

nearly alike in size and shape. The mid-cells have the length about equal to the width and the germ slit only slightly oblique. The end-cells have a width about equal to that of the median cells but a longitudinal measurement about two microns greater and a germinal slit which is more strongly oblique.

*Preussia terricola* Cain sp. nov. (Figs. 72-83)

Coloniis in agaro Leonian et yeast extract post quindecim dies circiter 2 cm diam., atro-canis et margine pallido praeditis, strato aliquantulum crasso et denso hypharum aeriaram ornatis. Colonia conversa valde rubido-atra. Ascocarpis crescere incipientibus. Coloniis in agaro YpSs post quindecim dies circiter 2 cm diam., aeriis hyphis rarioribus praeditis, quam ob rem coloniis rubidis, conversis atro-rubidis. Coloniis in agaro V-8 vegetable juice intermediis visu et ascocarpis plus auctis ornatis. Ascocarpis post quindecim dies in cultura maturescentibus. Hyphis in agaro qualicumque submersis rubido-brunneis.

Ascocarpis globosis vel subglobosis, 150-350  $\mu$  diam., minoribus et numerosis, in agaro superficialibus, in strato hypharum canarum et aeriaram omnino immersis. Hyphis circum ascocarpos situs pallido-brunneis. Peridio ascocarpi tenui, membranaceo, structura valde obscura praedito, ex duobus stratis composito. Cellulis strati exterioris ascocarpi brunneis, 3-6  $\mu$  diam., multis lateribus ornatis, haud translucidis, valde indistinctis, maculis irregularibus, haud translucidis, incrassatis ornatis et fibris hypharum stratum crassum 10-15  $\mu$  formantium tectis. Cellulis peridii interioris hyalinis, multis lateribus ornatis, leviter complanatis, 4-10  $\mu$  diam., stratum crassum circiter 12-20  $\mu$  formantibus. Ascis plerumque octosporis\* (raro minoribus sporis quam octo ornatis), prolatis et clavatis, in parallelo fasciculo ad basem ascocarpi alligato dispositis, 75-120  $\times$  12-22  $\mu$  (parte sporas ferente longa 55-90  $\mu$ ), latissimis prope apicem, superne late rotundatis, sine structura incrassata in parte apicali parietis, in stipitem parem longitudine parti sporas ferenti inferne paulatim attenuatis, basi croca praeditis. Paraphysibus numerosis in ascocarpis novellis, filiformibus, septatis, ramosis, 2-3  $\mu$  diam., cum ascis novellis mixtis. Ascosporis in ascis circiter 20  $\times$  3  $\mu$  primum spectabilibus, tribus septis ornatis, ad septa non constrictis, cylindraceis, hyalinis et globulis paucis et minimis ornatis. Ascosporis ad septa postea alte constrictis, globulis numerosis, minimis, hyalinis ornatis, deinde olivaceo-brunneis et postremo atro-brunneis. Segmentis ascosporarum novellarum ad septa omnino separatis. Tota ascospora 26-32  $\times$  5.0-5.5  $\mu$ , multiseriata et asco parallela, sine vagina gelatinosa, septis transversis non obliquis praedita. Hilo germinali in longitudinem prolato, ascosporae parallelo vel leviter obliquo, indistincto in segmentis pallido-brunneis. Omnibus segmentis ascosporae plerumque paribus amplitudine et forma, 6.5-8.0  $\times$  5.0-5.5  $\mu$ , vel cellulis terminalibus leviter longioribus quam cellulis medianis et leviter attenuatis praeditis. Ascosporis plerumque sic dispositis: quinque in superiore ascis, duabus in fasciculo in parte inferne, singula ascospora in parte inferiore. Ascosporis minoribus segmentis quam quattuor raro praeditis.

Colonies on Leonian + yeast extract agar, at age of 2 weeks, extending to about 2 cm in diameter, dark gray with light margin, with fairly thick compact layer of aerial hyphae. Reverse of colony dark reddish-black. Ascocarps just beginning to develop. On YpSs agar colonies at 2 weeks extending



to about 2 cm in diameter, with less-extensive growth of aerial hyphae so that colonies appear reddish, dark red in reverse. On V-8 vegetable juice agar, appearance of colonies is intermediate between that on other two media and the ascocarps are more advanced. In culture at 2 weeks, ascocarps are just reaching maturity. Hyphae submerged in agar in all media are reddish-brown in color.

Ascocarps globose to subglobose, 150–350  $\mu$  in diameter, rather small and numerous, superficial on agar, completely embedded in layer of gray aerial hyphae. Hyphae surrounding ascocarps appear light brown in microscope. Peridium of ascocarp thin, membranaceous with very obscure structure, consisting of two layers. Cells of outer layer of ascocarp brown, 3–6  $\mu$  in diameter, polyhedral, opaque, very obscure, with irregular, opaque thickened spots and covered with hyphal filaments, forming a layer 10–15  $\mu$  in thickness. Cells of inner peridium hyaline, polyhedral, somewhat flattened, 4–10  $\mu$  in diameter, forming a layer about 12–20  $\mu$  in thickness. Asci usually eight-spored (rarely fewer than eight), elongate-clavate, arranged in parallel fascicle attached at base of ascocarp, 75–120  $\times$  12–22  $\mu$  (spore-bearing part 55–90  $\mu$  in length), broadest near apex, broadly rounded above, without thickened structure in apical portion of wall, gradually tapering below into stipe equal to spore-bearing part in length, with crozier at base. Paraphyses abundant in young ascocarps, filiform, septate, branching, 2–3  $\mu$  in diameter, mixed with young asci. Ascospores when first visible in asci measuring about 20  $\times$  3  $\mu$ , three-septate, not constricted at septa, cylindrical, hyaline with few minute globules. Ascospores later becoming deeply constricted at septa, with numerous, minute, hyaline globules, changing to olivaceous brown and finally dark brown. Segments of ascospores separating completely at septa at an early stage of development. Complete ascospore measuring 26–32  $\times$  5.0–5.5  $\mu$ , lying in several series parallel to ascus, with no gelatinous sheath, with transverse septa not oblique. Germinal slit longitudinal, parallel to ascospore or slightly oblique, faint in light-brown segments. Segments of ascospore all about equal in size and shape, 6.5–8.0  $\times$  5.0–5.5  $\mu$ , or with end-cells slightly longer than median and slightly pointed. Ascospores usually arranged with five overlapping at slightly different levels in upper part of ascus, with two below and a separate one in lower part. Ascospores rarely with fewer than four segments.

In culture from banana rhizosphere soil, Omonita Farm, Honduras, July 1958, R. D. Goos 217. (TRTC 36955, **type**.)

One ascus was observed in which four of the ascospores had one septum each and four had three septa each so that there were 8 double segments and 16 single ones. Another ascus contained only four ascospores. These had three septa each but were about double the normal size.

This species differs from *P. funiculata* in having smaller ascospores and transverse instead of oblique septa. It differs from *P. fleischhakii* and *P. isomera* in having a longer stipe on the ascus.

6. *Preussia vulgare* (Corda) Cain comb. nov.

$\equiv$  *Perisporium vulgare* Corda, Icon. Fung. **2**, 27 (1838).

Perithecia globose superficial. Asci broadly clavate, about 40–70  $\times$  20  $\mu$ ,



lying parallel, with a short stipe measuring about  $20\ \mu$  in length. Ascospores cylindrical,  $26\text{--}31 \times 5\ \mu$ , lying longitudinally parallel with ascus. Cells all equal or end-cell rarely slightly longer. Germinal slit parallel to long axis of spore.

This species is intermediate between *P. fleischhakii* and *P. terricola*. It is well illustrated by Corda in *Icones Fungorum*, Plate 13. I have examined the specimens of *Perisporium* on loan from the National Museum, Prague, but have been unable to find the collection from which the illustration was made. A slide of a collection made by N. Lundqvist, Uppsala, was sent on loan. This agrees fairly closely with the illustration by Corda. This is the only collection of this species that has been seen.

#### 7. *Preussia isomera* Cain sp. nov. (Figs. 32–38)

Ascocarpis dense congregatis, saepe constipatis et in stratis compluribus coacervatis, plerumque superficialibus sed nonnullis in agar omnino immersis, vel globosis vel aligantulum prolatis vel leviter depressis,  $100\text{--}350\ \mu$  diam., nigris, nitentibus, levibus, glabris non ostiolatis. Peridio ascocarpi tenui, membranaceo. Cellulis peridii in stratis externis brunneis, angulatis, constantibus, in strato uno,  $5\text{--}9\ \mu$  diam.; cellulis peridii in stratis interioribus hyalinis, turgidis. Ascis octosporis, late clavatis vel subellipsoideis,  $43\text{--}55 \times 15\text{--}18\ \mu$ , plerumque latissimis prope medium, superne subtruncatis, ad apicem neque perforatis, neque incrassatis, basin versus in stipitem  $5\text{--}10\ \mu$  longum abrupte attenuatis, in fasciculis irregulariter dispositis, novellis pariete crasso, firmo pertinaci, maturis evanescentibus. Sine paraphysibus. Ascosporis primum hyalinis, tribus septis celeriter praeditis, et profunde constrictis, postremo pallido-brunneis,  $30\text{--}33 \times 4.0\text{--}4.5\ \mu$  diam., in fasciculis parallelis cum asco dispositis. Segementis ascosporarum maturis facile sejunctis, raro extra ascos in perpetuum alligatis, cylindraceo-ovalibus, a utroque termino late rotundatis,  $7.0\text{--}9.0 \times 4.0\text{--}4.5\ \mu$ , pari amplitudine et forma ferme praeditis, vel aliquando cellulis terminalibus et mediis paulo longioribus, cellulis terminalibus aliquando paulo angustioribus. Hilo germinali pari longitudine cellulis ascosporum, in longitudinem disposito, leviter curvato, vix spectabili.

Ascocarps densely aggregated, often crowded and several layers in depth, mostly superficial but some completely immersed in agar, globose or somewhat elongated or slightly depressed from above,  $100\text{--}350\ \mu$  in diameter, black, shining, smooth, glabrous, nonostiolate, abundantly produced (but in part without ascospores) on Leonian's + yeast extract agar, less abundant but normal on V-8 vegetable juice agar, maturing in 2-week-old culture. Peridium of ascocarp thin, membranous, consisting of an outer single layer of distinct, rather uniform cells and an inner layer of hyaline, swollen cells. Cells of outer peridium brown, angular, with slightly thickened walls and measuring  $5\text{--}9\ \mu$  in diameter. Asci eight-spored, broadly clavate to subelliptical,  $43\text{--}55 \times 15\text{--}18\ \mu$ , usually broadest near middle, broadly rounded with no apical structure visible, rather abruptly narrowed to a very short stipe, measuring  $5\text{--}10\ \mu$  in length, with crozier at base, irregularly disposed in branching fascicles from short ascogenous cells, with a thick, firm, persistent wall, especially when young but evanescent at maturity, rarely outer wall ruptures below an



apical thimble-shaped portion and inner membrane elongates and then disintegrates. No paraphyses observed. Ascospores at first hyaline, rapidly becoming three-septate and deeply constricted and finally light brown,  $30-33 \times 4.0-4.5 \mu$ , forming a fascicle parallel with ascus. Ascospore segments readily separating at maturity, rarely remaining attached outside asci, cylindrical-oval, with broadly rounded ends  $7.0-9.0 \times 4.0-4.5 \mu$ , about equal in size and shape, or sometimes end-cells and sometimes mid-cells slightly longer, end-cells sometimes slightly more narrowed. Germinal slit extending entire length of ascospore cells, longitudinal, slightly curved, not very distinct.

Culture from dung, collected near Tallahassee, Florida, U.S.A., S. L. Meyer, March 1952, developed in moist chamber, Toronto. (**type**, TRTC 32089.) On rabbit dung from Chapel Hill, North Carolina, W. C. Coker, developed in moist chamber, Toronto (TRTC 34628).

The ascocarp develops from a short, swollen cell in a hypha. Septa form in different planes resulting in a subglobose mass of pseudoparenchymatous cells.

This species occupies a somewhat intermediate position in the genus in respect to the size and shape of the asci as well as their arrangement, the size and shape of the ascospores, the ease with which the ascospore segments separate, and the appearance of the germinal slit.

*P. isomera* can be separated from *P. nigra* by means of the larger size of the asci and ascospores as well as the tendency for the ascospore cells to remain attached together for a longer period of development.

#### 8. *Preussia nigra* (Routien) Cain comb. nov. (Figs. 84-96)

*Muellerella nigra* Routien, Bull. Torrey Botan. Club, **83**, 403 (1956).

Aerial hyphae flesh-gray, sparse, occasionally agglutinated to form a few scattered ropes, finally forming a black layer on surface of agar. Ascocarps scattered or densely aggregated, superficial to partially embedded in substratum or in aerial mycelium, subglobose, slightly depressed from above,  $250-500 \mu$  in diameter, black, shining, smooth, glabrous, nonostiolate. Peridium of ascocarp thin, membranaceous, consisting of an outer layer of brown cells and an inner layer of hyaline flattened cells. Asci eight-spored, clavate,  $30-41 \times 10-11 \mu$ , broadest part near apex, broadly rounded with no apical structure visible, rather abruptly narrowed below into a stipe up to  $10 \mu$  in length and constricted to  $2 \mu$  in middle portion, lying in a somewhat irregular layer extending inward from the base and sides of ascocarp, with crozier at base, with a thick, firm, persistent wall, especially when young, at maturity outer wall ruptures below an apical thimble-shaped portion and inner membrane elongates and then disintegrates. Paraphyses fairly abundant when young, extending inward from upper part of ascocarp, filiform, branching, septate, with elongated cells,  $2-3 \mu$  in diameter with a few cells swollen to  $6 \mu$ ; usually disappearing at maturity. Ascospores at first hyaline, one-celled, linear, forming a bundle parallel with ascus, indistinct, rapidly becoming one- and then three-septate, constricted at the septa and immediately separating and becoming irregularly disposed in the ascus and turning brown. Ascospore segments brown, ellipsoid,  $4.0-5.2 \times 2.4-3.0 \mu$ , germ slit or pore not visible.



Mature ascospores rarely with only one (mid) septum developed and very rarely with no septa. No conidia.

One ascus observed with a single mature ascospore (the other seven having nearly disintegrated) with the four brown segments still attached together.

*Collection examined.*—Type culture isolated from soil from Bondville, Kentucky, J. B. Routien 17M48 (TRTC).

The development of the ascocarp is typical of the Loculoascomycetes such as *Sporormia*. A short cell in a hypha becomes swollen and, as it enlarges, septa are formed in various directions to produce a mass of brown pseudo-parenchymatic cells.

*P. nigra* differs from *P. multispora* in having more-elongated asci and slightly broader ascospore segments. *P. isomera* can be separated by means of the larger asci and ascospore segments.

9. *Preussia dispersa* (Clum) Cain comb. nov. (Figs. 39–49, 62–71)

≡ *Pycnidiphora dispersa* Clum, *Mycologia*, **47**, 900 (1955).

Colony white to gray, thin, appressed, with sparse aerial hyphae, developing a slimy appearance due to conidia and turning dark with ascocarp production. Hyphae hyaline, branching, up to 6  $\mu$  in diameter, anastomosing frequently in region of spermogonia and ascocarps. Ascocarps scattered or densely aggregated, globose or slightly depressed from above, 100–700  $\mu$  (mostly 200–250  $\mu$ ) in diameter, black, shining, smooth, glabrous, nonostiolate. Peridium of ascocarp with outer single layer of dark-brown, thick-walled, angular cells measuring 4–7  $\mu$  in diameter, and inner thicker layer of hyaline, swollen cells. Asci eight-spored, globose or subglobose, 15–18  $\times$  12–15  $\mu$ , no apical structure visible, abruptly narrowed below into a very short, broad stipe with crozier at base, irregularly disposed in branching clusters, with a thick, firm, persistent wall, especially when young but evanescent at maturity. Paraphyses a few swollen, hyaline cells, disappearing at maturity. Ascospores at first hyaline, septate when first visible with three transverse septa, deeply constricted, irregularly disposed around a large central vacuole, rapidly enlarging and separating at the septa. Ascospore segments 32, ellipsoid, light brown, 3.0–5.0  $\times$  2.0–2.6  $\mu$ , with two oil globules, irregularly crowded in ascus. Rarely with end septa lacking and then double ascospore segment measuring about 6–10  $\times$  2.0–2.5  $\mu$ ; very rarely with no septa developing and then ascospore measuring about 16  $\times$  2.5  $\mu$ . Spermogonia globose or somewhat irregular in shape, up to 160  $\mu$  in diameter (mostly about 80  $\mu$ ), on surface of agar or on aerial hyphae, smooth, glabrous, with circular ostiole measuring about 18–20  $\mu$  in diameter. Peridial cells of spermogonium very light brown and thin-walled except around slightly papillate ostiole where they are darker and thicker-walled. Spermatia (phialospores) ellipsoid, hyaline, 3.0–4.5  $\times$  2.4–2.6  $\mu$ , with a single refractive oil globule, produced on short phialides which line the inner peridium and exude in large numbers through the ostiole.

*Collections examined.*—Type culture isolated from a seedling of *Phlox drummondii* Hook., grown at East Lansing, Mich., from a packet of seed supplied by Northrup King and Company, F. M. Clum 27 (TRTC). Culture isolated from soil sample taken from garden, Westport, Pretoria, South



Africa, and sent by Dr. B. J. Sloan. Cultures isolated by Wm. Bridge Cooke from Lytle Creek, Ohio, water and sediment from pool at station 4.2 (No. 1168), bank soil at station 2.8 (No. 1444), and water sample at station 7.6 (No. 1486). Culture isolated from seed by C. T. Rogerson (No. SD 53-54-7). Culture from soil, Dacca, Pakistan, 1956, Q. A. Ahmed (NB. 15), received from IMI (62762) Feb. 1960.

This species is very similar to *P. multispora* except for the production of spermogonia.

10. *Preussia multispora* (Saito and Minoura) Cain comb. nov. (Figs. 50-61)  
 ≡ *Anixiopsis multispora* Saito and Minoura, J. Fermentation Technol. **26**, 3 (1948).

≡ *Pseudeurotium multisporum* (Saito and Minoura) Stolk, Antonie van Leeuwenhoek, **21**, 71-73 (1955).

Colony gray, thin, appressed, with sparse aerial hyphae, spreading rapidly; submerged layer ochraceous-salmon; becoming dark with ascocarp production. Ascocarps scattered or densely aggregated and abundant, globose or slightly depressed from above, 100-400  $\mu$  in diameter, black, shining, smooth, glabrous, nonostiolate. Peridium of ascocarp with outer single layer of dark-brown, angular cells with outer and side walls thickened, measuring 4-7  $\mu$  in diameter, and inner thicker layer of hyaline, swollen cells. Asci eight-spored, globose or subglobose, rarely more elongated and somewhat clavate, 18-30  $\times$  9-16  $\mu$ , no apical structure visible, abruptly narrowed below into a short, broad stipe with crozier at base, irregularly disposed in branching clusters, with a thick, firm, persistent wall, especially when young but evanescent at maturity. Paraphyses a few swollen, hyaline cells, disappearing at maturity. Ascospores at first hyaline, septate when first visible with three transverse septa, deeply constricted, irregularly disposed around a large central vacuole, rapidly enlarging and separating at the septa. Ascospore segments 32, ellipsoid or somewhat flattened on one side, light brown, 4.0-5.5  $\times$  2.5-3.5  $\mu$ , with two oil globules, irregularly crowded in ascus. Rarely with end septa lacking and then double ascospore segment measuring about 8-10  $\times$  3.0-4.0  $\mu$ , slightly curved to allantoid, very rarely with no septa developing and then ascospore measuring about 13-16  $\times$  3.0-4.0  $\mu$ , allantoid, broadly rounded at ends. No spermogonia or conidia observed.

Culture (Nagao Institute, Japan, 2003) received from Centraalbureau voor Schimmelcultures, Baarn, Netherlands.

*Validating Latin description.*—Ascocarpis dispersis vel dense aggregatis, globosis vel leviter depressis, 100-400  $\mu$  diam., nigris, nitentibus, levibus, glabris, non ostiolatis. Cellulis peridii in stratis externis brunneis, angulatis, in strato uno, 4-7  $\mu$  diam.; cellulis peridii in stratis interioribus hyalinis, turgidis. Ascis octospori, globosis vel subglobosis, 18-30  $\times$  9-16  $\mu$ , ad apicem neque perforatis, neque incrassatis, basin versus in stipitem brevitem abrupte attenuatis, in fasciculis irregulariter dispositis, novellis pariete crasso, firmo pertinaci, maturis evanescentibus. Paraphysibus in ascocarpis novellis, hyalinis, ventricosis, paucis, evanescentibus. Ascosporis primum hyalinis, tribus septis celeriter praeditis, et profunde constrictis, postremo pallido-brunneis. Segmentis ascospororum facile sejunctis, ellipsoideis, pallido-



brunneis,  $4.0-5.5 \times 2.5-3.5 \mu$ , biguttulatis.

The ascocarp develops from a short, enlarged intercalary cell in a hypha. This cell enlarges and becomes divided by septa which form in various planes so that a brown, pseudoparenchymatous mass is developed. This is subglobose or somewhat elongated. The development of the ascocarp is similar to that found in other species of *Preussia* and various species of *Sporormia*.

The ascospore segments do not become very dark in color and hence an elongated germ slit or germ pore has not been observed. When the segments germinate, however, a single germ tube originates from the side. This type of germination is typical of different species of *Sporormia*.

The failure in the development of one, two, or three of the septa in the ascospores is also typical of many species of *Sporormia*.

The original diagnosis by Saito and Minoura (1948) is in Japanese and without a Latin description.

11. *Preussia indica* (Chattop. & Das Gupta) Cain comb. nov.

≡ *Thielavia indica* Chattop. and Das Gupta, Trans. Brit. Mycol. Soc. **40**, 277 (1957).

≡ *Pseudoeurotium indicum* (Chattop. & Das Gupta) Chattopadhyay, Trans. Brit. Mycol. Soc. **40**, 460 (1957).

Ascocarps subglobose, up to  $650 \times 400 \mu$ , black, smooth, superficial on agar, immersed in dense layer of aerial mycelium. Peridium membranaceous, with one to three layers of cells. Cells of peridium distinct, irregular in shape,  $5-8 \mu$  in diameter, with wall variably thickened. Asci oval to pyriform,  $15-20 \times 11-18 \mu$  nonstipitate, evanescent, deliquescing at maturity, with 16 ascospore segments (according to original description). Ascospore segments irregularly arranged, ellipsoid, oval to irregularly oblong, smooth, dark brown, without visible germinal slit,  $5.0-7.0 \times 3.6-4.2 \mu$ . Double segments (due to failure in formation of one septum) fairly numerous,  $9-12 \times 3.8-4.0 \mu$ , slightly curved. A few larger, more-curved compound segments measuring  $14-17 \times 3.8-4.0 \mu$ .

Culture from soil of paddy fields in State Agricultural Farm, Chinsurah, West Bengal, India, dried culture received from IMI 57849.

*P. indica* is very close to *P. multispora* but has larger ascospore segments. There is also a greater tendency for the ascospores to develop one septum only instead of the normal three septa. This accounts for the 16 segments in the ascus referred to in the original description as ascospores.

A dried culture of *P. indica* was kindly loaned by the Commonwealth Mycological Institute. Unfortunately, the material is overmature and asci could not be found. Attempts were made to revive the culture but there was no growth.

12. *Preussia purpurea* Cain sp. nov.

Coloniis in agaris YpSs et Leonian + yeast extract strato aliquantulum violaceo, crasso et denso hypharum aeriarum ornatis. Colonia conversa valde brunneo-atra. Hyphis in agaris qualicumque submersis rubido-brunneis.

Ascocarpis globosis,  $150-600 \mu$  diam., nigris, nitentibus in agaris superficialibus, in strato hypharum violaceo-canarum et aeriarum omnino immersis,



non ostiolatis. Peridio ascocarpi tenui, membranaceo, ex duobus stratis composito. Cellulis strati exterioris ascocarpi brunneis, angulatis. Cellulis peridii interioris hyalinis, turgidis. Asci octosporis, globosis vel subglobosis,  $15-22 \times 12-16 \mu$ , sine structura incrassata in parte apicali parietis, basin versus in stipitem brevitem abrupte attenuatis, irregulariter dispositis, novellis pariete crasso, firmo, maturis evanescentibus. Paraphysibus hyalinis, turgidis, evanescentibus. Ascosporis primum hyalinis, tribus septis celeriter praeditis, profunde constrictis, postremo pallido-brunneis. Segmentis ascosporarum novellarum ad septa omnino separatis, 32, ellipsoideis, pallide olivaceo-brunneis,  $4.0-5.5 \times 2.8-3.4 \mu$ , biguttulatis, irregulariter dispositis. Ascosporis raro uniseptatis, segmentis  $7.0-8.0 \times 2.8-3.0 \mu$  praeditis.

Colonies on YpSs agar and Leonian + yeast extract agar fairly slow-growing with fairly dense, cottony, aerial layer, lilac colored at first, becoming violet to purplish, margin indefinite, somewhat radiately wrinkled. Reverse rapidly becoming brownish and then black. Brownish pigment diffusing slowly into agar. Colonies on V-8 vegetable juice agar similar but deeper violet in color. On malt agar more brownish and radiately wrinkled. Submerged mycelium dark reddish-brown on all media.

Ascocarps globose,  $150-600 \mu$  in diameter, black, shining, smooth, superficial on agar, completely embedded in layer of light violaceous aerial mycelium, without ostiole. Peridium of ascocarp thin, membranaceous, semitransparent, with outer single layer of light olivaceous-brown, thin-walled, very distinct, angular cells measuring  $4-6 \mu$  in diameter and inner thicker layer of hyaline, swollen cells. Asci eight-spored, globose or subglobose, rarely more elongated and oval,  $15-22 \times 12-16 \mu$ , no apical structure visible, abruptly narrowed below into a very short, broad stipe with crozier at base, irregularly disposed in branching clusters, with a thick, firm, persistent wall when young, but very evanescent at maturity. Paraphyses a few hyaline, swollen cells, disappearing at maturity. Ascospores at first hyaline, septate when first visible, with three transverse septa, deeply constricted, irregularly disposed around a large central vacuole, rapidly enlarging and separating at septa. Ascospore segments 32, ellipsoid, light olivaceous-brown,  $4.0-5.5 \times 2.8-3.4 \mu$ , with two prominent oil globules, irregularly crowded in ascus. Rarely with end septa lacking and then double ascospore segments measuring about  $7.0-8.0 \times 2.8-3.0 \mu$ , slightly curved, with four oil globules. No spermogonia or conidia observed.

Culture isolated from soil, Iowa City, Iowa, 1956, R. D. Goos, No. 202. (TRTC 36956, **type**.)

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