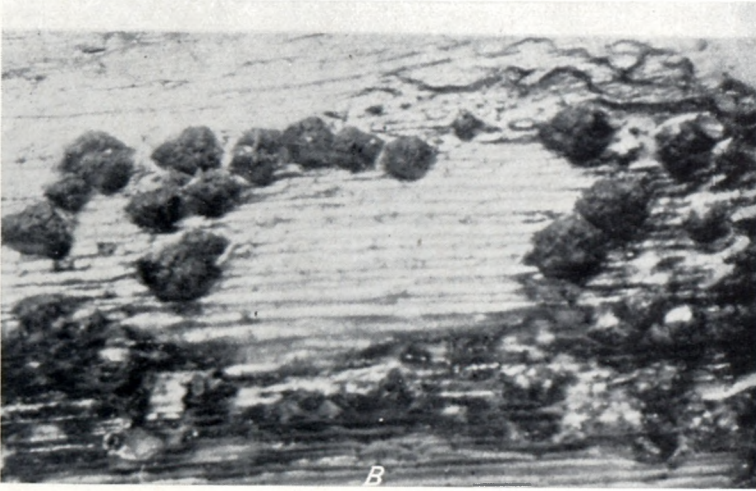
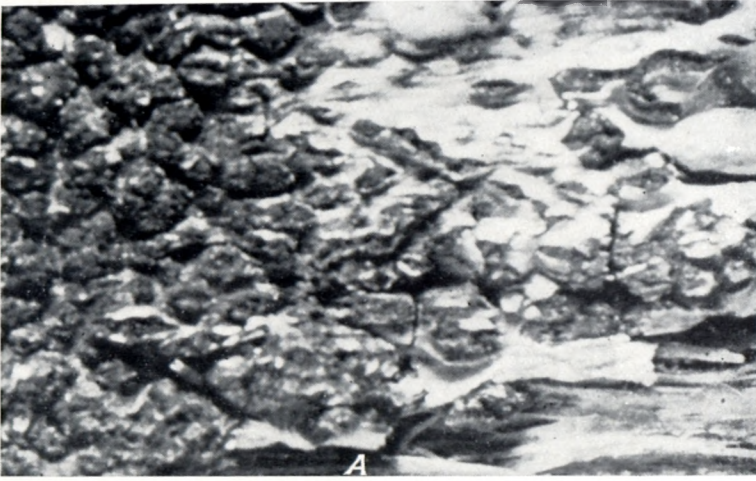


PLATE 3.

A. *Diatrypella Agaves*. B. *Di'ryfe caulina*. C. *Peroneutypella cylindrica*.

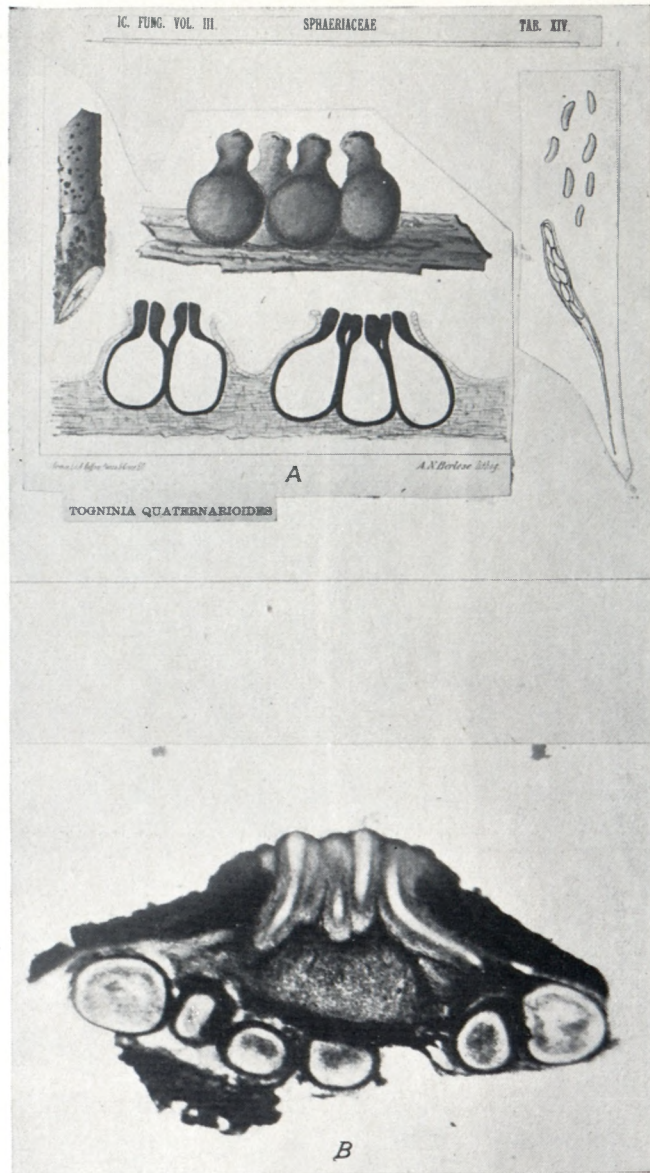


PLATE 4.

- A. Erostella quaternarioides.*
B. Valsa leucostoma.

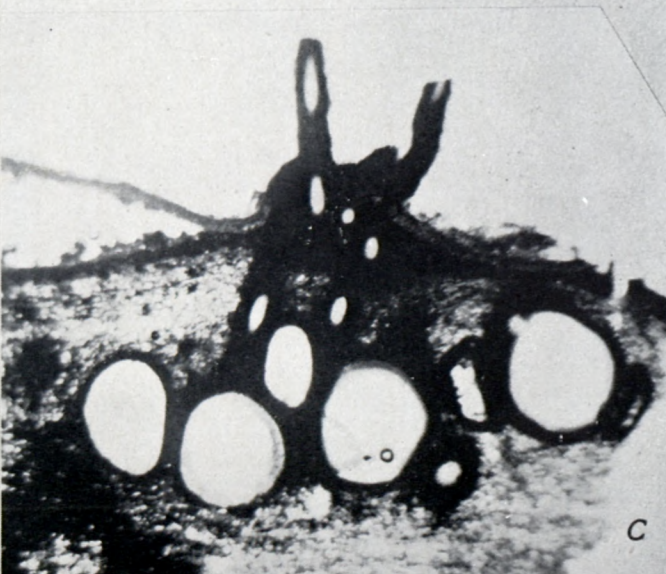
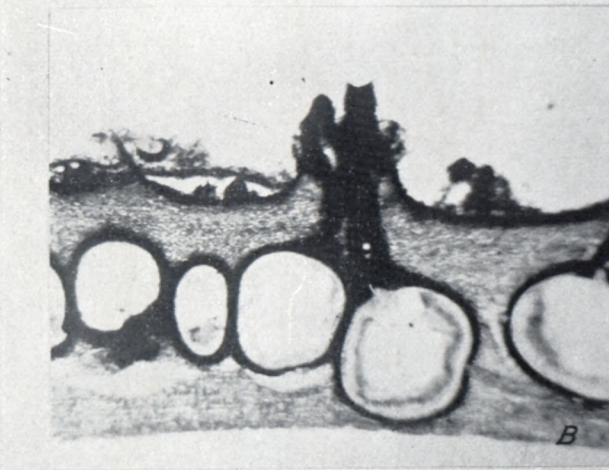
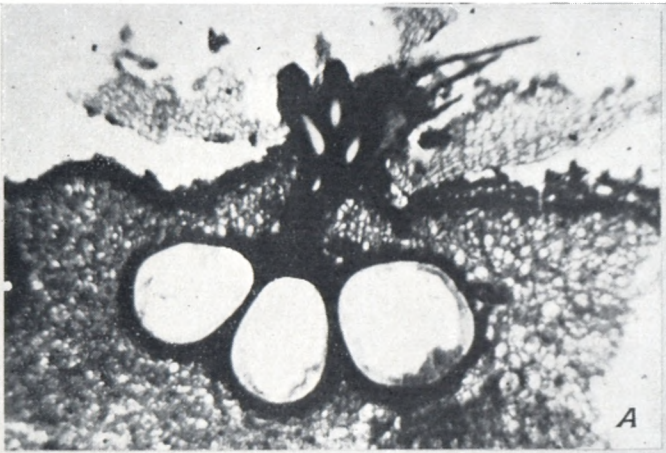


PLATE 5.—*Peroneutypella cylindrica*.

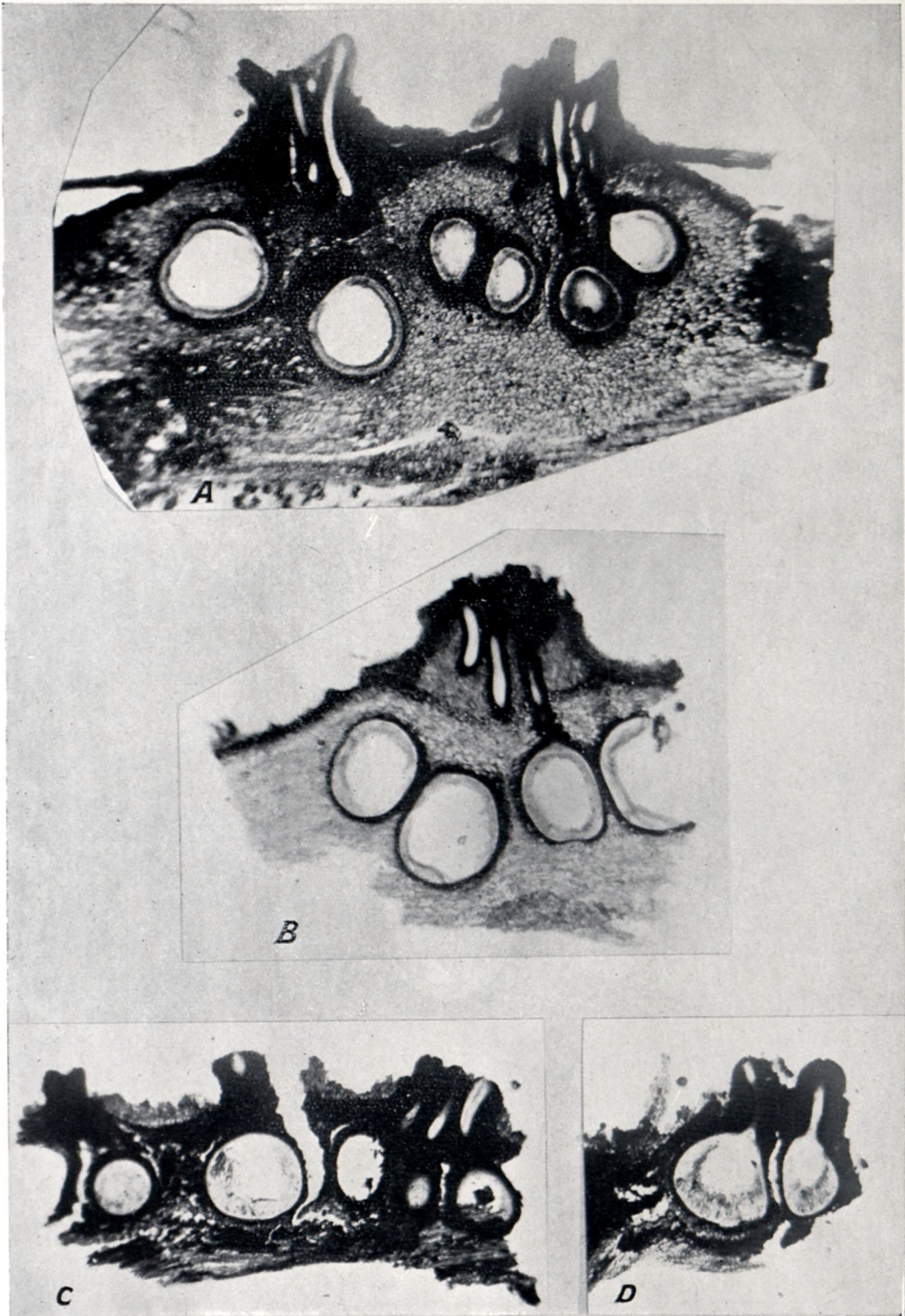


PLATE 6.

A., B. Peronentypella infinitissima.

C., D. Eutypa transvaalensis.

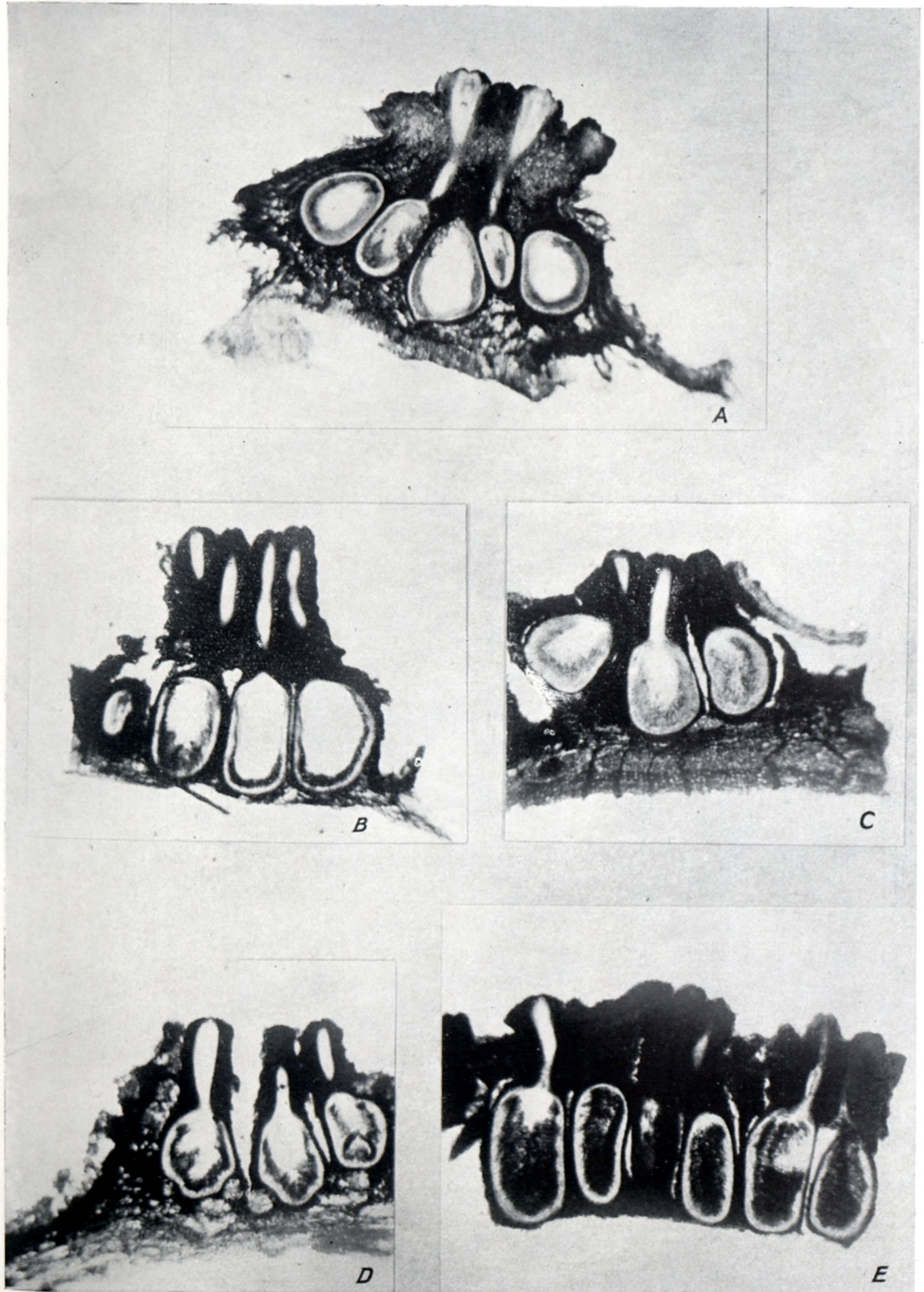


PLATE 7.

A. *Eutypella Lycii*. B., C. *Eutypella stellulata*. D., E. *Eutypella citricola*.

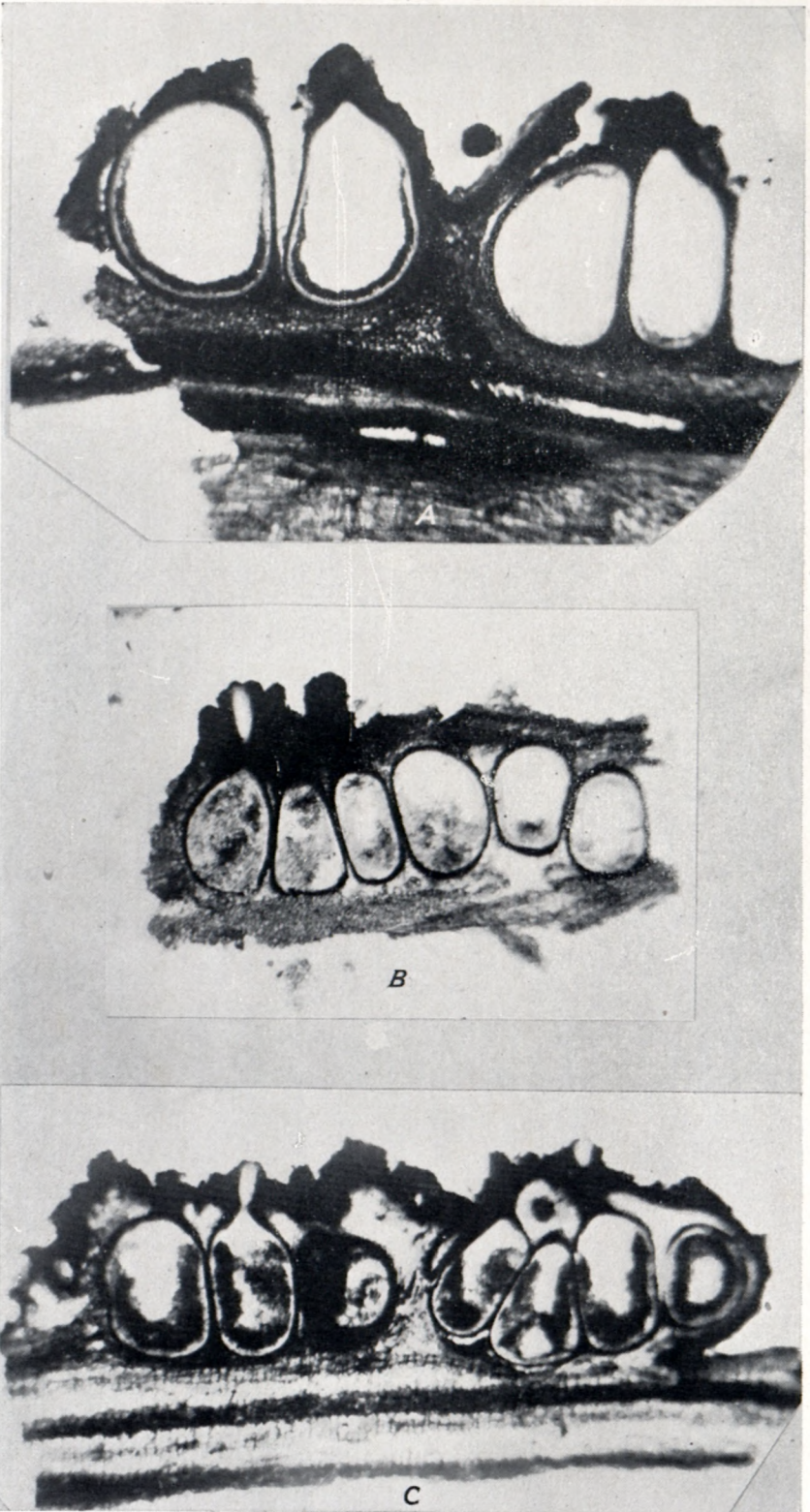
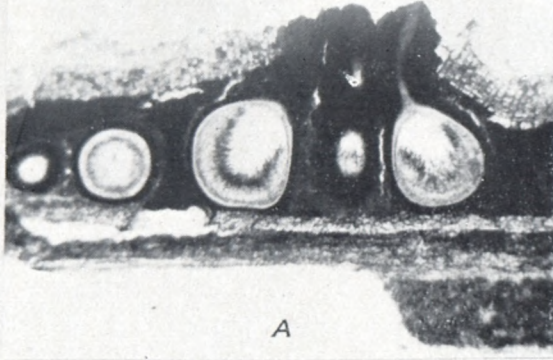
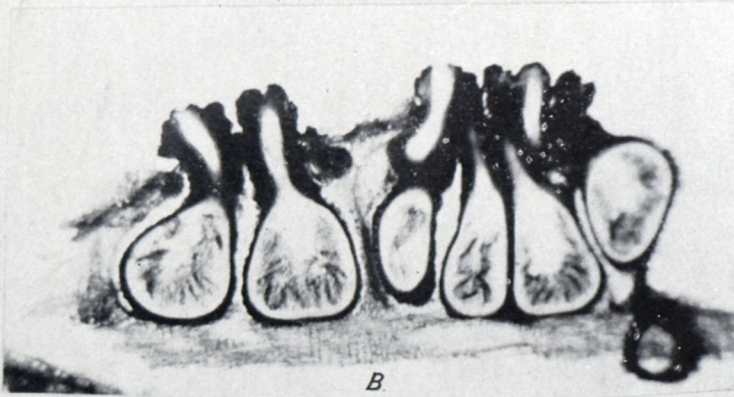


PLATE 8.

A. Eutypella MacOwini. *B., C. Eutypella Doidgeae.*



A



B



C



D

PLATE 9.

A. *Diatrype Dorycolidis*.
C., *D. caulina*.

B. *Diatrype Xumenensis*.
D., *D. Leonotidis*.

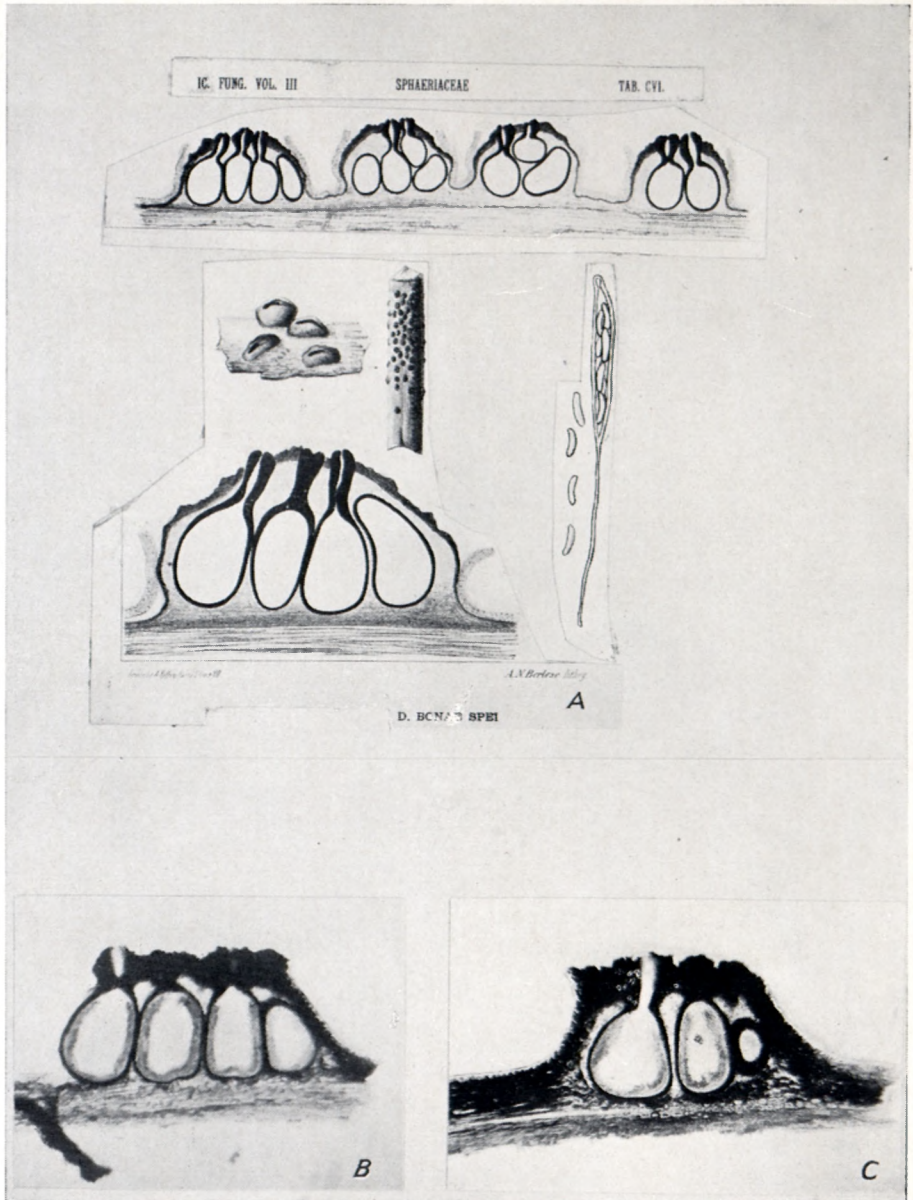


PLATE 10.

A. Berlese's Drawings. D. Bona Spei.

B., C.—D. MacOwaniana.

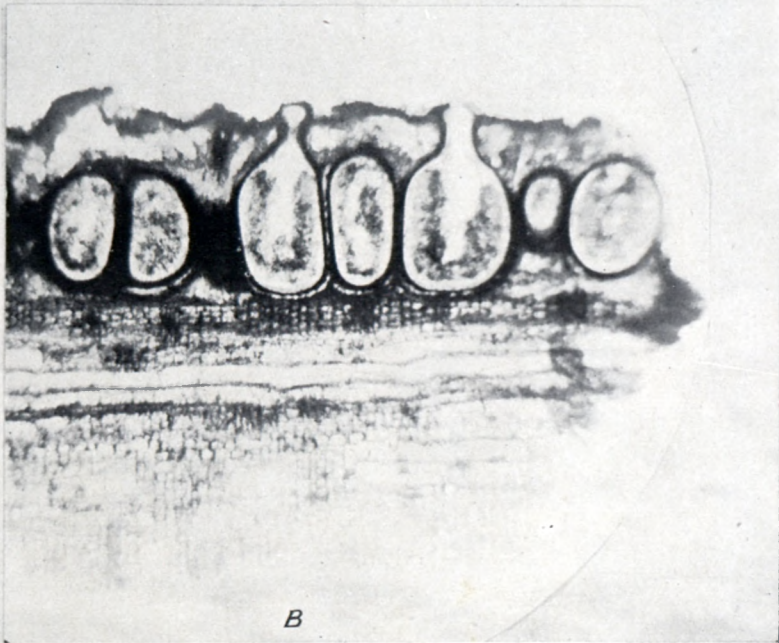
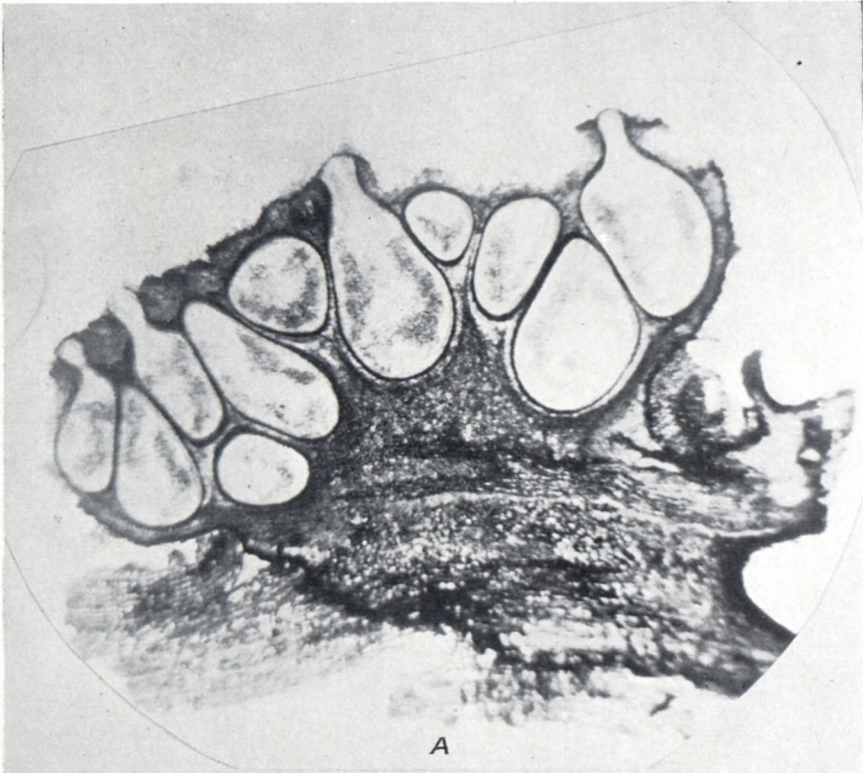


PLATE 11.
Diatrype auristroma.

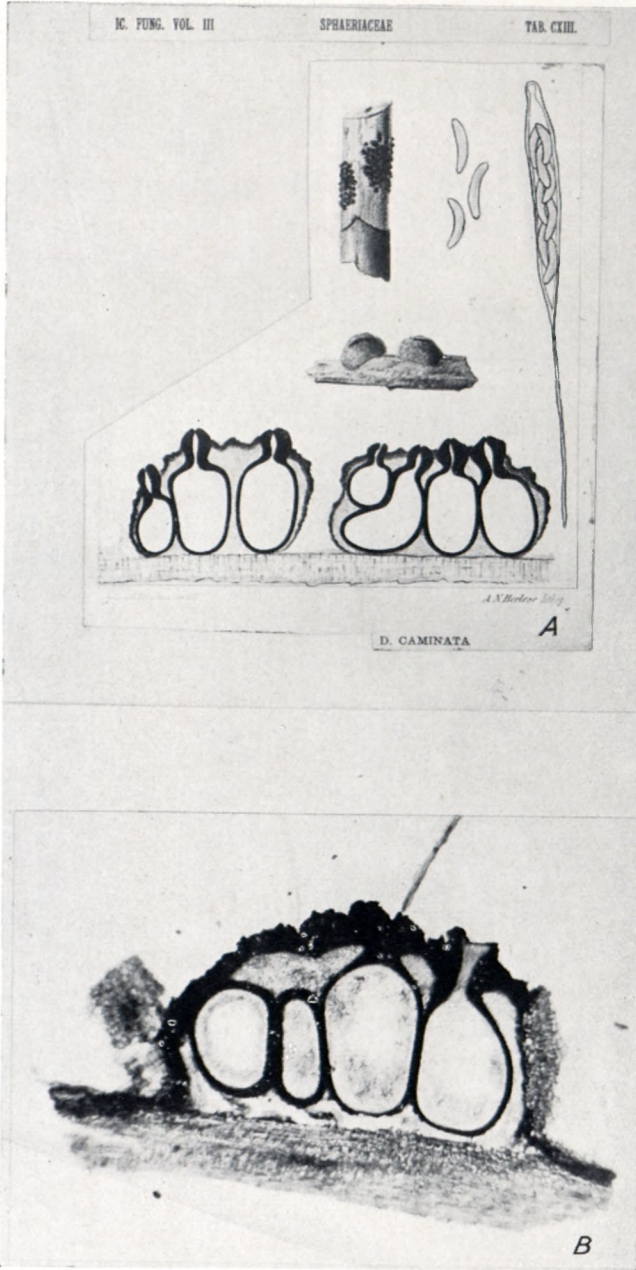


PLATE 12.
D. Caminata.

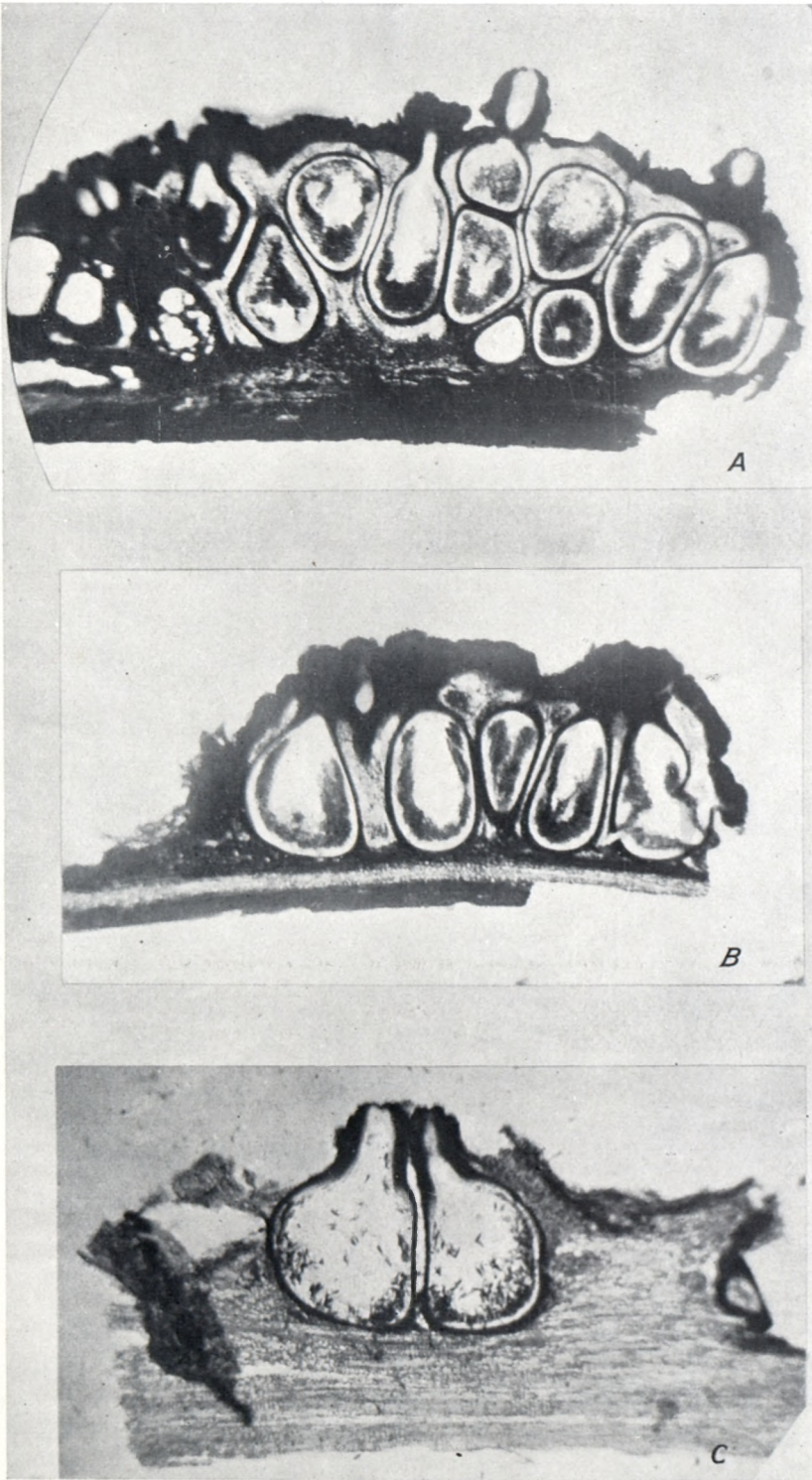


PLATE 13.

A., B. *Diatrype conferta*.C. *Diatrypella Morganae*.

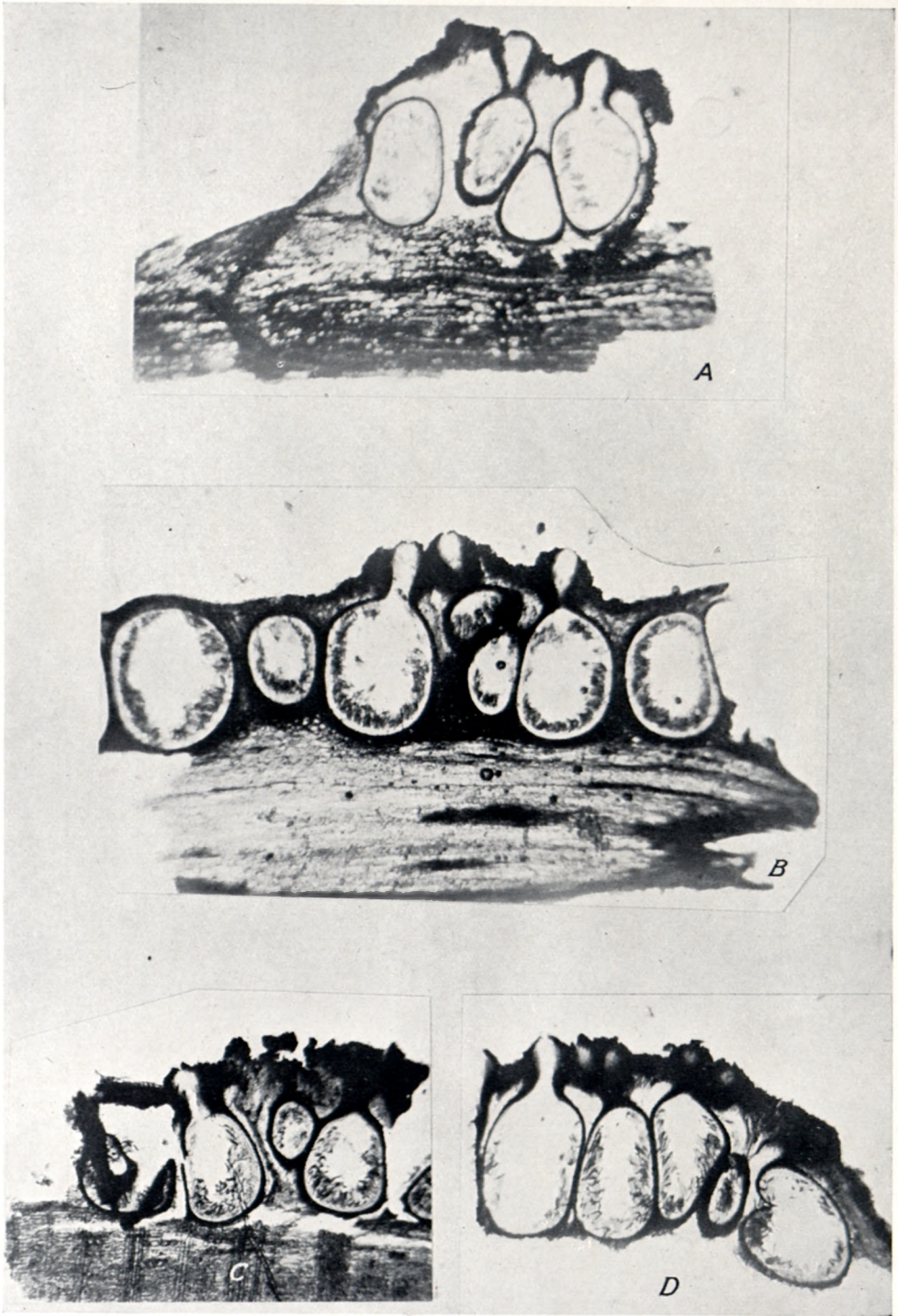


PLATE 14.

A.—*Diatrypella oligostroma*.B.—*D. Agaves*.C., D.—*D. Natalensis*.

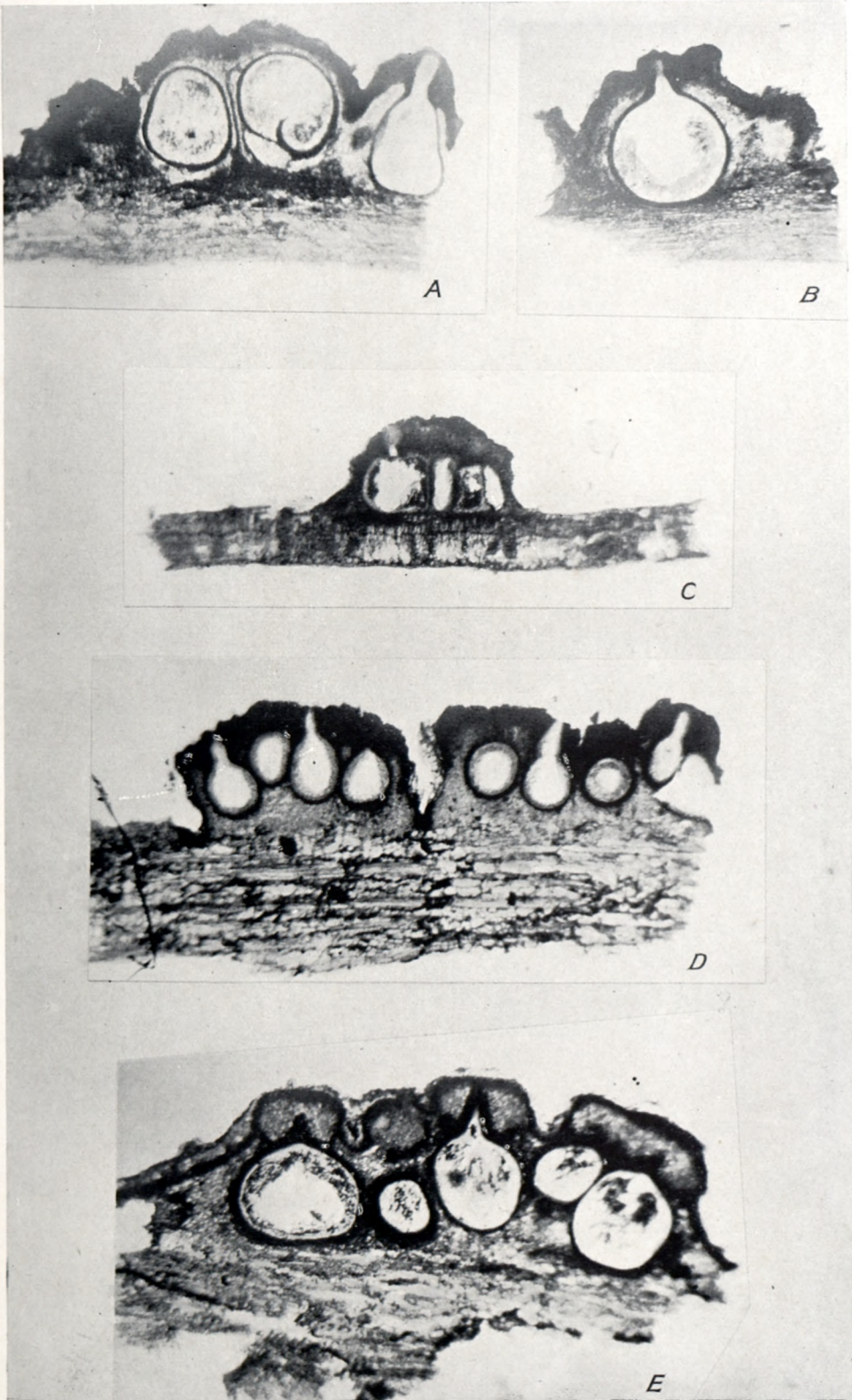


PLATE 15.

A., B.—*Diatrypella pretoriensis*.
 D.—*Valsaria Eucalypti*.

C.—*Pseudothus Pterocarpi*.
 E.—*Valsaria natalensis*.

