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M. SVRČEK:

# ČESKÉ DRUHY PODČELEDI LACHNEOIDEAE (ČEL. PEZIZACEAE)

# BOHEMIAN SPECIES OF PEZIZACEAE SUBF. LACHNEOIDEAE.

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# Bohemian species of Pezizaceae subf. Lachneoideae

(Předloženo 20. listopadu 1948)

## *Předmluva*

V této práci předkládám veřejnosti část svých výsledků systematického studia Discomycetů. Ačkoliv druhů z rodu Lachnea jest popsán značný počet, přece většina jich i zástupců rodů příbuzných patří k zjevům vzácným až velmi vzácným, obyčejně jen nahodile se objevujícím a proto málo sbíraným. Proto také mnohé z nich jsou známy neúplně, jsou nedokonale popsány a jejich druhové ocenění bývá nejasné. U nás až do doby Velenovského byly takřka úplně opomíjeny. Velenovského zpracování českých Discomycetů (1934) jest velkým krokem kupředu a to jak v mykologickém výzkumu a v důkladnějším poznání celé této skupiny s hlediska mykologické systematiky, tak rovněž v samotné metodě sběru. Soustavným sbíráním lze i v našem případě dosíci značných výsledků, lec — jako je tomu ostatně i jinde u hub — velmi mnoho závisí na náhodě. Také extrémně suchá léta, jakými byl rok 1947, znamenají vždy značné zdržení, ač i v takových obdobích je možno sbírati na příhodných lokalitách.

Kromě vlastního materiálu, který jsem nashromáždil během let 1942—1948, obdržel jsem některé nálezy též od jiných mykologů. Jsou to pánové: univ. prof. Dr. K. Cejp, I. Charvát, MUDr. Jos. Herink, MUDr. J. Kubička, Dr. Alb. Pilát, V. Vacek. — Dále jsem prostudoval doklady, uložené v mykologickém herbáři Národního musea v Praze, obohacené v poslední době o cenný materiál prof. Velenovského, jenž svůj mykologický herbář Museu věnoval. Jeho typy jsem revidoval a popisy případně doplnil. Panu Frant. Šmardovi děkuji za zaslání moravských dokladů z jeho mykologického herbáře a příteli Dr. J. Herinkovi za zapůjčení fotografií. Jinak jsem pracoval s materiálem živým, jejž jsem především použil k sestavení diagnos. Studium čerstvého materiálu má zejména u této podčeledi velké přednosti, neboť usušením ztrácí se skoro vždy původní zbarvení plodnic. Proto je nutno tento znak zaznamenati ihned, nemůžeme-li sběry v dohledné době zpracovati. Také příprava

mikroskopických preparátů z exsikátů bývá vždy obtížnější. Jako prostředí používal jsem ve většině případů obyčejné čisté vody, někdy též 10% roztoku KOH, v němž dobře vynikne zvláště skulptura spor. Avšak i v těchto případech jsem provedl srovnání s vodními preparáty, abych zabránil případným rozdílům. Zvětšení 450—600× jest většinou postačující, v případech, kdy výtrusy jsou skulpturované, použil jsem olejové immerse.

Svou práci rozdělil jsem jednak na stručnou část všeobecnou a na část systematickou. Bohužel, technické potíže nedovolily mi rozšířiti část prvou. Také v části druhé neuvedl jsem u druhů běžnějších všechny lokality. Zaznamenávám jen ty doklady, které jsem měl v ruce a revidoval; z literatury — pokud vůbec jsou tyto Discomycety u nás uváděny — cituji jen výjimečně údaje, o nichž se domnívám, že jsou správné.

Jest pro mne milou povinností poděkovati na tomto místě p. univ. prof. Dr. K. Cejpovi za pozornost, kterou této studii věnoval a z jehož podnětu vznikla. S radostí pak vzpomínám exkursí s p. V. Vackem, které zůstávají trvalou vzpruhou v další práci.

Zvláštním díkem zavázán jsem sl. doc. Dr. Julii Moschelesové, která přeložila s nevšední ochotou tuto práci do angličtiny, a p. Dr. Albertu Pilátovi, přednostovi botanického oddělení Národního musea, za obětavou pomoc při překladu latinském. Oběma vyslovuji na tomto místě svůj upřímný a srdečný dík!

*Botanické oddělení Národního musea v Praze.*

V listopadu 1948.

## *General introduction*

The genera discused in the present paper are in the systems commonly placed in the family Pezizaceae. Thus f. inst. GÄUMANN (Vergleichende Morphologie der Pilze, p. 332, 1926) or CLEMENTS and SHEAR (The genera of fungi, 1931) do so, who separated all fleshy forms with perfectly developed hypothecium and with a pilose covering of the excipulum into the subfamily of the *Scutelliniae*. VELENOVSKÝ (M. D. p. 300), who divides all the so-called discomycetes solely into 23 equivalent families which he places side by side, created for most of these genera the family of the *Lachneaceae*, in which he places: *Sphaerospora* SACC., *Pseudoplectania* FUCK., *Desmazierella* LIB., *Lachnea* FR., *Pseudolachnea* VEL., *Sarcoscypha* FR., and *Sepultaria* COOKE. All the genera studied here belong to this family of VELENOVSKÝ. But if we recognize only one wide family of the Pezizaceae in the sense of the above authors, we cannot use this name in our paper. But the subfamily of the *Scutelliniae* CLEMENTS and SHEAR is too inhomogenious and even artificial. The position of some genera in their system is not firmly established, for some of them we find in different places of the system. Thus f. inst. *Pyronemella* is placed once in the *Agyriales*, once in the subfamily *Scutelliniae*, or *Macropodia* is mentioned in the subfamily of the *Pezizae* as well as in the subfamily of the *Scutelliniae*. VELENOVSKÝ's family of the *Lachneaceae* is far more natural, but it places side by side genera like *Lachnea* and *Pseudoplectania*, which I do not think correct. For this reason I have excluded from the genera which I place in the subfamily of the *Lachneoideae* the following genera: *Sarcoscypha* FR., *Pseudoplectania* FUCK. and *Pseudolachnea* VEL. In view of the fact that I do not accept the name of *Scutellinia* (which is a synonym for Lachnea) we have to call the subfamily whose diagnosis follows below:

### Subfamilia LACHNEOIDEAE SVRČEK.

Subfamilia *Scutelliniae* CLEMENTS-SHEAR, Genera of fungi p. 138, 1931, p. p.

Familia *Lachneaceae* VELENOVSKÝ, Mon. Disc. p. 300, 1934, p. p.

Tribus *Lachneae* et *Ciliarieae* LE GAL, Recherches p. 285, 1947.

Apothecia primum globosa, dein concava, plus minusve patellaria, denique explanata, late sessilia vel in terra immersa, non stipitata, molliter vel fragiliter carnosa, minuta vel media, plerumque 2—10 mm diam., laete colorata, extus margineque pilis variis vestita, margine integra vel in lobos fissa et dentata, thecio laete colorato.

Hypothecium bene evolutum. Excipulum pseudoparenchymatosum vel pseudoprosenchymatosum, cellulis globosis, angulatis vel elongatis, hyalinis vel coloratis. Pili typici, elongati, recti, apice obtusi vel acuti, colorati vel hyalini, septati, tenuiter vel crasse tunicati vel hyphaeformes (= pseudopili). Asci magni, cylindrici, apice late rotundati usque trun-

cati, basi breviter vel longe attenuati, octospori, sporis monostichis; reactio IIK—. Paraphysia simpliciter filiformia vel divisa, vel setiformia et nigrofusca, apice clavato-incrassata vel non, laete colorata vel hyalina, recta, sine epithecio. Sporae plus minusve ellipsoideae vel globosae, laeves vel varie sculpturatae (verrucosae, reticulatae), unicellulares usque quadricellulares, hyalinae vel subluteae.

Hypothallus solum in genere Arachnopeziza evolutus est.

Species terram nudam humidam, carbonaria, ligna putrida uda, rarius excrementa incolentes. Etiam ad acus, folia et caules marcidos herbarum provenientes.

Conspectus generum subfamiliae Lachneoideae.

I. Excipulum pilis typicis ornatum.
  A. Sporae unicellulares.
    1. Paraphysia filiformia.
      a) Pili colorati.
        $\alpha$) Sporae ellipsoideae.
          *) Sporae laeves vel verrucosae . . . . . I. LACHNEA
          **) Sporae reticulatae . . . II. MELASTIZIELLA
        $\beta$) Sporae globosae . . . . . III. SPHAEROSPORA
      b) Pili hyalini . . . . . IV. NEOTTIELLA
    2. Paraphysia setiformia, nigrofusca . . V. DESMAZIERELLA
  B. Sporae 2—4 cellulares . . . . . VI. ARACHNOPEZIZA

II. Excipulum pseudopilis ornatum.
  A. Apothecia sessilia.
    1. Sporae laeves . . . . . VII. ANTHRACOBIA
    2. Sporae reticulatae . . . . . VIII. MELASTIZA
  B. Apothecia in terra immersa . . . . . IX. SEPULTARIA

**Morphological remarks:** The origin of the receptacle was studied cytologically in Lachnea stercorea and L. cretea Gwynne-Vaughan (Fungi, p. 108, 1922), in Lachnea scutellata also by W. H. Brown (The development of the ascocarp in Lachnea scutellata, Bot. Gaz. 1911, p. 275). The copulation is effected in a similar way as in the genus Pyronema; but in Lachnea stercorea the trichogyn does not remain unicellular; instead it divides into 4—6 cells. The young receptacles have always the shape of minute globules and soon show a distinct covering of the outer part of the excipulum. At that time the mycelium has disappeared already completely, a hypothallus is developed only in the genus Arachnopeziza. The apothecia do not differ in their further development in any way from those of the other representatives of the family of the Pezizaceae. Simultaneously with the growth of the hypothecium and excipulum as well as of the thecial elements the originally globularly closed receptacles enlarge and assume a shape usually called dish-shape. The thecium of the receptacles of this shape is first usually considerably,

later only moderately concave and in maturity, when all are able of ejaculation, they are often almost or completely flat, flatly spread out, and in old age they are not rarely even convex, lentil-shaped curved. In outline the apothecia appear always more or less regularly as zig-zag lines, they are rounded; only by a lateral pressure caused by the crowding together of several or a greater number of receptacles, which then mutually touch, the apothecia become subangular, but more frequently irregularly lobately curved and undulate (as can be seen well especially in Anthracobia melaloma or Sphaerospora brunnea in places where there has been a fire, and where especially the first species grows in huge areas closely crowded together). The receptacles of the Lachneae sit on the surface of the substratum or rooted in the soil, but always without distinct stems. The receptacles of the genus Sepultaria go through part or the whole of their development in the soil, under the surface, and betray their presence sometimes only when at the time of maturity they open and lay bare the thecium. The receptacles might be called subhypogeic in contradistinction to the hypogeic receptacles of the underground fungi (Tuberales, Hymenogastrales). The apothecia occur at least in several specimens together, but there are also many cases where we find only one individual. This is more often the case in the species growing on the soil than in the types growing on wood. Among the former it is f. inst. Lachnea vitellina, which occurs the most frequently isolated, whereas f. inst. the lignicol Lachnea setosa is generally characterised by a great number of specimens in one locality.

The margo of the receptacle is without a border or has only a slightly developed and indistinct border. Only in the genus Sepultaria can we speak of a bent in (or rolled in) margo, but not of a border such as characterises many species of the genus Helotium or the subfamily of the Mollisioideae.

The most characteristic feature of all the Lachneoideae is the covering of the outer part of the wall of the excipulum. We distinguish two types of different pili:

1. Pili typici: pili of a more or less lanceolate shape, from a broader or narrower base elongated, tapering to a point or or a blunt end. These pili are either coloured (brown, yellow, yellowish brown, blackish brown, reddish brown, in different shades) or they are completely hyaline (in the genus Neottiella). The walls of the pili can be thickened, sometimes very considerably (as f. inst. in Lachnea setosa), or they are thin, not thickened. The pili are always multicellular; unicellular ones are an exception. At the base the pili are often ramified radiciformly. A special case of typical pili are the so-called asteropili, i. e. pili stellate ramified at the base (Lachnea stercorea). The presence of typical pili on the outer surface of the excipula or on the margo can be recognized already macroscopically, but sometimes we can determine their presence only under the microscope.

2. Pseudopili (false pili): they are either short pili rounded claviformly at the end, or they are hyphic, i. e. often very elongated and irregularly bent pili pressed against the outer wall of the excipu-

lum as are characteristic for the genera Anthracobia, Melastiza, and Sepultaria.

The structures of the receptacles of this subfamily are always similar to each other; I give as examples three cases:

In *Anthracobia humana* the structure of the apothecium as seen in a vertical section is as follows: under the layer of the asci is the layer of the hypothecia, 150—220 μ high, composed of hyaline hyphes of two different types: directly under the asci is a layer, 50—70 μ high, composed of indistinct, closely interwoven hyphes, which in the direction towards the base continue in a far looser tissue, about 100—150 μ high, with numerous pockets of air, pierced by hyaline, thin-walled hyphes, 7—10 μ thick, ending claviform, often with short lateral offshoots. Under the layer of the hypothecium is the distincly differentiated, dark brown layer of the excipulum, 40—80 μ thick, composed of a pseudoparenchymatic tissue of ± rounded cells, 10—21 μ in diameter, and running among them long brown hyphes forming the felt-like covering of the outer part of the excipulum.

Also in *Lachnea setosa* there are two different layers in the hypothecium. Directly under the asci is a layer, 70—88 μ high, of an orange ochreous colouring, composed of ± rounded cells, which in the direction towards the base continues in a looser tissue composed of hyphes often elongated, retort shaped, irregularly inflated, hyaline, very thin-walled (walls about 0,5 μ thick), 14—25 μ broad. Excipulum 175 to 200 μ high, composed of cells of 53—70 μ in diameter, brownish, ± rounded, with walls 1,5—2 μ thick; here too pili are interwoven, sharply separated from the cells of the excipulum and often interwoven at the limit between the layer of cells of the excipulum and the retort-shaped cells of the hypothecium.

A slightly different character has the structure of the receptacles of *Lachnea Nympharum*, where under the layer of asci there follows, as far as the excipulum, a thick layer of a dense, indistinct, hyphic tissue of which the hypothecium is composed. These hyphes are very long, thin-walled, with a closely granular plasm, hyaline, 5—14 μ thick, very irregularly and often pouch-like inflated, with thin and generally indistinct partition-walls. The excipulum is formed in the form of a high layer of brown, thin-walled, angular cells, which in the outer part continue in rounded to claviform cells, 25—35 μ in diameter, yellowish, with walls thickened up to 3 μ. In the excipulum the pili are deeply inserted (generally to the limit between excipulum and hypothecium).

It seems however that these circumstances are not permanent for the individual species and change perhaps with the age of the receptacle. The size of the cells of the excipulum is in one and the same species always considerably variable (cf. also Durand, The classification of the fleshy Pezizineae, in Bull. Torr. Bot. Club, 27: 463, 1900).

The asci are always of a cylindrical shape, with a broadly, sometimes rather bluntly rounded summit. In the genus Desmazierella they have a characteristic shape, strangulated below the summit and truncated above. The iodine reaction is always negative, i. e. the summit

(apex) of the asci never colours blue or violet. An exception constitutes Arachnopeziza. The asci open either with a lid or by an irregular tearing of the apex. They contain constantly eight spores arranged in one row; only exceptionally I found asci with four spores fully developed and four stunted spores (in Lachnea Nympharum). The paraphyses are filamentous, on an average 2—3 μ thick, simple or ramified at the base, more rarely higher up. At the top the paraphyses are generally thickened, claviform; sometimes various irregularities occur in the form of ampulla-shaped thickenings etc. (f. inst. in Lachnea scutellata). The contents of the paraphyses is very finely granular and its colouring causes the whole colouring of the thecium. Thus red species have an orange to red contents of their paraphyses. In the contents of these paraphyses occurs, scattered in droplets a carottine pigment (as it was demonstrated with certainty in Melastiza Chateri, Anthracobia melaloma, etc. — cf. Mme Panca Heim, Etudes sur la localisation des pigments carotiniens chez les Champignons, Rev. Myc. 12: 104, 1947). A remarkable type of brush-shaped paraphyses occurs in the genus Desmazierella (we find a kind of analogy to them in Geoglossum hirsutum).

The spores may be described generally as ellipsoid or spherical, with many variations and transitions. The wall of the spores, which offers an important systematic characteristic, is either lastingly smooth or sooner or later sculptures in various ways. Two types of sculpture enter into consideration: 1. a verrucous wall covered with warts or elevations of different height and arrangement; and 2. a reticulated wall covered with raised elongated ledges which unite in several (5—6) angular eyes, mostly fairly regular (genera Melastiza and Melastiziella). Between these two types stands a type of spores manifesting a certain tendency to form a transition; these spores have a low wrinkled wall (Lachnea scutellata) strikingly reminiscent of the surface of poppy-seeds. Wiht the exception of the genus Arachnopeziza all Lachneoideae have unicellular spores. In the genus Arachnopeziza occur at the poles of the still immature spores short and thin hyaline appendages, which disappear in the mature spores.

**Ecological remarks:** All Lachneae are saprophytes and live either directly on the ground (or under the surface — Sepultaria), on decayed wood, dead plants etc. Most species belong to the hygrophile and ombrophile types, singling out often the moistest places heavily shaded, in the tree level as well as in the herb level. The banks of forest streams (-especially where they are covered with a herb vegetation), bare, permanently moist ground at the rim of swamps and ponds, forest-paths covered with low moss, and especially grassy roads furrowed by the wheels of vehicles are the most preferred localities, where we can find these fungi the most frequently. How far the chemical nature of the substratum and its influence on the life phenomena make themselves felt here cannot yet be said with certainty as most of these forms are very rare. It seems however that the chemical composition is less important than the physical and outer structure of the soil. At least we did not encounter types (nor have they ever been mentioned in the literature as far as the ecological conditions of these fungi were

at all taken into consideration), which we might call f. inst. "calciphile" or "calciphob". Most Lachnea growing on the ground prefer finely clayey or loamy soils, and this is also striking for many other ascomycetes growing on the ground, whereas they often avoid sandy or gravelly soil. The reason seems to be just the structure of the soil, for such a substratum is a suitable environment not for the growth of the mycelium but for fructification, as it lacks almost completely all nutritive substances. Other types are more or less associated directly with rotting parts of plants, especially of wood. But also on dead stalks of herbs, on blades and leaves of grasses, rushes etc. they are frequently present (f. inst. Lachnea gregaria, which especially in forest ditches spreads from the bare ground to the surrounding dead plants). The lignicol species settle on the wood of leafy trees as well as on conifers, and here again they manifest their strongly hygrophile nature occurring almost always on wood soaked with water and considerably decayed. Sometimes we find them also directly in water, under the surface of a stream, where they form the remarkable association of purely aquatic fungi. Here I may mention the elsewhere common species Lachnea scutellata, which covered in quantity pieces of pine-wood lying at the bottom (5—20 cm. under the surface) of the stream in the "Kysel" gorge at Ztratená (Slovakian Paradise) and fructifying abundantly. Elsewhere the likewise abundant Lachnea setosa is accompanied by aquatic Discomycetes as Pulvinaria Oocardii, Vibrissea pezizoides, Humaria lechithina, on trunks of leafy trees well soaked with water or over which water flows (thus in the streams of Central Bohemia, in the Křivoklát area).

Remarkable are especially the koprophile and anthracophile species, which commonly likewise accompany characteristic associations of fungi.

From among the climatic factors the most important is the humidity of the air. Decisive are here — as for the other Mycophytes — the microclimatic conditions, the relative humidity of the air within a narrowly limited space. During dry periods in summer, when there is no trace of larger fleshy fungi, we find them nevertheless in the moistest places and especially where the microclimate can manifest itself sufficiently at that time; thus in deeply incised gorges, in dense covers of Juncus sp., Scirpus silvaticus, on the steep, vertical banks of streams, etc. Connected with this are also some secondary agents as exposition, which makes itself felt also here (shaded valleys facing north are poorer in fungi than valleys warmed by the sun exposed to the south). With the humidity of the air is connected of course also the altitude above sea level; but I think that in our country the Lachneoideae are found rather at lower levels and in the hills, and seem to be more rarely represented in the mountains.

Generally speaking the Lachneoideae belong to the rare to very rare species, and only some of them can be said to be of general distribution. They occur all over the world, but the greatest number of species is of course known from the temperate zone of the northern hemisphere, and the smallest number from tropical regions, though they have been described also from them.

## Variability and Value of the Characteristic Features.

The Lachneoideae are in the main a group of not too variable species. They include even some very fixed types (Desmazierella); nevertheless we find also among them a number of forms where all characteristic features may be called variable. Variable are the size of the receptacles, the colouring of the thecium, the covering of the excipulum, the shape, length and colouring of the pili, the thickness of the asci and the thickening of the paraphyses, and even the size, contents and surface of the spores. The only means to get a correct systematic evaluation is the suitable evaluation of all features simultaneously. It is therefore important to bear in mind the permanency (to which extent) of certain features, to stress on the one hand those features which are important for distinguishing and systematic evaluation and on the other hand to separate the features of an opposite character. Unfortunately it is not possible in this group either to list and classify all features unequivocally in all details and with absolute certainty. Therefore we have to accept that even a so-called permanent feature is permanent only to a certain extent, that it is a permanent feature under certain conditions, and that under changed conditions its permanency is undermined and the feature may change. Below I list the features on which the system of the Lachneoideae is based, accompanied by remarks.

1. Pili: especially the types of the pili (pili typici and pseudopili) is one of the decisive features which rank first. There are transitions between the two types; it does not seem, however, that these transitions would manifest themselves in both directions of evolution (Lachnea-Anthracobia), but that they result only from the oscillation of probably younger types in the latter direction. The colouring is relatively fixed, as is also the thickness of the walls, and the shape, especially of the termination, can be considered sufficiently constant.

2. Spores: a) The cell wall: In most cases a very reliable feature, which nevertheless fails us sometimes (vide Lachnea gregaria and L. gregaria f. pseudogregaria), though all the rest speaks in favour of a full affinity. Always a certain discretion is needed, the material studied has to be fully mature, and the strongest objective (preferably an immersion one) must be used.

b) Shape: permanent to a considerable degree, especially in the groups of the Albidae, varying in the Rubrae (especially in the subgenus Lachneolina).

c) Contents: quite individually; for some species the contents is so characteristic that their determination becomes very easy (Sepultaria), in others it is very variable (Lachnea, especially Rubrae). When dry the contents of the spores is almost always a little and sometimes very considerably changed.

d) Size: relatively constant, though in some species it varies between rather wide limits.

3. Colouring of the thecium: The colouring of fungi is generally thought to be very variable and little systematic importance is attached to it. This certainly does not apply to the genus Lachnea — at least to its largest part. Here the colouring of the thecium is so characteristic and upon the whole so constant that it has to be evaluated rather high (and this applies also to most other Discomycetes). The differences in colouring from the normal form are small and with some experience can easily be evaluated. Outer conditions of the environment do not seem to have here such an influence on the colouring as f. inst. on the receptacle of higher fungi (Agaricales etc.).

4. Shape of the receptacle: it is so uniform and in all so similar that it is practically without importance. The only exception is the orientation of the receptacles in respect to the substratum (the submerged receptacles of the genus Sepultaria). The same applies to the consistence of the flesh.

5. Size of the receptacle: most Lachneoideae are minute to medium sized forms, between 1 and 10 mm., rarely larger (Sepultaria arenosa, Lachnea hemisphaerica). It is considerably affected by the inner conditions of the environment (a rich nutritive substratum has an influence on the formation of larger receptacles) and by climatic conditions (rainy periods further the growth).

6. Covering of the outer part and rim of the receptacle (studied macroscopically): important and constant feature, which however cannot be used for forms from an environment which could act on its formation (f. inst. receptacles which grew on a too moist substratum have the pili — normally distant and erect — appressed to the receptacle and indistinct).

7. Asci: shape uniform and thus without special importance. Length and width rather variable.

8. Paraphyses: a characteristic thickening of the paraphyses occurs in most critical species and is rather variable and therefore of little importance. Its lack is a good characteristic feature. The intensity of the colouring also varies (in exsiccata, especially in older ones, the paraphyses are almost always hyaline). In my opinion the ramification is not a constant feature.

9. Structure of the receptacle: was discussed earlier.

10. Substratum: sharply specialised are only the anthracophile and coprophile species (the latter can grow also on soil richly permeated by nitrogen substances). The others can be lignicol, and at the same time can grow also on the bare ground (L. scutellata), though far more often only one of these two possibilities is realised (L. umbrorum — always on the ground, L. setosa — always on wood). Thus we have to be discreet in using this characteristic and proceed individually.

## Affinities.

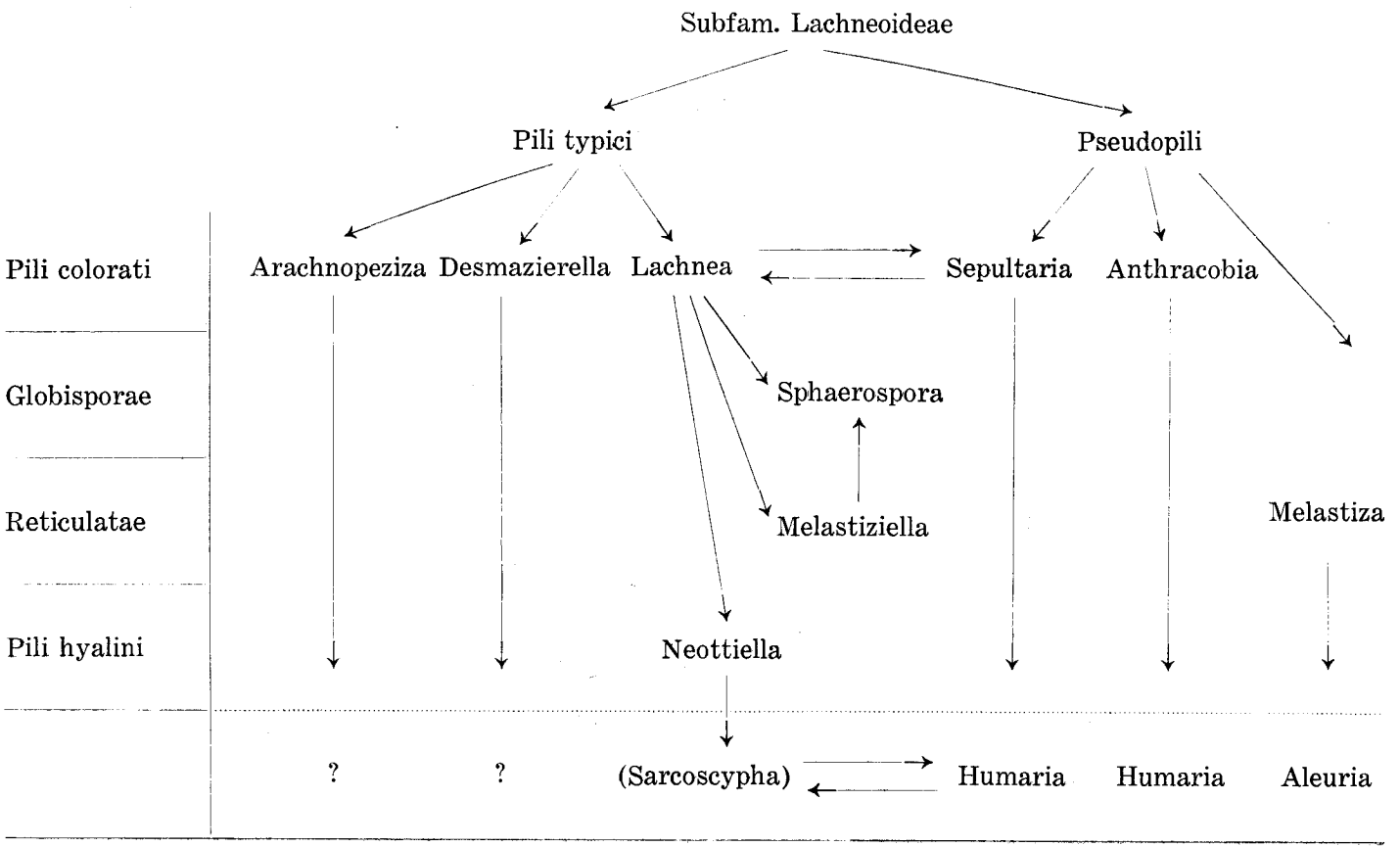
We meet the name Lachnea in *E. Fries* who in his standard work "Systema Mycologicum" (2:77, 1822) applied this name to one of the subgenera (or sections) of the genus Peziza Dillenius, and placed in it widely differing types of Discomycetes with one feature in common, i. e. the outer part of the apothecium covered by pili. In his work Fries divides this section into four groups (tribus), of which only the first, the Sarcoscyphae, correspond in the main to our conception of the subfamily of the Lachneoideae (to the family of the Lachneaceae sensu Velenovský), whereas the remaining three groups (Dasyscyphae, Tapesia, Fibrina) represent entirely alien forms. Fries divided his tribus Sarcoscyphae into three groups (Stipitatae—Lignatiles, Sessiles and Ciliares). In his later works Fries gives a slightly different division. In Summa vegetabilium Scandinaviae (p. 350—353, 1846) he keeps to the original classification into four tribus, but the first one the Sarcoscyphae, is divided into only two groups: Flocculosae and Ciliares. In upon the whole the same sense *Persoon* (Mycol. Europ. p. 244, 1822) uses for the same forms the name of Lachnea. Still before Fries *Albertini* and *Schweinitz* whose work (Conspectus fung. 1805) is based on Persoon's Observationes (1799) call the group in which they place widely different forms covered with pili, Ascomycetes as well as Basidiomycetes (f. inst. Cyphella) "Hirtae". This group has of course little in common with the tribus Sarcoscyphae of Fries, which includes exclusively Ascomycetes. Later authors followed more or less the system given by Fries (especially *Cooke*, Mycographia 1879). Since *Nylander* (Observationes 1869) and *Karsten* (Monogr. peziz. 1869), who were the first to try and use microscopic features, the effort becomes more and more manifest to classify more accurately the different species into a greater number of subgenera, which gradually acquire the validity of genera, as may be seen f. inst. from *Saccardo's* survey (Sylloge fung. 8, 1889).

According to the nature of the surface of the outer part of the receptacles *Phillips* (Manual of British Discom. 1887) divided the Pezizae into "Nudae" and "Vestitae", and in this he was followed later by *Massee* (British Fungus Fl. 4, 1895). *Rehm's* system (Discom. 1896) introduced a new era in the systematics of the Discomycetes and has maintained itself with small modifications to this day. The French school went in another direction, here *Boudier's* system (Nouv. classif. Disc. d'Eur., 1885) based on the way in which the asci open still prevails. Boudier has contributed much towards understanding the affinity relations between the different genera. His group Lachnés (l. c. p. 104) from the tribus Cupulés and the family Ciliariés from the tribus Lenticulés comprise (at least the greater part of) the genera which form the subfamily of the Lachneoideae (= Scutelliniae Clem. et Shear pro parte, Lachneaceae Vel. p. p.). They are the genera: Leucoscypha Boud., Tricharia Boud., Lachnea Fr., Hydnocystis Tul., Sepultaria Cooke, Trichophaea Boud., Ciliaria Quél., Cheilymenia Boud., Melastiza Boud., Anthracobia Boud., Pseudombrophila Boud., which Boudier places in these two, differently evalu-

ated groups. The group of the Lachnés from the tribus of the Cupulés comprises forms with a ± deeply concave to cup-shaped apothecium with a cover of pili on its outer side; the family Cilliariés from the tribus Lenticulés comprises forms whose thecium is only shallowly concave, flatly spread to convex.

The genera which we place in the subfamily of the Lachneoideae represent a narrow sector of the broad range of evolution, through which the development of these forms has gone. The features, which we have described earlier, manifest themselves in each member of this segment and the whole of these features applied to each genus separately informs us of their mututal affinity. As decisive differential characteristic was selected the type of the pili; the genera Desmazierella, Arachnopeziza and Lachnea, which belong to the first type (pili typici) are connected by a link represented by the genus Sepultaria, from the second type (pseudopili). In our opinion the first type is evolutionarily the older branch, the second type is evolutionarily younger. Our speculative opinion is supported by the fact that genera with such constant features as Arachnopeziza and Desmazierella on the one hand cannot well be compared with the different type of the genera Anthracobia-Melastiza on the other hand characterized by a decidedly greater variability and by real transitions not only to the centre of the group — to the genus Lachnea — but also by an evolutionary series distinctly pointing to the genera Humaria and Aleuria Fuckel. The first two genera (Desmazierella and Arachnopeziza) have a rather isolated position. The others as Neottiella, Melastiziella and Sphaerospora are very close to the genus Lachnea and manifest also the closest affinity with each other. The genus Neottiella can be considered the type of the Lachneoideae with discoloured (decolorated) pili, a constant type of course and one pointing today to the genus Sarcoscypha or also to the genus Humaria. Certain features which isolated, by themselves manifest themselves in the most different groups occur also here: the characteristic feature of globular spores occurs in the genus Sphaerospora and also in other parts of the system in quite unrelated groups, where it is really only an element which creates series of parallel genera without any mutual affinity. Something similar applies to the genus Melastiziella, where the element of the reticularly sculptured spores makes this genus a counterpart to the evolutionarily independent branch Melastiza-Aleuria. But a reticular sculpture of the spores occurs in part also in the genera Sphaerospora and Neottiella. The affinity of these four genera (Lachnea-Neottiella-Melastiziella-Sphaerospora) is evident. The genus Sepultaria still connecting on one side the genus Lachnea reaches already much farther sideways towards the genus Humaria. I believe that each of these genera follows today its own independent trend of evolution; their mutual affinity reaches its highest degree in the middle of the whole branch whose lateral members have a more or less isolated position.

**Affinities of genera of subfamily Lachneoideae.**



## Clavis analytica generum subfamiliae Lachneoideae.

| | | |
|---|---|---|
| 1a) | Sporae unicellulares | 2 |
| b) | Sporae bi-vel quadricellulares | VI. ARACHNOPEZIZA |
| 2a) | Paraphysia filiformia, hyalina vel laete colorata | 3 |
| b) | Paraphysia partim filiformia, partim setiformia, atrofusca, ascos longe superantia | V. DESMAZIERELLA |
| 3a) | Sporae perfecte globosae | III. SPHAEROSPORA |
| b) | Sporae numquam globosae | 4 |
| 4a) | Pili hyalini, typici | IV. NEOTTIELLA |
| b) | Pili plus minusve obscure colorati | 5 |
| 5a) | Sporae maturae reticulatae | 6 |
| b) | Sporae laeves vel verrucosae | 7 |
| 6a) | Pili typici, acuti | II. MELASTIZIELLA |
| b) | Pseudopili obtusi | VIII. MELASTIZA |
| 7a) | Apothecia semper sessilia | 8 |
| b) | Apothecia saltem in juventute in terram immersa | IX. SEPULTARIA |
| 8a) | Pili typici | I. LACHNEA |
| b) | Pseudopili | VII. ANTHRACOBIA |

## I. Lachnea (Fries) Gillet

*Lachnea* GILLET, Champ. Fr. Disc. p. 57, 1879. — BOUDIER in Bull. Soc. Myc. Fr. 1:104, 1885. — PHILLIPS, Man. Brit. Disc. p. 201, 1887. — SACCARDO, Sylloge fung. 8:166 (1889), 10:5 (1892), 14:754 (1899), 16:716 (1902), 18:76 (1906), 22:629 (1913). — MASSEE, Brit. Fung. Fl. 4:308, 1895. — REHM, Discom. p. 1042, 1896. — SCHROETER, Pilze Schles. 2:46, 1908. — BIGEARD-GUILLEMIN, Fl. Champ. Fr. p. 652, 1913. — VELENOVSKÝ, Čes. h. p. 874, 1922. — Mon. Disc. p. 303, 1934. — Novit. Mycol. p. 194 et 208, 1939. — Novit. Mycol. Noviss. p. 143, 1947. — (omnia p. p.)

Synon.: *Peziza subgen. Lachnea* FRIES, Syst. Myc. 2:77, 1823. — PERSOON, Mycol. Eur. 1:244, 1822. — KARSTEN, Mon. Pez. p. 219, 1869. — COOKE, Mycogr. p. 258, 1879. (p. p.)

*Humariella* SCHROETER, Pilze Schles. 2:36, 1908.

*Octospora* HEDWIG, Desc. 2:4, 1788.

*Humaria* FUCKEL, Symb. myc. p. 320, 1869. (non Saccardo, Syll. fung. 8:118, 1889).

*Ciliaria* QUÉLET in Bull. Soc. Bot. Fr. 26:235, 1879. — BOUDIER in Bull. Soc. Myc. Fr. 1:105, 1885. — GRELET, Disc. Fr. no. 235—249, 1942. (p. p.)

*Patella* WEBER in WIGGERS, Fl. Hols. p. 106, 1780. — SEAVER, North Amer. Cup. — Fungi p. 156, 1928. (p. p.)

*Scutellinia* COOKE, Mycogr. p. 260, 1879. — KUNTZE, Rev. Gen. Pl. 2:268, 1891. — CLEMENTS et SHEAR, Gen. of Fungi, p. 139 et 329, 1931.

*Cheilymenia* BOUDIER in Bull. Soc. Myc. Fr. 1:105, 1885. — GRELET, Disc. Fr. in Rev. Myc. 1942.

*Tricharia* BOUDIER in Bull. Soc. Myc. Fr. 1:104, 1885. — BIGEARD-GUILLEMIN, Fl. Champ. p. 652, 1913.

*Trichophaea* BOUDIER in Bull. Soc. Myc. Fr. 1:105, 1885.

Apothecia primum globoso-inclusa, regulariter orbiculariter aperta, plus minusve concava, patellaria, demum plerumque explanata, permanenter sessilia, molliter carnosa usque succoso-carnosa, media e magnitudine (5—10 mm diam.), rarior minuta vel magna sparsa vel gregaria, solitaria vel consociata, margine integro, rarius irregulariter lacerato vel denticulato, non limbato; thecium laeve, glabrum, laete rarius obscure coloratum. Pars externa apothecii pilosa, margine saepe setis longis vestita. Excipulum pseudoparenchymatosum e cellulis globosis usque subangulatis, hyalinis vel subfusce coloratis, constans. Pili sat longi et rigidi, septati, semper colorati (luteo-usque nigro-fusci), simplices vel stellati (asteropili), recti vel flexuosi, apice acuti vel obtusi usque clavato-incrassati, crasse vel tenuiter tunicati. Asci cylindrici, apice obtusi, octospori, iodo non coerulescentes. Paraphysia filiformia, simplicia vel basi divisa, apice clavato-incrassata rarius non incrassata, laete colorata vel hyalina, recta, iodo interdum coeruleo-virescentia. Sporae plus minusve ellipsoideae, unicellulares, hyalinae (rarius in senectute etiam subluteae), eguttulatae vel guttulis magnis vel minoribus instructae, laeves vel varie sculpturatae, sed non reticulatae.

Species plerumque ad terram nudam humidam, ad ligna putrida uda, rarius ad muscos et caules deiectos herbarum vel culmos foliaque graminum occurentes; etiam formae coprophilae et anthracophilae adsunt.

*Remark:* Very rich genus. Saccardo (Syll. fung. l. c.) lists more than 150 species from all parts of the world, but includes in this number also species which belong to the genera Sepultaria, Anthracobia, etc., as also quite a number of doubtful and incompletely described forms. Velenovský (1934) described 45 species from Czechoslovak territory; later (Novitates 1947) he increased this number to 56, among which are 35 new species. Our work gives a total of 28 species with a number of forms and varieties.

Seaver (1928) uses Weber's old name of Patella. According to the rules of nomenclature the only correct name is Lachnea, introduced by Fries in his Systema Mycologicum. This genus includes the typical representatives of the subfamily Lachneoideae manifesting a close affinity with the genera Neottiella, Sphaerospora and Melastiziella. I have divided the genus Lachnea into two subgenera (Lachneolina and Eulachnea) according to the sculpture of the spores. The first subgenus has been divided into two sections (Tenues and Setosae), each of which includes several subsections (Albidae, Rubrae etc., always according to the colouring of the thecium). The second subgenus (Eulachnea) is divided into three sections, which correspond to the subsections of the subgenus Lachneolina (Albidae etc.). This division is in my opinion a more practical and clear one, as it groups together always species similar in a certain feature. Here, too, there are of course transitions (f. inst. between pili with thickened and not thickened walls), but these are relatively exceptional so that the systematic units are fairly well characterised by the said features.

## Conspectus specierum generis Lachnea.

I. Sporae permanenter laeves (LACHNEOLINA m.).
  A. Pili tenuiter tunicati (sectio TENUES).
    1. Thecium album, albidum, subcinereum (subsect. ALBIDAE)
      a) Pili apice acuti
        α) Sporae ellipsoideae, 10—12, 5/5,5—8 µ, minute biguttulatae . . . . . *hemisphaerioides* MOUT.
        β) Sporae globoso-ellipsoideae, 16—21/13—16 µ, uniguttulatae . . . . . *glareosa* VEL.
      b) Pili apice obtusi vel clavati . . *tenuis* (FUCK.) SACC.
    2. Thecium rubrum, aurantiacum (subsect. RUBRAE)
      a) Pili 200—250 µ, apice acuti, pallide lutei . . . . . *ignea* VEL.
      b) Pili 100—175 µ, apice obtusi, obscure fusci . . . . . *pseudoampezzana* SVRČEK
    3. Thecium luteum, ochraceum (subsect. LUTEAE)
      a) Sporae 19—23,5/10,5—13 µ, guttulatae . . . . . *speluncarum* (VEL.) SV.
      b) Sporae 15—19,5/9—11 µ, eguttulatae . . . . . *gilva* (BOUD.) SACC.
    4. Thecium violaceum vel carmineum tinctu violaceo (subsect. VIOLACEAE)
      a) Sporae 24—29,5/12,5—14,5 µ . *violacea* VEL.
      b) Sporae 17—19/12—13 µ . . . *iuliana* SV.
    5. Thecium fuscum, olivaceo-fuscum (subsect. FUSCAE)
      a) Pili coniformes, basi 15—25 µ crassi . . . . . *cadaverina* VEL.
      b) Pili lanceolati, basi 6—14 µ crassi *Mariae* SV.
  B. Pili crasse tunicati (sectio SETOSAE)
    1. Thecium album, albidum, subcinereum (subsect. ALBIDAE)
      a) Sporae guttulatae.
        α) Pili basi dilatati (10—40 µ crassi)
          *) Sporae late ellipsoideae, 17—24/9—11 µ . . . *Erinaceus* (SCHW.) SACC.
          **) Sporae ellipsoideo-fusoideae, 19—28/9—11 µ . *gregaria* (REHM) PHILL.
        β) Pili basi non dilatati (6—9,5 µ crassi) . . . . . *moravica* SV.

b) Sporae eguttulatae
α) Ad terram . . . . . *amphidoxa* REHM
β) Ad excrementum . . . . *leporina* VEL.
2. Thecium luteum, vitellinum, aurantiacum (subsect. LUTEAE)
a) Cum asteropilis . . . . . *stercorea* (PERS. ex FR.) GILL.
b) Sine asteropilis . . . . . *vitellina* (PERS. ex FR.) PHILL.
3. Thecium rubrum (subsect. RUBRAE) *setosa* (NEES ex FR.) GILL.

II. Sporae varie verrucoso-sculpturatae (EULACHNEA m.)
A. Thecium album, albidum, subcinereum (sectio ALBIDAE)
1. Sporae obtuse ellipsoideae
a) Sporae 19—25/11—14 µ . . . *hemisphaerica* (WIGG.) GILL.
b) Sporae 23,5—30/18—22 µ . . *macrospora* SV.
2. Sporae ellipsoideo-fusoideae . . . *gregaria* f. *pseudogregaria* RICK
B. Thecium luteum, ochraceum (sect. LUTEAE) . . . . . *Velenovskýi* VAC.
C. Thecium rubrum, coccineum (sect. RUBRAE)
1. Apothecia extus conspecte longe setosa
a) Sporae subtiliter rugoso-scrobiculatae
α) Thecium cinnabarinum . . *scutellata* (L. ex FR.) GILL.
β) Thecium pallide lateritium vel subochraceum . . . . *flavobrunnea* RICH.
b) Sporae grosse verrucosae
α) Sporae 10—14 µ lat., oblongo-ellipsoideae . . . . . *Lusatiae* (CKE.) SACC.
β) Sporae 14—17 µ lat., late ellipsoideae . . . . . *umbrorum* (FR.) GILL.
2. Apothecia extus minute puberula vel adpresse pilosa
a) Ad lignum putridum . . . . *Nympharum* VEL.
b) Ad terram nudam . . . . . *superba* VEL.

**Clavis analytica specierum generis Lachnea.**

1a) Thecium pure album, albidum, subcinereum usque coeruleo-griseum . . . . . 2

b) Thecium luteum, luteolum, ochraceum usque aurantiacum . . . . . 15
c) Thecium ± rubrum, coccineum . . . . . 21
d) Thecium violaceum vel carmineo-violaceum . . . . . 31
e) Thecium fuscum vel olivaceo-fuscum . . . . . 32

2a) Apothecia pilis brevibus, 48—90 µ longis, apice obtusis, seriatim dispositis ornata . . . . . 1. *L. tenuis* (FUCK.) SACC.

b) Apothecia pilis longioribus (saltem 100 µ longis), plerumque isolatis ornata . . . . . 3

3a) Sporae permanenter laeves . . . . . 4
b) Sporae distincte verrucosae . . . . . 12

4a) Pili tenuiter tunicati (membranis 1.5—2 µ crassis) . . . . . 5
b) Pili crasse tunicati (membranis 3—6 µ crassis) . . . . . 7

5a) Sporae 24—25/12 µ . . . . . 1. *L. tenuis* var. *Kavinae* SVRČEK
b) Sporae 24 µ minores . . . . . 6

6a) Sporae 10—15,5/5,5—8 µ, oblongo-ellipsoideae, in polis guttulis binis instructae; in carbonariis . . . . . 2. *L. hemisphaerioides* MOUTON

b) Sporae 16—21/13—16 µ, globoso-ellipsoideae, guttula unica magna centrali instructae; ad terram nudam . . . . 3. *L. glareosa* VEL.

7a) Sporae 23—30/18—22 µ, late ellipsoideae, guttula unica centrali donatae . . 21. *L. macrospora* SVRČEK

b) Sporae minores (maxime usque ad 14 µ latae) . . . . . 8

8a) Pili graciles, apice plerumque obtusi, basi non incrassati vel subincrassati, 6—9,5 µ crassi; sporae 19—25 5/11—14 µ, late ellipsoideae, laeves, intus granulosae . . . . . 15. *L. moravica* SVRČEK
b) Pili crassiores, apice plus minusve acutati, basi distincte incrassati . . . . . 9

9a) Apothecia 1—2 mm diam., setis conspecte longis obscure castaneo-fuscis usque 1 mm longis ornata; ad excrementa . . . . . 13. *L. leporina* VEL.
b) Species notis diversis . . . . . 10

10a) Sporae irregulariter e oblongo ellipsoideo-fusoideae, granulosae vel guttula centrali magna instructae, 19—28/9—11 µ . . . . . 16. *L gregaria* (PHILL.) REHM

b) Sporae oblongo-ellipsoideae, non granulosae, plasma perfecte homogenea instructae, 15—20/8—12 µ . . . . . 12. *L. amphidoxa* REHM

c) Sporae late et obtuse ellipsoideae . . . . . 11

11a) Thecium albidum, pallidum usque subcoeruleum; paraphysia vel non clavato-incrassata vel subincrassata . . . . 14. *L. Erinaceus* (SCHW.) SACC.

b) Thecium griseum usque sordide lividoglaucum; paraphysia apice clavato-incrassata (usque ad 9 µ) . . . . . *L. livida* (SCHUM.) GILL.

12a) Sporae subglobosae, verrucosae, 16—18 µ diam. . . . . *L. foliincola* VEL. (species incertae sedis)

b) Sporae plus minusve ellipsoideae, majores quam 18 µ . . . . . 13

13a) Sporae 24—30/18—22 µ . . . . . 21. *L. macrospora* SVRČEK

b) Sporae angustiores, solum 9—14 µ latae . . . . . 14

14a) Apothecia magna, 5—30 mm diam.; sporae obtuse ellipsoideae, biguttulatae, 19—25/11—14 µ . . . . . 20. *L. hemisphaerica* (WIGG.) GILL.

b) Apothecia minuta, 2—8 mm diam.; sporae e oblongo ellipsoideo-fusoideae, intus granulosae vel guttula magna centrali, 19—28/9—11 µ instructae . . . . . 13. *L. gregaria* f. *pseudogregaria* RICK

15a) Sporae minute et dense asperulae, 12—17/7—8,5; apothecia ochracea usque pallide fusco-ochracea . . . . . 22. *L. Velenovskýi* VACEK

b) Sporae subtiliter rugosae usque dense minute scrobiculatae, 19—21/13—14 µ; apothecia fulgide aurantiaca . . . . 23. *L. scutellata* var. *subaurantiaca* SVRČEK

c) Sporae permanenter laeves . . . . . 16

16a) Pili stellati (asteropili) saltem parte basali excipuli evoluti . . . . . 18. *L. stercorea* (PERS. ex FR.) GILL.

b) Pili stellati desunt . . . . . 17

17a) Apothecia iam oculo nudo vel sub lente distincte extus margineque sat longe erecto-setosa vel pilosa; thecium fulgide vitellinum usque sulphureum . . . . 17. *L. vitellina* (PERS. ex FR.) PHILL.

b) Apothecia extus margineque aut subglabra, pilis admodum sparsis, setosis, sat laete coloratis ornata, aut subtomentosa et subdense breviter pilosula . . . . . 18

18a) Sporae semper eguttulatae . . . . . 19

b) Sporae guttula unica centrali magna vel guttulis binis, praeterea plasma maxima ex parte minute granulosa instructae; thecium ochraceum tinctu lateritio . . 6. *L. speluncarum* (VEL.) SVRČEK

19a) Apothecia flavo-ochracea, sordide aurantiaco-fulvida usque e subgriseo cinereo-ochracea, extus dense breviter fusco-pilosa; sporae 15—19/9—11 µ . . . . 7. *L. gilva* (BOUD.) SACC.

b) Apothecia pallide lutea vel aurantiaca, extus subglabra, pilis sparsis, setiformibus, sat laete coloratis ornata . . . . . 20

20a) Apothecia vitellina usque sulphureo-lutea; sporae 12—16/7,5—8 µ . . . . . 18. *L. vitellina* f. *subglabra* VACEK

b) Apothecia fulgide aurantiaca; sporae 15—18/8,5—10 µ . . . . . 4. *L. ignea* VEL.

21a) Sporae permanenter laeves . . . . . 22

b) Sporae maturae verrucosae vel minute rugoso-scrobiculatae . . . . . 26

22a) Apothecia tota pulchre rosella; sporae 25—29/12—14,5 µ . . . . . 8. *L. violacea* var. *rosella* VEL.

b) Apothecia aliter colorata; sporae plerumque minores quam 25 µ . . . . . 23

23a) Sporae intus dense granulosae vel guttulis impletae . . . . . 24

b) Sporae eguttulatae . . . . . 25

24a) Apothecia extus margineque longe conspecte setosa; pili obscure rubro-fusci, sporae 11—14 µ latae . . . . . 19. *L. setosa* (NEES ex FR.) GILL.

b) Apothecia extus margineque solum breviter pilosa; pili luteo-fusci; sporae 14—17 µ latae . . . . . 25. *L. Nympharum* VEL.

25) Apothecia fulgide aurantiaca, pilis luteolis . . . . . 4. *L. ignea* VEL.

26a) Sporae minute rugoso-scrobiculatae . . 23. *L. scutellata* (L. ex FR.) GILL.

(Adnot.: cf. etiam L. flavobrunneam Rich., cum thecio sordide lateritio-subfusco.)

b) Sporae subtiliter vel conspecte verrucosae (saepe e verrucis distincte isolatis verrucosae) . . . . . 27

27a) Apothecia extus non setosa, solum adpresse breviter pilosa; sporae breviter usque globoso-ellipsoideae . . . . . 28

b) Apothecia iam oculo nudo longe vel breviter erecto-setosa, pilis semper obscure coloratis ornata . . . . . 29

28a) Pili maxima ex parte luteo-fusci; sporae subtiliter asperulae; ad lignum putridum udumque . . . . . 25. *L. Nympharum* VEL.

b) Pili maxima ex parte pallide luteoli vel fusciduli; sporae distincte dense et breviter verrucosae; ad terram . . . . . 26. *L. superba* VEL.

29a) Apothecia iam oculo nudo conspecte nigro-pilosa; pilis obscure nigrofuscis; ad lignum putridum . . . . . 27. *L. Lusatiae* var. *nigrohirtula* SVRČEK

b) Pili luteo-fusci usque rubro-fusci . . . . . 30

30a) Sporae 10—14 µ latae, oblongo-ellipsoideae . . . . . 27. *L. Lusatiae* (COOKE) SACC.

b) Sporae 14—17 µ latae, breviter-usque globoso-ellipsoideae . . . . . 28. *L. umbrorum* (FR.) GILL.

31a) Sporae 25—29,5/12,5—14,5 µ . . . . 8. *L. violacea* VEL.

b) Sporae 17—19/12—13 µ . . . . . 9. *L. iuliana* SVRČEK

32a) Sporae minute rugoso-scrobiculatae; thecium sordide lateritio-subochraceum; ad ligna putrida . . . . . 24. *L. flavobrunnea* RICH.

b) Sporae perfecte laeves . . . . . 33

33a) Sporae eguttulatae; species cadavericola 10. *L. cadaverina* VEL.

b) Sporae intus granulosae vel cum guttulis maioribus instructae; species lignicola . . . . . 11. *L. Mariae* SVRČEK

A. Subgenus *Lachneolina* SVRČEK. — Sporae permanenter leaves, non sculpturatae.

a) Sectio *Tenues* m. — Pili tenuiter tunicati (membranis 1,5—2 μ crassis).

α) Subsectio *Albidae* m. — Thecium pure album, albidum vel subcinereum.

### 1. Lachnea tenuis (Fuckel) Saccardo.

(Tab. V, fig. 1—2.)

*Lachnea tenuis* SACCARDO, Syll. fung. 8:167, 1889. — REHM, Discom. p. 1044, 1896.
*Humaria tenuis* FUCKEL, Symb. myc. p. 322, 1869.
*Sarcoscypha tenuis* COOKE, Mycogr. p. 65, pl. 30, f. 116, 1879.
*Sepultaria tenuis* BOUDIER, Hist. Class. Disc. Eur. p. 59, 1907. — Icon. Myc. p. 203, pl. 362, 1910. — BIGEARD-GUILLEMIN, Fl. Champ. Fr. p. 660, 1913.
*Lachnea Lysimachiae* VELENOVSKÝ, Novit. Myc. Noviss. p. 145, 1947.

Apothecia primum globoso inclusa, dein profunde concava, denique late et leniter patellaria, sessilia, non immersa, s a t f r a g i l i t e r c a r n o s a, 3—5—10 mm diam., extus margineque m i n u t e a d p r e s s e f u s c o - p i l o s u l a vel subfloccoso-tomentosa, sparsa et solitaria; thecium album vel subgriseo-albidum; margo mox irregulare fissus.

Excipulum e cellulis globosis vel late elipsoideis, usque 28/17 μ, laete fuscidulis, constans.

Pili 48—90/8—14 μ, subseriales, longe cylindrici, recti vel subflexuosi, fere hyphoidei, basi plerumque non incrassati, a p i c e s e m p e r o b t u s i, late obtusi usque clavati, obscure luteofusci, tenuiter tunicati, parce septati, membranis 1,5 μ crassis.

Asci 170—250/17—20 μ, cylindrici, apice obtusi, basi breviter angustati, octospori.

Paraphysia filiformia, simplicia, apice sensim et modice 5—6 μ incrassata, recta, subtiliter granulosa, hyalina.

Sporae 19—24/10, 5—12 μ, oblongo-ellipsoideae usque subfusoideo-ellipsiodeae, polis ambobus obtusis, g u t t u l i s b i n i s m a g n i s i n s t r u c t a e in speciminibus siccis guttula unica magna ellipsoidea instructae, laeves.

O c c u r e n c e: On swampy soil, in shore vegetation, etc., more outside the forest. In summer. Rare species recorded by Rehm (l. c.) from the Rhine and from Bavaria. Collected in France by Boudier, recorded from England by Cooke.

B o h e m i a: Kunice prope Mnichovice, in fossa ad marginem pineti inter Lysimachiam vulgarem, VII-1941, leg. Velenovský (h. NMP 151397-typus Lachnea Lysimachiae Vel.).

M o r a v i a: Kuřim, leg. Fr. Šmarda. (Výsledky, 2 : 6, 1944.)

R e m a r k s: Macroscopically this Lachnea is reminiscent of the species L. hemisphaerioides, which it resembles in the delicate covering

of the excipulum and in the fragility of the receptacles, but from which it differs completely under the microscope where it points distinctly to the genus Sepultaria (especially its var. Kavinae). The typical form is probably a strongly hygrophile species as the finds show. Velenovský's L. Lysimachiae is certainly identical with this species.

Var. **Kavinae** mihi.

Syn.: *Sepultaria tenuis* KAVINA in Věda přírodní 7:28,1926.

Apothecia quam in typo maiora, 1—2,5 cm in diam., usque ad medium in terra immersa, gregaria (3—5), thecio stanneo-griseo tinctu subcoeruleo, in speciminibus siccis butyraceo usque eburneo. Pili longiores, basi bulboso-incrassati (18—20 μ), unicellulares (?) 210—300/6—8 μ. Sporae 24—25/12 μ, ellipsoideae, guttulis binis, saepe irregularibus vel etiam numerosis minoribus impletae. Asci 180—200/12—15 μ. Paraphysia simplicia, apice sensim clavato-incrassata (4—6 μ crassa) basi haud 3 μ crassa.

In carbonariis vetustis in silvis.

Bohemia: Halouny prope Řevnice, VIII-1915, et Plešivec infra Velká Skála prope Rejkovice (montes Brdy) VIII-1922, in societate Peltigerae spuriae, leg. K. Kavina.

This interesting fungus was published by Kavina in "Věda přírodní" as Sepultaria. The specimens from the above localities were not at my disposal, and therefore I quote Kavina's description, from which it is evident that this form cannot be identified with the fungus which I describe as the typical Lachnea tenuis and which in my opinion answers more perfectly to the original description of this species. The difference lies in the size of the receptacles and the length and shape of the pili as well as in the different habitat. Nevertheless I deem it better to place it provisionally as a good variety of Lachnea tenuis in our sense as the true value of this form can be elucidated only by further finds.

## 2. Lachnea hemisphaerioides Mouton.

(Tab. II, fig. 7—8.)

*Lachnea hemisphaerioides* MOUTON in Bull. Soc. Roy. Bot. Belg. 36:21, 1897. — SACCARDO, Syll. fung. 14:756, 1899. — VELENOVSKÝ, Mon. Disc. p. 310, tab. VI, f. 9, 1934. — GRELET, Disc. Fr. p. 96, 1945.

*Lachnea abundans* VELENOVSKÝ, Mon. Disc. p. 310, tab. VII, f. 12, 1934 — non Karsten nec Seaver.

Apothecia primum leniter patellaria, dein explanata, late sessilia, 3—8—20 mm diam., fragilia, primum regulariter orbicularia, denique undulato-flexuosa, extus margineque albida et breviter dense subferrugineo-fusco-pilosa, sparsa vel gregaria, thecio pure albo.

Excipulum cellulis globosis, plus minusve pallide luteolis, 17—28 μ diam. subtenuiter tunicatis.

Pili 100—440/7—14 μ, recti, basi fusoideo-incrassati, sursum longe et acute angustati, creberrime septati, pallide lutei, membranis 1,5—2 μ crassis.

Asci 140—170/8, 5—10 μ, anguste cylindrici, apice obtusi, octospori.

Paraphysia simplicia, basi 1,5—2 μ crassa, apice 2,5—3—4,5 oblongo-clavato-incrassata, nonnumquam tantum subincrassata, recta, hyalina, eguttulata.

Sporae (10)—12—12,5/(5 5)—7(—8) μ, (creberrime 12—13/7 μ), ellipsoideae, polis obtusis, semper guttulis binis minutis polaribus impletae, laeves.

Occurrence: On burnt surface in coniferous and leafy forests, often on their shady and moist rims. It occurs on not too old and washed burnt places, preferably between larger, perfectly charred remains of wood. From spring to autumn. Distributed in the whole of Central Europe. In America, where it is either lacking or very rare, it is replaced by the related species Lachnea abundans (Karst.) Sacc., described from Finland. In Bohemia it is fairly abundant, though far less so than Anthracobia melaloma (Alb. et Schw.) Boud., in whose company I have never found it. — I saw the following specimens:

Bohemia: Lysá nad Labem, V-1924, leg. Velenovský, (h. NMP 148660). — Menčice pr. Mnichovice, IX-1925, leg. Vel. (h. NMP 150255). — Modřany pr. Pragam, XI-1925, leg. Vel. (h. NMP 149580). — Mnichovice, VIII-1926, leg. Vel. (h. NMP 149448). — Myšlín pr. Mnichovice, VII-1927, leg. Vel. (150212). — Jevany, IX-1928, leg. Vel. (148758). — Stráněice, VII-VIII-1931, 1940, leg. Vel. (150961, 150962). — Praha-Divoká Šárka, VII-1941, leg. Herink. — Karlštejn, VI. 1943, leg. Charvát. — Prudice pr. Tábor VIII-1943, leg. Svrček. — Jedlany pr. Tábor, IX-1944, leg. Svrček. — Hlásná Třebáň, X-1944, leg. Svrček. — Hoštice et Hlasivo pr. Tábor, VIII-1946, leg. Svrček (h. myc. 702/46, 703/46).

Moravia: Místek, Babí lom pr. Kuřim, leg. Šmarda. (Výsledky 1:11, 1942.) — Zdravá Voda pr. Žarošice, IX-1946, leg. Vacek.

Remarks: This purely anthracophile species is well characterised by its white thecium, the macroscopically relatively fine but crowded covering of the excipulum, the richly septed pili, the light yellow and perfectly smooth spores, each with two minute droplets at the poles. Lachnea abundans (Karst.) Sacc. is very similar to our species, but differs a little by the different shape of the spores, which are larger, 16—19 X 8—9 μ, cylindrically ellipsoid and with two large droplets, scantily septed pili (of 2—4 cells), and paraphyses more strongly thickened (5—6 μ) above. Velenovsky's L. abundans is, however, only L. hemisphaerioides.

Var. **tenuipilosa** Svrček, var. n. (Tab. II, fig. 9.)

Pilis maxima ex parte tenuibus, obtusis, 140—350/3,5—5 μ, saepe flexuosis, septatis, pallide luteis, basi non incrassatis et sporis 16,5—17,5/8—9 μ, tantum nonnullis minute biguttulatis, a typo discrepat.

In carbonario silvatico haud procul Davle (in valle Zahořany), 15.-X-1940, leg. V. Vacek.

By the shape of the pili and by its larger spores this variety differs quite considerably from the type, but it cannot be connected with Lachnea abundants as the characteristic tiny droplets prove its close affinity to L. hemisphaerioides.

### 3. Lachnea glareosa Velenovský.

(Tab. I, fig. 12—14.)

*Lachnea glareosa* VELENOVSKÝ, Mon. Disc. p. 312, tab. VII, f. 24, 1934. — Novit. Mycol. Noviss. p. 146, 1947.

*Lachnea araneosa* VELENOVSKÝ, Mon. Disc. p. 312, tab. VII, f. 25, 1934.

Apothecia leniter patellaria, demum explanata, late sessilia, primum regulariter orbicularia, dein saepe lobata, adpressa, 2—5—8 mm diam., sat crasse carnosa, sparsa vel gregaria usque caespitosa, extus albida et breviter dense fusco-vel ferrugineo-fusco-pilosa, thecio primum lacteo-subcoeruleo, dein albido. Apothecia etiam in statu exsiccato crasse disciformia (non convoluta) permanent.

Excipulum e cellulis plus minusve globosis, 20—50 μ diam., luteo-fuscis constans. Hae cellulae hyphas clavato-terminatas, plerumque 35—63/17—18 μ magnas, concolores, unicellulares vel 2—3 cellulares, ferunt.

Pili 88—160—350/7—14—21 μ, e basi dilatata sensim et subacute angustati, recti, rarius subflexuosi, simplices, septati, (membranis cca 2 μ crassis), f u s c o - l u t e i (non obscure castaneo-fusci), parte superiore saepe pallide colorati, apice usque hyalini.

Asci 200—280/21—24 μ, crasse clavato-cylindrici, apice late obtusi, basi breviter angustati, octospori.

Paraphysia filiformia, apice sensim 4—7(—12) μ incrassata, rarius haud incrassata, plerumque leniter curvata, hyalina, eguttulata.

Sporae 16—18—21/13—14—16 μ, l a t e u s q u e g l o b o s o - e l l i p s o i d e a e, polis rotundatae, g u t t u l a m a n g a c e n t r a l i i n s t r u c t a e, interdum etiam plasma granulosa impletae, laeves, hyalinae.

O c c u r r e n c e: On the bare, loamy or loamy-sandy, moderately moist soil, among the grass, in the beds of dried up streams, etc., in and outside forests. End of summer and in the autumn. Velenovský describes it from relatively dry and sunny places, bushy slopes and ridges between fields (often in company of Origanum vulgare, Clinopodium, Bupleurum falcatum, Helianthemum). On a calcareous as well as on a silicious substratum. Probably accompanying a thermophile vegetation. Fairly rare.

B o h e m i a: Mnichovice, XI-1925, leg. Velenovský (h. NMP 147955-typus). — ibidem, VIII-1926, leg. Vel. (h. NMP 150211). — Mirošovice pr. Pragam, VII-1926, leg. Vel. (typus L. araneosa Vel.). — Srbsko pr. Karlštejn, IX-1944, leg. Svrček et Vacek. — Hořelice pr. Nučice, VIII-1947, leg. Svrček (h. myc. 287/47).

Moravia: Drásov, leg. J. Šmarda (cf. Fr. Šmarda, Výsledky p. 11, 1942).

Remarks: Macroscopically almost completely like Lachnea gregaria (Rehm) Phill., but slightly different by its different type of pilosity (the pili are arranged so that they form a kind of transverse striation). Microscopically it is of course completely different and forms a good species. The characteristic features are: brownish yellow, thin-walled pili and spherically ellipsoid smooth spores with a large central droplet. It is strange that such a characteristic species has up till now escaped the attention of mycologists. — Lachnea araneosa Vel. is identical with this species; in the revision of the type I did not find the hyaline long pili described by the author; instead I found only numerous, umber brown, scantily ramified hyphes, 2—3 μ long, with distant septa, which do not seem to belong to the receptacles. For the rest it corresponds completely to L. glareosa.

β) Subsectio *Rubrae* m. — Thecium rubrum vel rubro-aurantiacum.

### 4. Lachnea ignea Velenovský.

(Tab. II, fig. 10—12.)

*Lachnea ignea* VELENOVSKÝ, Čes. h. p. 875, 1922. — Mon. Disc. p. 308, tab. VII, f. 29, 1943.
*Lachnea nuda* VELENOVSKÝ, Novit. Mycol. Noviss, p. 144, 1947.
*Humaria duriuscula* VELENOVSKÝ, Novit. Mycol. Noviss. p. 148, 1947.
*?Lachnea crucipila* COOKE et PHILLIPS, Mycogr. p. 136, pl. 60, f. 237, 1879.
*?Lachnea umbrata* REHM, Disc. p. 1051, 1896.

Apothecia leniter patellaria, mox disciformia, explanata, late sessilia, orbicularia vel subundulata, 3—10 mm diam., integra, non limbata, crasse carnosa, dense gregaria vel saltem consociata, margine setulis sparsis pallidis erectis laxe vestita, extus (et denique etiam in margine) subglabra et pallide aurantiaca, thecio igneo-aurantiaco (rarissime pure albo).

Excipulum e cellulis 25—40 μ diam., potius oblongis, hyalinis usque pallide luteolis, tenuiter tunicatis constat.

Pili 200—250/6—15 μ, partim simplices, recti, e basi leniter incrassati sensim angustati et acuti vel obtusi, pallide lutei, sat tenuiter tunicati (membranis 1,5—3 μ crassis), pluriseptati, partim stellati (2—3 ramosi), consimiles.

Asci 200—300/11—15 μ, cylindrici, apice subtruncati, octospori.

Paraphysia filiformia, 2—3 μ crassa, apice subclavato-incrassata, 4—6 μ crassa, pallide aurantiaca.

Sporae 15—18/8,5—10 μ, oblongo-ellipsoideae, polis angustato-obtusis, e guttulatae, laeves, hyalinae.

Occurrence: On the moist bare loamy or sandy soil, on forest paths or also outside the forest, in ditches and near ponds. August to September. Rare.

Bohemia: Žehušice, VIII-1920, leg. Maximovič (h. NMP 129051-typus; 150993-cotypus). — Černínosk pr. Neratovice, IX-1926 leg Fechtner et Velenovský (h. NMP 150970).

Moravia: Žarošice, IX-1940, leg. Vacek (h. NMP 150982-typus L. nuda Vel.) — ibidem VIII-1947 (Vacek et Svrček).

Remarks: Lachnea ignea Vel. is perhaps identical with Lachnea crucipila Cke. et Phill., which however should have hyaline or subhyaline pili and is scarlet red; the spores are, however, alike (Saccardo places L. crucipila in the genus Neottiella). Lachnea umbrata sensu Rehm is also fairly similar, but it has brown pili and the spores mostly with a central droplet.

Our species is, however, certainly identical with Lachnea nuda Vel. and Humaria duriuscula Vel., as I convinced myself by the revision of the types. Velenovský lists in L. ignea also pure white receptacles growing together with normally coloured receptacles; this seems to be an isolated phenomenon. Characteristic for this Lachnea are the scanty, often indistinct covering of the outer part of the excipulum, the light yellow (not hyaline) pili of both types and finally the eguttulate smooth spores.

### 5. Lachnea **pseudoampezzana Svrček, n. n.**

(Tab. III, fig. 11—13.)

*Lachnea Ampezzana* REHM sensu VELENOVSKÝ, Novit. mycol. p. 194, 1939.

Apothecia 1—2 mm diam., carnosa, permanenter leniter patellaria usque explanata, late sessilia, regulariter orbicularia, consociata usque gregaria, thecio plano, glabro, fulgide rubro-aurantiaco, obtuse et subcrasse marginata, saepe minute subdenticulata, margine albido, extus nigro-fusco-subtomentosa.

Excipulum pilis obscure fusco-umbrinis, usque castaneis, 100—175 µ longis, conferte intricatis, saepe flexuosis, apice late obtusis usque clavato-incrassatis, 8,5—18 µ crassis, remote septatis, tenuiter tunicatis et saepe minute granulosis, constat. Pars basalis excipuli ex hyphis hyalinis composita est.

Asci 290—315/19—21 µ, cylindrici, apice late obtusi, octospori.

Paraphysia simpliciter filiformia, apice sensim clavato-incrassata (6—8 µ crassa), pallide rubella, eguttulata, recta.

Sporae 19—21/13—16 µ, late usque globoso-ellipsoideae, guttula unica magna centrali et granulis minutis crebris impletae, laeves, hyalinae.

Habitat: Zadní Kopanina prope Radotín (Bohemia centralis), inter muscos ad lapidem calcareum in nemore calido, 15.-II-1948, leg. Svrček (h. myc. 29/48).

Remarks. Our find is identical with the fungus given by Velenovský (Novitates l. c.) under the name of Lachnea Ampezzana Rehm,

and which was collected under almost the same conditions in a locality near by (according to the personal communication of Mr. V. Vacek). But we cannot identify this find with Rehm's species as his L. Ampezzana (Rehm, Discom. p. 1043, 1896) is different by its reddish white or gray thecium, its narrower and shorter pili (90 × 5—9 μ at most), smaller asci and narrower spores (only 9—10 μ broad). The structure of the excipulum indicates of course a close affinity.

Lachnea pseudoampezzana Svrček is the only early vernal (or subhibernal) species of the genus Lachnea and occurs presumably only in the warmest parts of Bohemia on a calcareous substratum.

γ) Subsectio *Luteae* m. — Thecium luteum vel ochraceum.

### 6. Lachnea speluncarum (Vel.) Svrček, c. n.

(Tab. IV, fig. 7—8.)

*Humaria speluncarum* VELENOVSKÝ, Mon. Disc. p. 326, tab. XXIV, f. 14, 1934. — Novit. Mycol. Noviss. p. 147, 1947.

*Lachnea barbata* VELENOVSKÝ, Mon. Disc. p. 309, tab. VI, f. 1, 1934.

*?Humaria bolaris* BRESADOLA, Iconogr. XXV, tab. 1231, 1933.

Apothecia primum profunde patellaria, basi saepe ex parte immersa, dein sessilia, late patellaria, denique explanata, molliter usque succoso-carnosa, margine non limbato, minute irregulariter fisso vel laciniato, 1,5—6 mm diam., plus minusve orbicularia vel elongata, tota laete usque fulgide ochracea, tinctu lateritio vel roseo-lateritio (specimina eximie colorata fere armeniaco-lutea sunt), denique potius carneofusca tinctu pallide lateritio, extus margineque concoloria, macroscopice glabra, solum sub lente admodum subtiliter et laxe breviter subalbido-pilosula, potius tomentosa, sparsa et consociata.

Excipulum cellulis globosis, 10—21—32 μ diam., hyalinis vel (parte basali apothecii) subluteis usque subfuscis, sat tenuiter tunicatis, marginem versus elongatis et hyphis hyalinis, clavatis, terminatum.

Pili 80—140—200/5—10 μ, partim recti, partim (saepissime) flexuosi, potius hyphaeformes, simplices, sursum angustati, sed obtuse terminati, non acuti, apice 3—6 μ crassi, pallide luteoli usque fusco-lutei, laeves, remote septati, membranis haud incrassatis (1—1,5 μ cr.).

Asci 200—245—315/17—18(—21) μ, late clavato-cylindrici, apice subangustati et subtruncato-obtusi, deorsum sublonge stipitati, octospori.

Paraphysia filiformia, simplicia, copiosa, apice non incrassata (rarius irregulariter dilatata), 2,5—4 μ crassa, recta et sursum nonnumquam ramosa, hyalina.

Sporae 19—21—23,5/10,5—13 μ, obtuse et late ellipsoideae usque inaequaliter ellipsoideae, nonnumquam leniter subfusoideo-elongatae, polis obtusis, laeves, hyalinae, guttula unica magna centrali vel guttulis binis magnis polaribus et plasma dense minute granulosa destitutae.

Occurrence: On bare, moist sandy or sandy-loamy soil, on the banks of forest streams, in moss on old burnt places. In summer and in autumn. Upon the whole everywhere rare, but undoubtedly more distributed in our country in suitable localities.

Bohemia: Mnichovice, VIII-1922, leg. Velenovský (Typus Humaria speluncarum Vel. in h. NMP!). — again VII-1927 (leg. Vel., 147456). — Třemblaty, X-1928, leg. Velenovský (on a burnt patch in a meadow among Bryum; h. NMP 151345 — Typus Lachnea barbata Vel.). — Hořelice near Nučice, 31. VIII. 1947, leg. Svrček (among small stones, low moss and on detritus in the bed of dried-up streams in deep forest-gorges, together with Lachnea glareosa Vel.; h. myc. 289/47). — Jíloviště, IX-1947, leg. Vacek (h. NMP 514955).

Moravia: Žarošice, VII-1947, leg. Vacek; where I also collected it myself, 9. VIII. 1947, on an older burnt patch in the leafy forest ("Gregovňa") (h. myc. 209/47).

Remarks: L. speluncarum (Vel.) Svrček seems to occur more abundantly only in some years; though I have looked for it since 1942, I found it only last vear in the exceptionally dry summer 1947, when it appeared in several localities.

In studying the type Humaria speluncarum Vel. I found in this species typical pili according to which it has to be shifted to the genus Lachnea. The spores of the exsiccata have always only one, broadly spread droplet. I convinced myself by the revision of the type that Lachnea barbata Vel. is identical with L. speluncarum. L. speluncarum is characterized by the special colouring of the apothecium as well as by the covering of the excipulum. It resembles suspiciously Bresadola's Humaria bolaris, which agrees quite well except that it is bald, without pili. But it is also possible that Bresadola — like Velenovský — overlooked the pili. L. speluncarum has also certain relations to the genus Sepultaria. It belongs most probably in the genus Lachnea.

### 7. Lachnea gilva (Boudier) Saccardo.

(Tab. I, fig. 10—11.)

*Lachnea gilva* SACCARDO, Syll. Fung. 8:184, 1889. — non REHM, Discom. p. 1049, 1896.

*Tricharia gilva* BOUDIER, Hist. Class. Disc. Eur. p. 57, 1907. — BIGEARD-GUILLEMIN, Fl. Champ. Fr. p. 654, 1913.

*Sarcoscypha gilva* COOKE, Mycogr. pl. 113, f. 406, 1879.

*Patella gilva* SEAVER, North Amer. Cup-Fungi, p. 166, 1928.

*Scutellinia gilva* KUNTZE, Rev. Gen. Pl. 2:869, 1891.

Apothecia plerumque dense gregaria, primum globoso inclusa, dein hemisphaerico-patellaria, orbicularia, denique explanata, late sessilia, 4—10 mm diam., subcarnosa, extus margineque dense pilis brevibus, fuscis vestita, thecio flavo-ochraceo, sordide aurantiaco-usque subgriseo-ochraceo vel cinereo-ochraceo.

Excipulum e cellulis plus minusve globosis, 14—25 μ diam., luteolis, membranis cca 2 μ crassis constat.

Pili 80—200/(3)—5,5—8 5 μ, basi solum parum vel haud incrassati, sursum sensim angustati et obtusi, rarius acuti, recti vel leniter flexuosi, simplices, pallide lutei vel pallide fusco-lutei, parte superiore laete colorati, apice interdum subhyalini, tenuiter tunicati (membranis 1—2 μ crassis), sat crebre septis tenuibus divisae.

Asci 150—200/13—14 μ, cylindrici, apice rotundati, octospori.

Paraphysia filiformia, simplicia, apice leniter 4—5 μ incrassata, hyalina, recta.

Sporae 15—19,5/9—11 μ, sat late ellipsoideae, polis late rotundatis, e g u t t u l a t a e, permanenter et perfecte laeves, hyalinae.

O c c u r r e n c e: On moist bare soil, preferably on old burnt places already overgrown with moss and on ashes. Very rare. Described by Boudier from Montmorency in France; from North America given by Seaver (from the state of New York).

Praha-Vyšehrad: on the bare soil among moist ashes (from coal!) under bushes of Symphoricarpus and Ligustrum, in rainy weather in June and August 1947, leg. Svrček (h. myc. 198 and 507/46). Again on an ash heap (in a pit outside the forest) in the Divoká Šárka near Prague, 10. VII. 1948, leg. Svrček (together with Melanoleuca brevipes; h. m. 545/48).

R e m a r k s: Our species corresponds well to the original description of Boudier (l. c.) and especially to that of Seaver (l. c.), whereas Rehm's Lachnea gilva differs especially ty its smaller spores. Special, impurely brown colouring, short covering of the excipulum, relatively thin and light pili, and smooth ellipsoid spores without droplets characterise perfectly this excellent species.

δ) Subsectio *Violaceae* m. — Thecium violaceum vel carmineo-rubrum tinctu violaceo.

### 8. Lachnea violacea Velenovský.

(Tab. V, fig. 7—10.)

*Lachnea violacea* VELENOVSKÝ, Mon. Disc. p. 309 et 413, tab. VI, f. 4, 1934. — Novit. Mycol. Noviss. p. 143, 1947.

*?Lachnea carneo-sanguinea* (FUCKEL) REHM, Discom. p. 1053, 1896.

Apothecia subcrasse carnosa, sparsa vel gregaria, primum leniter patellaria, late sessilia, dein discina, plana, orbicularia vel undulata, flexuosa, 2—5—8 mm diam., extus margineque dense breviter fusco-pilosa usque atro-fusco-pilosa, basi fusco-colorata et potius minute flocoso-punctata; thecio conspecte c a r m i n e o - r u b r o, t i n c t u v i o l a c e o, dein depallenti et tum albido vel carmineo-roseo, rarius subviolaceo, lilacino, interdum solum sordide violaceo-rubello.

Excipulum e cellulis globosis vel late ellipsoideis, 16—34 μ diam., pallide luteo-fuscis, constat.

Pili 100—250/8—14 μ, partim basi leniter dilatati sursum sensim angustati, recti vel flexuosi, apice obtusi, 1—3 cellulares, partim breves, apice late obtusi usque clavati, 14—18 μ crassi, tenuiter tunicati, membranis 2 μ crassis, pallide fusco-lutei, sat crebre septati.

Asci 250—300/20—25 μ, late cylindrici, apice obtuse rotundati, octospori.

Paraphysia simplicia, filiformia, apice leniter 6—8 μ incrassata, recta, subhyalina.

Sporae 24—29,5/12,5—14,5 μ, longe ellipsoideae, laeves, polis angustatis, guttulis binis magnis nonnullisque minoribus impletae.

Occurrence: On moist, bare, sandy or sandy-loamy soil near the streams, in summer and in autumn. Rare.

Bohemia: Kunice pr. Mnichovice, VIII-1928, leg. Velenovský (h. NMP 151431-typus). — ibidem, VII-1934, leg. Vel. (h. NMP 151383). — Hubačov pr. Mnichovice, VIII-1941. leg. Vel. (h. NMP 151404; cum Sepultaria arenicola consociata). — Nižbor pr. Beroun: in valle rivi Vůznice, 2. X. 1948, leg. Svrček (h. myc. 1219/48).

Moravia: Kuřim, leg. Fr. Šmarda. (Výsledky, 2:5, 1944, ut L. carneo-sanguinea Fuck.)

Remarks: Very good and unusually coloured species; no other Lachnea has such a colouring! Also the covering of the excipulum and the moist, smooth spores, which in the exsiccata have one large droplet, distinguish it reliably from all other species.

Though it is so remarkable, it was not described correctly before Velenovský. Lachnea carneo-sanguinea Fuckel is perhaps identical with it but this cannot be stated with certainty. Šmarda's find in Moravia, labelled with this name, and which I revised, belongs however certainly to it. — I collected a rich material of Lachnea violacea at Nižbor, where it grew on moist bare soil on the bank of a small forest stream (unfar its confluence with the Vůznice stream), together with Sepultaria arenicola, Plicaria ampliata, Naucoria conspersa in a growth of Aegopodium podagraria, Dactylis Aschersoniana, Asarum europaeum, Fragaria, Tussilago farfara under an old Alnus glutinosa and young small trees of Fraxinus excelsior.

Var. **rosella** VELENOVSKÝ, Novit. Mycol. Noviss. p. 144, 1947.

Apothecia tota pulchre rosea, thecio denique tinctu lacteo. Pili sensim longissime setaceo-attenuati, stricti, 250—350/10—12 μ; sporae ut in typo.

Ad terram limosam in silvis. — Moravia: Žarošice, IX-1942, leg. Vacek.

### 9. Lachnea iuliana Svrček, sp. n.

(Tab. II, fig. 13—14.)

Apothecia 2,5—4 mm diam., leniter patellaria, dein late explanata, regulariter orbicularia, late sessilia, extus margineque dense breviter adpresse fusco-pilosa, sparsa, thecio pulchre violaceo.

Excipulum e cellulis globosis, 25 μ diam., pallide fuscidulis vel subhyalinis, constat.

Pili 120—250/10—16 μ, recti, partim sensim angustati et acuti, sparse septati, tenuiter tunicati (membranis 1—2 μ crassis), partim breviores, 50—70/14—18 μ, clavati, apice late obtusi, creberrime septati, semper luteo-fusci.

Asci 200—225/20—22 μ, late clavati, apice obtusi, deorsum sensim subtenuiter attenuati, octospori.

Paraphysia simpliciter filiformia, apice 4—6 μ, clavato-incrassata, recta, hyalina, copiosa.

Sporae 17—19/12—13 μ, late obtuseque ellipsoideae, guttula unica magna centrali instructae, laeves, hyalinae.

Habitat: Kožová hora prope Kladno (Bohemia centralis), ad terram in fossa ad silvae marginem (Quercus, Picea, Betula), 26. VII. 1942, leg. J. Herink (h. myc. H. 361/42).

Remarks: It belongs into the affinity of Lachnea violacea Vel., from which it distinguishes itself especially by its much smaller spores. Pili and colouring are similar. (The microscopic analysis was made from an exsiccatum kept in the herbarium of the National Museum, Prague.)

ε) Subsectio *Fuscae* m. — Thecium fuscum vel olivaceo-fuscum.

### 10. Lachnea cadaverina Velenovský.

(Tab. I, fig. 4—5.)

*Lachnea cadaverina* VELENOVSKÝ, Mon. Disc. p. 412, 1934.

Apothecia 2—4 mm diam., dense conferta, lata spatia obducentia, crasse carnosa, leniter patellaria usque disciformia, diu marginata, tota umbrino-fusca, thecio nitido, extus oculo nudo observata glabra.

Pili 80—300/15—25 μ, recti, e basi latiore sursum sensim conice cuspidati vel obtusi, luteo-fusci, tenuiter tunicati (membranis 0,8—1,5 μ crassis), parce septati.

Asci 150—200/10—18 μ, cylindrici, basi breviter stipitati et emarginati, octospori.

Paraphysia simpliciter filiformia, apice clavato-incrassata, 8—10 μ, ochracea, recta.

Sporae 12—20/9,5—11 μ, creberrime 16—18 μ longae, sat late ellipsoideae, polis obtusis, plasma homogenea instructae, laeves.

Occurrence: On the hair of a dead rabbit on the bank of a forest stream at Kunice near Mnichovice, VII. 1934, leg. Velenovský (h. NMP 151379 — Typus).

Remarks: Good species, characterised morphologically as well as ecologically. Macroscopically it is more reminiscent of the genus Anthracobia, but it has typical pili of a striking conical shape. Velenovský (l. c.) remarks on this fungus that it is the first Discomycetes which he found on a dead animal. I collected already several times on such a substratum Ascobolus stercorarius f. cadaverinus m. (in litt.), but never this Lachnea. It is certainly a very rare species.

## 11. Lachnea Mariae Svrček.

(Tab. III, fig. 5—6.)

*Lachnea Mariae* SVRČEK in Studia botanica 1948, vol. 9.

Apothecia primum patellariter cupularia, dein late patellaria, orbicularia, late sessilia, interdum basi attenuata, sessilia, 1,5—3 mm lata, margine obtuso, non limbato, tota pallide subfusco-olivacea usque sordide olivacea tinctu ochraceo, extus minute fusco-punctata usque fere minute furfuraceo-granulosa, margine alias distincte alias inconspicuiter minute adpresse fusco-floccosa usque fusco floccoso-pilosula (ut in Anthracobia melaloma [Alb. et Schw.] Boud.) crasse et molliter carnosa, solitaria vel dense gregaria.

Excipulum pseudoparenchymatosum e cellulis irregulariter rotundatis vel subangulatis, 14—18 × 10—12 μ diam., hyalinis vel subfuscis, membrana 1 μ crassa instructis, constat.

Pili laete luteofusci, 42—70—140 × 6—8,5—14 μ variabiles, sursum saepissime parum vel haud angustati, apice rotundati vel sensim attenuati et subacuti, deorsum aut angustati aut truncati, 1—5 cellulares, membrana 1—1,5 μ crassa, glabra.

Asci 250 × 15—18 μ, longe cylindrici, apice obtusi, non amyloidei, deorsum sensim angustati, octospori.

Paraphysia 2,5—3 μ crassa, simpliciter filiformia, hyalina, septata, apice 3,5—9 μ clavata vel irregulariter incrassata, recta.

Sporae 18—22 × 9,5—12 μ, ellipsoideae usque fusoideo-ellipsoideae, permanenter laeves, hyalinae, unicellulares, plasma dense granulosa, in speciminibus exsiccatis guttula majore aliisque minoribus impletae.

Habitat: ad ramulos deiectos in aqua iacentes et immbutos Laricis europeae, in palude silvatico prope Jedlany, districtus Tábor (Bohemia meridionalis) 3. VIII. 1946.

Remarks: Distinguishes itself from all other species by its colouring, the delicate covering of the excipulum, the subobtuse pili and smooth spores. I cannot identify it with any species. It seems to be an aquatic or at least strongly hygrophile type of Discomycetes.

b) Sectio *Setosae* m. — Pili crasse tunicati, membranis saltem 3 μ crassis, (plerumque 3—6 μ).

α) Subsectio *Albidae* m. — Thecium album, albidum, subcinereum vel subcoeruleum.

### 12. Lachnea amphidoxa Rehm.

(Tab. I, fig. 1—3.)

*Lachnea amphidoxa* REHM, Discom. p. 1048, 1896.
*Humaria hirtella* f. *minor* REHM in Hedwigia 21:66, 1882.

Apothecia primum globosa, orbicularia, dein profunde patellaria, denique explanata, late sessilia, 1—3 mm diam., subcarnosa, consociata usque gregaria, extus margineque sat longe et dense fusco-setosa, thecio albido, fere hyalino, sicco subluteolo.

Pili 100—170—200/12—13 μ, simplices, recti, sursum sensim acutati, rarius subobtusi, laeves, parce septati, saepe tantum unicellulares, luteo-fusci usque umbrino-fusci, membranis incrassatis (3—5,5 μ crassis).

Asci 170—200/12—15 μ, cylindrici, apice rotundati, deorsum sensim stipitati, octospori.

Paraphysia filiformia, apice subincrassata, 2—3 μ, hyalina, recta.

Sporae 15—20/8—10—12 μ, creberrime 16—17/9—10,5 μ, oblongo-ellipsoideae usque late regulariter ellipsoideae, eguttulatae, permanenter laeves.

Occurrence: On bare moist soil. Up till now given from two localities only (Zürich, leg. Winter and Berlin, leg. Sydow). In our country collected in Moravia: Žarošice (Ždánský les), on bare, finely sandy-loamy soil in a mixed forest, VIII-1947, leg. V. Vacek.

Remarks: Rare species, macroscopically resembling especially Lachnea gregaria, from which it distinguishes itself by the different shape of the spores, which are always without droplets and remain permanently smootn. Rehm (l. c.) describes paraphyses thickned above up to 9 μ, but the Moravian specimens have only little thickened paraphyses. In all other respects they correspond well to the original description of the author.

### 13. Lachnea leporina Velenovský.

(Tab. II, fig. 15—17.)

*Lachnea leporina* VELENOVSKÝ, Novit. Mycol. Noviss. p. 145, 1947.

Apothecia gregaria usque caespitosa, late patellaria, ad basin attenuata, regulariter orbicularia, margine integro, subcrasse carnosa,

1—2 mm diam., ad marginem laxe, sed conspecte setis longis erectis rubro-fuscis ornata, thecio albo tinctu griseo-coeruleo.

Pili 450—1000/19—24 μ, e basi oblongo-fusoidea longe acuminati, acuti, recti, crebre septati, fusci, sat crasse tunicati.

Asci 190—230/12—17 μ, cylindrici, apice obtuse rotundati, octospori.

Sporae 15,5—18/10—11 μ, late ellipsoideae, polis rotundatis, eguttulatae, laeves, hyalinae.

Paraphysia filiformia, 2—2,5 μ crassa, apice non incrassata, hyalina, recta, copiosa.

Occurrence: On hare dung in the forest at Žarošice (Ždánský les) in Moravia, IX. 1940; leg. V. Vacek (h. NMP 150989 — Typus).

Remarks: Good species characterised by minute, very long- and brown-ciliated receptacles. The only coprophile species in the series of white Lachneae. — Velenovský's diagnosis I supplemented according to the collector's remarks, which he kindly placed at my disposal.

### 14. Lachnea Erinaceus (Schw. ex Fr.) Sacc.

(Tab. I, fig. 6—7.)

*Lachnea Erinaceus* SACCARDO, Syll. Fung. 8:182, 1889. — MASSEE, Brit. Fung. Fl. 4:322, 1895. — KAUFFMAN in Michigan Acad. 9:173, 1929.
*Peziza Erinaceus* SCHWEINITZ, Schr. Nat. Ges. Leipzig 1:119, 1822. — FRIES, Syst. Myc. 2:86, 1822—1823.
*Patella Erinaceus* MORGAN, Jour. Myc. 8:188, 1902. — SEAVER, North Amer. Cup-Fungi, p. 178, 1928.
*Sarcoscypha Erinaceus* COOKE, Mycogr. p. 77, pl. 36, f. 140, 1879.
*Scutellinia Erinaceus* KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Lachnea acerina* VELENOVSKÝ, Mon. Disc. p. 306, 1934.
*?Lachnea hystrix* (SAUTER) REHM, Discom. p. 1054, 1896.

Apothecia primum globoso-inclusa, dein leniter patellaria, denique disciformia usque explanata, sessilia, 1—3—6 mm diam., plerumque sat minuta, extus pilis rigidis strictis obscuris dense vestita, margine pilis longissimis erectis setosa usque ciliata. Thecium albidum, pallidum usque subcoeruleum.

Pili 200—500—1000/10—18—40 μ, recti vel subflexuosi, longe setacei, apice subacuti vel obtosi, obscure castaneo-fusci, pluricellulares, basi saepe radicato-ramosi, crasse tunicati (membranis 5—6 μ crassis), immixtis pilis brevioribus (100—500 μ longis), rectis, obtuse rotundatis, cylindraceis, copiosis.

Asci 200—250—300/10—13—20 μ, cylindrici, apice subtruncati, octospori.

Paraphysia filiformia vel apice subincrassata (cca 2 μ), hyalina.

Sporae 17—20—24/9—10(—11) μ, late ellipsoideae, polis obtusis, plerumque guttula unica magna centrali instructae (rarius eguttulatae,

plasma granulosa impletae vel guttulis parvis instructae), laeves vel subtiliter asperulae (sub microscopio cum immersione oleacea), oblique monostichae.

Occurrence: On putrefied moist wood, especially of leafy trees. From Central Europe it is known with certainty up till now only from Czechoslovakia; from America it is listed by Kauffmann (1931), Seaver (1928) and Cooke (1879).

Bohemia: Roblín, Acer sp., X-1925, leg. Velenovský (ut Lachnea acerina Vel.).

Slovakia: Choč, VIII-1925, leg. Pilát.

Remarks: Critical species. From Lachnea setosa (Nees) Gill. it differs in practically nothing than in the colouring of the thecium, but I have never found transitions between L. setosa and other, white coloured species. For L. Erinaceus are further characteristic the long, spreading marginal pili and smooth (or nearly smooth) spores. Lachnea livida (Schum.) Gill., which seems to be similar, should have not a whitish but rather a gray or dirty leaden colouring, shorter pili and strongly thickened paraphyses. Rehm's Lachnea hystrix corresponds according to the description quite well to our species except for the pili, which Winter in his revision of Sauter's original found to be unicellular; but this has to be accepted with a certain reserve, as all species of the genus Lachnea have multicellular pili. The description given by different authors of L. erinacea differ for certain features so that it is really difficult to say whether they had all the same species in hand. Thus f. inst. Cooke (Mycogr. l. c.) describes and figures the paraphyses as claviformly thickened, whereas Kauffman (l. c.) says of them that they are "not or scarcely enlarged at apex". The contents of the spores is also described differently. Either it is a very variable species or two or three different forms are included under the above name. The American find (Ohio, on rotten wood, VI-1901, leg. Bruce Fink, det. Bachman, h. NMP 129573), which I revised, corresponds to our finds.

**Var. furcata** (VEL.) c. n.

Syn.: *Lachnea furcata* VELENOVSKÝ, Mon. Disc. p. 313, tab. VII, f. 2, 1934.

Apothecia solum 0,5—1 mm diam., longissime fusco-setosa, setis 2—3 mm longis, basi 16—12 μ crassis; sporis globoso-ellipsoideis, 15—18 μ, eguttulatis vel minute granulosis. Paraphysia 2 μ crassa, parte superiore iteratim furcata, apice non incrassata.

Ad ramulos deiectos Populi nigrae prope Jílovitě, VI-1925 et prope Mnichovice, VIII, leg. Velenovský (h. NMP 149339, 150974).

Sporae et paraphysia affinitatem cum L. Erinaceo confirmant.

## 15. Lachnea moravica Svrček, sp. n.

(Tab. III, fig. 7—8.)

Apothecia gregaria, late sessilia, primum globosa, dein patellaria, orbicularia, 1,5—3 mm diam., extus dense obscure fusco-pilosa (marginem versus umbrino-fusco-pilosa) usque villosa, thecio coeruleo-griseo, subnitido.

Pili 100—450/6—9,5 μ, recti, apice haud acuti, plerumque obtusi, crebre septati, cospecte graciles basi non incrassati (vel subincrassati), luteo-fusci, sat crasse tunicati (2—4 μ cr.), saepius fasciculati.

Asci 230—350/12—17 μ, longe cylindrici, apice obtusi, octospori.

Paraphysia simpliciter filiformia, 2—2,5 μ crassa, apice non incrassata, hyalina, minute granulosa, flexuosa.

Sporae 19—25,5/11—14 μ, late obtuse ellipsoideae usque late cylindrico-ellipsoideae, laeves, plasma granulosa instructae (in speciminibus siccis cum guttula unica magna ellipsoidea), in ascis monostichae.

Habitat: ad terram humidam (ad carbonarii marginem) in silva mixta prope Zdravá Voda haud procul Žarošice (Ždánský les) Moraviae, 10.-IX-1945, leg. V. Vacek.

Remarks: Very characteristic Lachnea with pili nearly not at all thickened at the base, at the end blunt and as a whole strikingly slim; paraphyses capilliform, claviform non-thickened and broadly ellipsoid smooth spores. Only the longest pili are sometimes pointed at the end. All these features separate it distinctly from Lachnea gregaria (Rehm) Phill., which it greatly resembles macroscopically.

## 16. Lachnea gregaria (Rehm) Phillips.

(Tab. II, fig. 1—3.)

*Lachnea gregaria* PHILLIPS, Brit. Disc. p. 214, 1887. — MASSEE, Brit. Fung. Fl. 4:320, 1895. — REHM, Discom. p. 1057, 1896. — SCHROETER, Pilze Schles. 2:46, 1908. — SACCARDO, Syll. fung. 8:170, 1889. — VELENOVSKÝ, Čes. h. p. 876, 1922. — Mon. Disc. p. 311, tab. VI, f. 6, 1934.
*Humaria gregaria* REHM, Ascom. exs., 1869. — WINTER, Flora 55:508, 1872.
*Peziza hemisphaerica* var. *β proximella* KARSTEN, Mon. Pez. p. 125, 1869.
*Peziza hemisphaerica* var. *minor* NYLANDER, Pez. fenn. p. 21, 1869.
*Peziza brunnea* COOKE, Grev. 3, tab. 44, f. 98 (non ALBERTINI et SCHWEINITZ = Sphaerospora brunnea).
*Peziza hirta* SCHUMACHER in Rabenhorst, Fungi europ. no. 27.
*Sarcoscypha gregaria* COOKE, Mycogr. p. 69, pl. 32, f. 123, 1879.
*Sepultaria gregaria* KARSTEN, Fung. Sib. Rar. 2:154, 1884.
*Trichophaea gregaria* BOUDIER, Hist. Class. Disc. Eur. p. 60, 1907.
*Patella gregaria* SEAVER, North Amer. Cup-Fungi, p. 176, 1928.
*Lachnea gregaria* f. *lignicola* REHM in Bot. Notis. p. 215, 1898.
*Lachnea gregaria* var. *uliginosa* VELENOVSKÝ, Mon. Disc. p. 311, 1934.
*Lachnea caespitosa* VELENOVSKÝ, Mon. Disc. p. 311, 1934.
*Lachnea longesetosa* VELENOVSKÝ, Novit. Mycol. Noviss. p. 144, 1947.

Apothecia primum globosa, dein hemisphaerica, denique leniter patellaria, late sessilia, (2)—3—8 mm diam., fragiliter carnosa, orbicularia rarius elongata saepe subundulata, extus dense et breviter fusco-pilosa vel ferrugineo-fusco-pilosa, pilis adpressis, marginem versus erectis, albida, thecio albido, mox subcinereo, non nitido, immarginato. Apothecia semper consociata vel gregaria, caespitosa, rarius solitaria.

Excipulum e cellulis plus minusve globosis usque subangulatis, 17—25—35 µ diam., (rarius usque 50 µ), sat tenuiter tunicatis, fusciduli vel subhyalinis, solum parte basali rubro-castaneis et crassius tunicatis constat.

Pili 140—500/6—15 µ, e basi latiore (sed non ventricosa) sursum sensim angustati, semper recti, simplices, apice aut acuti usque acutissimi, aut solum obtusi, luteo-fusci, umbrino-fusci usque obscure castaneo-fusci, apice pallidiores, crebre septati, membranis 3,5—4 µ crassis, plerumque fasciculati.

Asci 180—270/13—18 µ, longe cylindrici, apice rotundati, deorsum sensim stipitati, octospori, sporis monostichis.

Paraphysia simpliciter filiformia, cca 3 µ crassa, apice sensim clavato-incrassata (4,5—6 µ), recta, hyalina, eguttulata.

Sporae (19)—21—26—28/9—11 µ, oblongae et saepe paulum plus minus inaequaliter ellipsoideo-fusoideae, polis angustatis, sed obtusis, plasma primum dense granulosa, dein guttula unica centrali magna globosa vel ellipsoidea instructae, diu (an permanenter?) laeves, vel rarius denique verrucosae (= f. **pseudogregaria**).

Occurrence: On bare, moist, predominantly sandy or sandy-loamy soil, on dead plant remains (especially on grass leaves, twigs, etc.), abundant species. It occurs preferably on the trodden ground of shady wood-paths, in the ruts of forest roads, among low moss, often together with protonemata and filamentous algae, also among the grass and outside the forest. It grows very often in forest-ditches, especially in peaty ones where it sits often as an isolated specimen on dead plants. Sometimes it forms whole growths on the walls of ditches and on overhanging banks of smaller forest streams. It prefers non-calcareous soils. In summer and autumn. — In the whole of Europe and North America. In our country one of the most abundant representatives of the genus Lachnea. — I saw the following specimens:

Bohemia: Šluknov, leg. Karl (in Rabenhorst Fgi. europ. no. 27). — Zvánovice, Mnichovice, Struhařov, Myšlín, Kunice et Hrusice prope Mnichovice, leg. Velenovský (h. NMP 150997, 151418, 151399, 147277, 151349, 151364, 151409, 151360, 151369, 151417). — Radotín, leg. Vel. (150967). — Bilichov, leg. Vel. (150984). — Mirošovice, leg. Vel. (X-1938). — Brdy, VII-1927, leg. Cejp (150957). — Strašice, IX-1948, leg. Cejp. — Golčův Jeníkov, VIII-1940, leg. Herink. — Říčany, IX-1943, leg. Svrček (h. myc. 397/43). — Lutová pr. Chlum (Třeboň), IX-1945, leg. Svrček. — Tábor: in toto territorio species vulgatissima generis Lachnea; sicut: Prudice, Sudoměřice-Nemyšl, Borotín etc., VII-VIII-1942-1948 (leg. Svrček (h. myc. 234/45, 700/46, 438/47 etc.) —

Srbsko pr. Karlštejn, VII-1945, leg. Svrček (h. myc. 193/45). — Praha-Divoká Šárka, VII-1946, leg. Svrček (h. myc. 395/46). — Krč pr. Pragam, VII-1946, leg. Svrček (h. myc. 451/46). — etc.

M o r a v i a: Sklenné pr. Nové Město na Mor., Veverská Bítýška, Budíkovice pr. Třebíč, Rouchovany pr. Tavíkovice, Kuřim, leg. Fr. Šmarda (cf. etiam Výsledky, p. 11, 1942).

V a r i a b i l i t y: Lachnea gregaria is rather variable, especially with regard to the colouring, length and termination of the pili. The spores are constant with regard to shape, but in the literature they are often not correctly described. Thus f. inst. Rehm's inaccurate description of the shape of the spores as "elliptisch, wenig stumpf" (l. c. p. 1057) seems to have led Velenovský to establish the new species L. caespitosa and L. terrestris. For the rest, neither Velenovský's figuring is not correct (the spores are figured too bluntly ellipsoid). By the revision of the exsiccatum in Rabenhorst's collection (Fungi europaei no. 27 ut Peziza hirta Schumacher) I convinced myself of the identity of Lachnea gregaria sensu Velenovský with L. gregaria in Rehm's sense. Also the species described by Velenovský under the names of L. caespitosa, L. terrestris, L. vernalis and L. longesetosa are identical with L. gregaria and can be separated from it at most as forms (vid below).

The sculpture of the walls of the spores is also variable. The normal and also most frequent form has spores which are smooth for a long time (if not permanently). But there are also forms not different in any other respect, but with finely verrucous spores and described as Lachnea pseudogregaria Rick. This form would really belong to the group of the Verrucisporae. It is, however, difficult to separate from L. gregaria, already because the oldest stages of development of the receptacles of this species have sometimes likewise verrucous spores, as I observed directly on the locality where in one place besides still dish-shaped receptacles with smooth spores were found at the same time receptacles already flatly effusive with spores which were all verrucously roughened. It is of course necessary further to follow this phenomenon and only on the base of further observations will it be possible to change, if necessary, the systematic position of this species.

Conspectus formarum Lachneae gregariae:

I. Sporae laeves.

f. **ferruginea** Svrček, f. n.

Apothecia pilis adpressis ferrugineo-fuscis ornata; thecio albido; pilis saepe tenuiter tunicatis (membranis solum 1—1,5 μ, crassis), pallide ferrugineo-fuscis; sporis maioribus, 21—25/9—11 μ.

f. **nigrella** Svrček, f. n.

Apothecia pilis adpressis nigrofuscis-usque subnigris ornata; thecio saepe subcoeruleo; pilis crassius tunicatis, obscure fuscis vel nigrofuscis; sporis minoribus, 20—21/8—9 μ.

Borotín pr. Tábor, 8.-VIII-1948, unacum f. ferruginea ad terram nudam viae silvaticae (h. myc. 1013/48).

f. **obtusipilosa** Svrček, f. n.

Pilis maxima ex parte apice obtusis.

Ad terram arenosam viae silvaticae, in silva Krč pr. Pragam, 18.-VII-1946, leg. Svrček.

f. **longesetosa** (VEL.) n. c.

Syn.: *Lachnea longesetosa* VELENOVSKÝ, Novit. Mycol. Noviss. p. 144, 1947.

Margo apothecii longissime (1—2 mm) erecto-setosus.

Kunice pr. Mnichovice, IX-1941, leg. L. Hostáňová (typus L. longesetosae Velenovský, h. NMP 151395).

II. Sporae plus minusve verrucosae.

f. **pseudogregaria** RICK in Oesterr. Bot. Zeitschr. XLVIII, p. 62, 1898.

(Tab. II, fig. 4.)

Syn.: *Lachnea pseudogregaria* RICK apud REHM in Hedwigia 38:243, 1899. — SACCARDO, Syll. fung. 16:717, 1902.
*Lachnea terrestris* VELENOVSKÝ, Mon. Disc. p. 311, 1934.
*Lachnea vernalis* VELENOVSKÝ, Novit. Myc. Noviss. p. 145, 1947.
*Trichophaea gregaria* var. *intermedia* LE GAL in Rev. Myc. 2:214, 1937.

Sporis distincte minute usque grosse verrucosis discrepat.

B o h e m i a: Mnichovice, leg. Velenovský (h. NMP 151354-typus L. terrestris Vel.). — Mirošovice pr. Pragam, VI-1940, leg. Vel. (h. NMP 151396-typus L. vernalis Vel.). — Sudoměřice-Nemyšl pr. Tábor, VIII-1947, leg. Svrček (h. myc. 224/47, 240/47). — Praha-Divoká Šárka, 3.-VII-1947, leg. Svrček (h. myc. 478/48). — Hvězdonice-Sázava, IX-1948, leg. Svrček (h. myc. 1322/48).

R e m a r k: The first two forms (f. ferruginea and f. nigrella) occur usually together and transitions are found between them; but in other cases they are easily distinguished.

β) Subsectio *Luteae* m. — Thecium varie luteo-coloratum.

### 17. Lachnea vitellina (Pers. ex Fr.) Phill.

(Tab. V, fig. 11—12.)

*Lachnea vitellina* PHILLIPS, Man. Brit. Disc. p. 220, 1887. (— non COOKE, Mycogr. p. 79, f. 143, 1879. — nec REHM, Discom. p. 1062, nec SACCARDO, Syll. Fung. 8:179, 1889, nec auct. al.!)
*Peziza vitellina* PERSOON, Myc. Eur. 1:257, 1822. — FRIES, Syst. Myc. 2:84, 1822—1823.
*Sarcoscypha Dalmeniensis* COOKE, Mycogr. p. 84, pl. 39, f. 153, 1879.
*Lachnea Dalmeniensis* PHILLIPS, Man. Brit. Disc. p. 227, 1887. — MASSEE, Brit. Fung. Fl. 4:317, 1895. — SACCARDO, Syll. fung. 8:180, 1889. — REHM, Discom. p. 1052, 1896. — VELENOVSKÝ, Novit. Mycol. p. 194, 1939. — Novit. Mycol. Noviss. p. 145, 1947.
*Cheilymenia Dalmeniensis* BOUDIER, Hist. Class. Disc. Eur. p. 63, 1907.
*Peziza phaeoloma* WALLROTH, Flor. Crypt. Germ. 2:463, 1833.
*Lachnea phaeoloma* SACCARDO, Syll. Fung. 8:180, 1889. — REHM, Disc. p. 1054, 1896.
*Lachnea Votrubae* VELENOVSKÝ, Mon. Disc. p. 307, 1934.
*Lachnea minuta* VELENOVSKÝ, Mon. Disc. p. 313, 1934.
*?Peziza theleboloides* ALBERTINI et SCHWEINITZ, Consp. Fung. p. 322, t. 12, f. 4, 1805.

Apothecia solitaria, rarius consociata, primum globoso-inclusa, dein patellaria, denique late explanata, sessilia, orbicularia, 2—10 mm diam., subcarnosa, margine denique saepe fisso, tota splendide vitellino-lutea vel sulphurea, rarius tinctu aurantiaco vel pallide luteola, margine plus minusve longe, sed plerumque sat laxe, fuscidulo-pilosa usque ciliata, extus breviter fusco-pilosa vel etiam subglabra.

Excipulum e cellulis globosis, 18—50 μ diam., hyalinis constat.

Pili 140—500—1000/6—10—40 μ, recti, sursum sensim angustati et acutati, rarius obtuse angustati, simplices, crebre septati, subcrasse tunicati, flavidi vel solum pallide lutei, immixtis pilis brevioribus, tenuiter tunicatis, saepe clavato-terminatis.

Asci 200—250/9—12—14 μ, longe cylindrici, apice obtuse rotundati, deorsum breviter stipitiformiter angustati, octospori.

Paraphysia filiformia, simplicia, apice 4—6 μ, leniter incrassata, recta, pallide lutea.

Sporae (12)—14—16,5(—18)/6,5—7,5—10 μ, oblongo-ellipsoideae, polis leniter angustatae, sed obtusae, eguttulatae, laeves, hyalinae, in ascis monostichae.

Occurrence: On moist vegetable soil, on compost in the fields, preferablly in growths of Urtica dioica. It certainly selects soils with a rich content in nitrogenous substances. In summer, more rarely in autumn. From Central Europe it is rarely listed, though it is certainly more frequent. Not uncommon in our country.

Bohemia: Mnichovice, VIII-1939, leg. Velenovský (h. 151366, 151386). — Hrusice pr. Mnichovice, VIII-1940, X-1941, leg. Velenovský (h. NMP 151374, 151371). — Humpolec, VII-1942, leg. Herink (h. myc. H. 224/42). — Čeřenice na Sázavě, VII-1943, leg. Kubička (h. myc. H. 462/43). — ibidem, V-1944 (h. myc. H. 182/44). — Karlík pr. Dobřichovice X-1924, leg. Velenovský (h. NMP 147274-typus L. minuta Vel.). — Prudice pr. Tábor, VIII-1946, leg. Svrček (on stubble-fields after oats; h. myc. 701/46). — Zbečno pr. Křivoklát: in the valley of the stream "Lánský luh", beyond the forester's house "Sv. Markéta", in a growth of Tussilago farfara, 10.-IX.-1948, leg. Svrček.

Moravia: Polička, IX-1943, leg. Kubička (h. myc. 370/43).

Slovakia: Vysoké Tatry, Lomnica: on the lime plaster of the wall of the hut, 1600 m above sea level, VIII-1924, leg. Pilát (h. NMP 149728-typus L. Votrubae Vel.).

Remarks: Lundell and Nannfeldt who revised (vid. Fungi exsiccati suecici no. 1371) the type of Peziza vitellina in the herbarium of Persoon found that Lachnea Dalmeniensis (Cooke) is identical with this species. The name of L. vitellina has thus priority. But L. vitellina in the sense of Cooke, Rehm, Grelet and other authors, with verrucous spores, is quite a different fungus which I call **Lachnea Cookei,** nom. n. — Lachnea theleboloides (A. et S.) Gill. is very similar to our species, if not even identical. It should have only yellowish pili, a whitish, only later ochre-yellow thecium, and is coprophile. In L. vitellina the pili have up to ten cells, with walls 1,5—4 μ thick.

f. **subglabra** VACEK (in scheda).
Apothecia subglabra, pilis admodum sparsis, instructa.

Bohemia: Kosoř, ad terram humidam in silva frondosa, VIII-1944, leg. V. VACEK (h. NMP).

## 18. Lachnea stercorea (Pers. ex Fr.) Gill.

(Tab. IV, fig. 9—11.)

*Lachnea stercorea* GILLET, Champ. Fr. Disc. p. 76, 1879. — SACCARDO, Syll. Fung. 8:183, 1889. — MASSEE, Brit. Fung. Fl. 4:311, 1895. — REHM, Discom. p. 1056, 1896. — VELENOVSKÝ, Mon. Disc. p. 313, tab. XXIV, f. 2, 1934.
*Peziza stercorea* PERSOON, Observ. Mycol. 2:89, 1799. — Mycol. Eur. 2:246, 1822. — FRIES, Syst. Myc. 2:87, 1822—1823.
*Cheilymenia stercorea* BOUDIER, Nouv. Class. Disc. Eur. p. 105, 1885. — GRELET, Disc. Fr. p. 15, 1942.
*Humaria stercorea* FUCKEL, Symb. Myc. p. 321, 1869.
*Humaria stercorea* var. *aurantiaco-flava* FUCKEL, Symb. Myc. Nachtr. 2:64, 1873.
*Humaria stercorea* var. *glacialis* REHM, Ascom. exs. no. 506.
*Humariella stercorea* SCHROETER, Pilze Schles. 2:37, 1908.
*Lasiobolus stercoreus* KARSTEN, Rev. Mon. p. 122, 1885.
*Lachnea stercorea* var. *gemella* KARSTEN, Myc. Fenn. 1:71, 1871.
*Patella stercorea* WEBER in WIGGERS, Fl. Hols. p. 106, 1780. — SEAVER, North Amer. Cup-Fungi p. 169, 1928.
*Sarcoscypha stercorea* COOKE, Mycogr. p. 81, pl. 38, f. 147, 1879.
*Scutellinia stercorea* KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Lachnea gemella* (KARST.) VELENOVSKÝ, Mon. Disc. p. 313, tab. VII, f. 21, 1934.
*Peziza ciliata* BULLIARD, Champ. Fr. p. 257, tab. 438, f. 2, 1798.
*Octospora scutellata* HEDWIG, Musc. Frond. 2, tab. 3, f. D, 1801.
*Peziza scutellata* BOLTON, Fung. tab. 108, fig. 1.
*Humaria alpina* FUCKEL, Symb. Myc. Nachtr. 3:32, 1875.
*Lachnea alpina* SACCARDO, Syll. Fung. 8:180, 1889.
*Scutellinia alpina* KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Peziza coprinaria* COOKE, Grev. 4:91, 1875.
*Sarcoscypha coprinaria* COOKE, Mycogr. p. 82, pl. 38, f. 149, 1879.
*Lachnea coprinaria* SACCARDO, Syll. Fung. 8:178, 1889. — non REHM, Discom. p. 1055, 1896.
*?Elvella lutea* SCOPOLI, Flor. Carn. 2:481, 1772.
*Peziza lutea* REICHENBACH, Ber. Ges. Naturf. 3:216, t. 4, f. 7.
*Patella lutea* MORGAN, Journ. Myc. 8:188, 1902.

Apothecia primum globosa, dein diu patellaria, denique subexplanata, orbicularia, ad basin subattenuata, molliter carnosa, 2—5 mm diam. (rarius maiora), tota mellina, subfusco-luteola, vitellina usque aurantiaca, extus margineque setis strictis haud confertis, erectis, luteo-fuscis vel subhyalinis vestita, consociata usque dense gregaria.

Excipilum e cellulis subangulatis, 8,5—25 µ diam., subhyalinis constat.

Pili partim simplices, 200—750—1000 µ longi, basi 18—25—50 µ lati, recti, sursum sensim acutati, crasse tunicati (2,5—3,5 µ), pallide subferrugineo-lutei, plerumque crebre septati, partim stellati (= asteropili), 3—4 ramosi (rami 200 µ non superantes) consimiles. Asteropili praesertim parte basali apothecii evoluti, margine plerumque tantum pili simplices longi adsunt.

Asci 200—300/(11)—14—20 μ, longe cylindrici, apice subtruncati, octospori.

Paraphysia filiformia, simplicia, hyalina, apice ad 6—8 μ incrassata, interdum haud incrassata, subsparsa.

Sporae (15)—18—20(—24)/10—11(—14) μ, cylindrico-ellipsoideae, polis obtusis, permanenter laeves, e g u t t u l a t a e, hyalinae.

O c c u r r e n c e: Characteristic coprophile species growing on older cow dung, more rarely on horse dung and human excrements, in shady moist places in the forest. In summer and autumn. Probably a cosmopolitan species, but everywhere only sporadic here and there.

Sometimes it grows also directly on ground mixed with dung. I saw the following specimens:

B o h e m i a: Myšlín, Menčice et Božkov pr. Mnichovice, leg. Velenovský (h. NMP 150094, 147250). — Praha-Troja, IX-1935, leg. Herink (h. NMP 31284). — Světlá nad Sázavou, VII-1942, leg. Herink (h. myc. H. 256/42). — Praha-Stromovka, IX-1943, leg. Herink et Svrček (h. myc. H. 1029/43; ad excrementa vetusta humana). — Prudice et Nemyšl pr. Tábor, IX-1943, 1944, leg. Svrček. — Čeřenice na Sázavě, V-1944, leg. Kubička (h. myc. 208/44). — Břve pr. Hostivice, VIII-1944, leg. Herink (h. myc. H. 892/44.) — montes Šumava: Horní Vltavice, IX-1948, leg. Herink, Kubička, Svrček.

V a r i a b i l i t y: Lachnea stercorea is a species upon the whole easily recognisable and not very variable except for the colouring which depends often on the age of the fungus; it is lighter in young ones than in old receptacles, which assume a brownish tint. Characteristic are the asteropili. A variety with smaller spores (11—13 × 6—7 μ) was described (Kanouse: Notes on new or unusual Michigan Discomycetes V, 1938) from Michigan as var. microspora Kanouse. I have not determined it in our finds. — Lachnea stercorea might be mixed up with two related and similar species:

1. *Lachnea coprinaria* sensu REHM (non Cooke), differs by its smaller spores with two minute bodies in the poles (12—15 × 6—7 μ).

2. *Lachnea insignis* (CROUAN) SACC., has larger spores (25—26 × 15—16 μ) and a red-orange thecium.

Quite different is Lasiobolus equinus (Müll.) Karst, which occurs sometimes together with L. stercorea on cow dung. It is entirely different by its unicellular hyaline pili and large spores.

f. **citrinella** (VEL.) n. c.

Syn.: *Lachnea stercorea* var. *citrinella* VELENOVSKÝ, Mon. Disc. p. 313, 1934.

Apothecia citrina, exsiccata subaurantiaca, 4—8 mm diam., margine glabra, extus parce breviter setosa; pili 250—350/12—17 μ, luteoli. Struhařov prope Mnichovice, VIII-1925, leg. Velenovský (h. NMP 147289).

Var. **maialis** Svrček, var. n.

Thecio aurantiaco, sporis 19,5—23/10,5—11 μ, oblongo-ellipsoideis, polis angustato-obtusis, discrepat.

Ad excrementa bovina in valle Zahořany prope Davle (Bohemia centralis), V-1944, leg. V. Vacek.

Remark to the synonymic: Lachnea gemella (Karst.) Vel., separated by Rehm (l. c.) as a variety only with stellated pili from L. stercorea in which asteropili had not been described is identical with L. stercorea, for also the typical form if this species has asteropili, which however seem to have been overlooked as they are developed more abundantly only at the base of the receptacle and are lacking at its rim.

γ) Subsectio *Rubrae* m. — Thecium coccineum, vel rubrum.

### 19. Lachnea setosa (Nees ex Fr.) Gill.

(Tab. IV, fig. 4—6.)

*Lachnea setosa* GILLET, Champ. Fr. Disc. p. 75, 1879. — SACCARDO, Syll. Fung. 8:182. 1889. — MASSEE, Brit. Fung. Fl. 4:312, 1895. — (?non REHM, Discom. p. 1064, 1896.)
*Peziza setosa* NEES, Syst. Pilze p. 260, 1817. — FRIES, Syst. Myc. 2:87, 1822—1823.
*Ciliaria setosa* BOUDIER, Hist. Class. Disc. Eur. p. 62, 1907. — GRELET, Disc. Fr. p. 8, 1942.
*Humaria setosa* FUCKEL, Symb. Myc. p. 321, 1869.
*Patella setosa* SEAVER, North Amer. Cup-Fungi p. 166, 1928.
*Sarcoscypha setosa* COOKE, Mycogr. p. 74, pl. 34, f. 133, 1879.
*Scutellinia setosa* KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Lachnea hystrix* VELENOVSKÝ, Mon. Disc. p. 306, tab. VII, f. 26, 1934. — (non SAUTER teste REHM, Discom. p. 1054, 1896.)
*Lachnea hystrix* var. *prunicola* VELENOVSKÝ, Mon. Disc. p. 306, 1934.
*Lachnea hystrix* var. *carpatica* VELENOVSKÝ, Mon. Disc. p. 306, 1934.

Apothecia primum globoso-inclusa, dein hemisphaerica usque profunde patellaria, 2—5(—20) mm diam., denique leniter patellaria usque explanata, late sessilia, regulariter orbicularia, extus margineque dense et sublonge setoso-pilosa, plerumque dense gregaria et consociata, thecio pallide vel coccineo-rubro.

Excipulum e cellulis globosis vel subangulatis, 17—32 μ diam., luteofuscis, subcrasse tunicatis (1,5—2 μ). (Cf. etiam p. 8.)

Pili 350—1000/21—28—56 μ, e basi oblongo-lanceolata longe angustati et acuti, recti, rigidi, setiformes, crasse tunicati, [(4)—6—7 μ], obscure rubro-fusci, multicellulares.

Asci 200—385/14—17(—27) μ, longe cylindrici, apice rotundati, octospori, sporis monostichis.

Paraphysia simplicia, filiformia, apice sensim clavato-incrassata (5—9 μ crassa), recta, aurantiaca.

Sporae 17—21/11—14 μ, ellipsoideae, polis late rotundatis, plerumque guttulis parvis numerosis instructae, laeves, hyalinae.

Occurrence: On rotting branches, on pieces of wood and old stumps of leafy trees in moist places, near shady forest streams, in glens and seepages where a greater number of fallen branches or trunks are

rotting. Hygrophile species growing preferably on wood strongly soaked with water. It certainly prefers leafy wood; only very rarely did I collect it on coniferous wood. It is found all over Europe and North America. In Bohemia it is fairly common and forms a kind of counterpart to Lachnea scultellata from which macroscopically it does not differ at all (perhaps only by a slightly different colouring of the thecium). From late spring to autumn.

Bohemia: Libochovičky, X-1926, leg. Fechtner (Ulmus, h. NMP 149813). — Hrusice pr. Mnichovice, Prunus spinosa, leg. Velenovský (h. NMP 151363, 151388). — Česká Lípa, V-1936, leg. Japp (h. NMP 150985). — Mnichovice, leg. Vel. (Betula et al., h. NMP 151375, 151337, 151341 etc.). — Nový Bydžov, IX-1924, leg. Viniklář (h. NMP 148742.) — Kosoř, VIII-1944, leg. Vacek (Populus). — Karlštejn, VII-1945, leg. Vacek. — Mořinka, VII-1946, leg. Vacek (Carpinus). — Hořelice pr. Nučice, Carpinus, V-1946, leg. Svrček (h. myc. 360/46, 372/46). — Praha-hortus botanicus, VI-1946, leg. Nečásek (h. myc. 288/46). — Doksy: "Jordánův pramen", VI-1948, leg. Svrček (Pinus, h. myc. 387/48). — Zbečno pr. Křivoklát: in convalle rivi Klíčava, Lánský luh, Kovářův luh, Turkův luh etc., frequens, leg. Svrček. — Nižbor: in valle rivi Vůznice, X-1948, leg. Svrček (Tilia, h. myc. 1182/48).

Moravia: Žarošice, VIII-1947, leg. Vacek (Salix). — cf. etiam Fr. Šmarda. (Výsledky, p. 11, 1942 et p. 5, 1944.)

Variability: Lachnea setosa belongs to the considerably variable species, but the different forms are difficult to distinguish from each other. I give here therefore three of them, which are very different from the type. Variable are the pili in their length and thickness as well as the size of the receptacles; the size of the asci, spores and the thickening of the paraphyses are also rather variable. The inner contents of the spores seems to be relatively the most constant (though there are exceptions also here) and then there is of course the smooth wall of the spores, which in many cases is the only reliable feature distinguishing this Lachnea from several other, macroscopically similar red coloured species, especially from Lachnea scutellata.

f. **cervorum** (VEL.) n. c.

Syn.: *Lachnea cervorum* VELENOVSKÝ, Mon. Disc. p. 308, 1934.

Apothecia minuta, solum 1—2 mm diam., thecio pallide carneo, margine longissime ciliata.

Ad lignum putridum Fagi silv. in valle silvatico prope Lány, VIII-1929, leg. Velenovský (h. NMP 150994-typus).

Var. **Gintlii** (VEL.) n. c.

Syn.: *Lachnea Gintlii* VELENOVSKÝ, Čes. h. p. 875, 1922. — Mon. Disc. p. 304, tab. 7, f. 14, 1934. — *Lachnea Gintlii* var. *rigidula* VELENOVSKÝ, l. c.

Robustior, apotheciis 1—2 cm diam., extus et praesertim margine conspecte longissime setosis, thecio igneo-coccineo; sporis 19—24/10,5—13 μ; cellulae excipuli 35—46 diam.

Ad ligna et muscos. — Jevany, X-1921, leg. Velenovský (h. NMP 150987). — Svojetice, VIII-1922, leg. Vel. (150995). — Hrusice, VI-1923, leg. Vel. (147266).

In addition to the specimens I revised it is recorded by Velenovský from the Brdy (from Rožmitál), Mažice and Rokycany (leg. Cejp), Šumava (leg. Pilát). — Apparently more distributed in piedmont and mountain regions.

Var. **nigrohirtula** Svrček, var. n.

Apothecia extus dense et breviter conspecte subnigro-hirtula. Sporae 23—25/13 5—15 μ, plasma granulosa instructae, laeves vel sublaeves. Pili obscure castaneo-fusci usque nigrofusci, 260—400/18 μ (membranis 4—4,5 μ crassis). Paraphysia usque ad 10 μ clavato-incrassata. Cellulae excipuli pallide luteo-fuscae vel subhyalinae, tenuiter tunicatae, 35—70 μ diam.

Ad lignum putridum Aceris pseudoplatani prope Turnov (in valle "Ve struhách"), 6. VI. et 5. VII. 1948, leg. J. Herink.

R e m a r k s: The typical Lachnea setosa is given from Bohemia by Velenovský (l. c.) under the name of Lachnea hystrix Sauter. According to Rehm's description (Discom. p. 1054) — who copies Winter's diagnosis based on Sauter's original — this species differs however by its pale thecium, unicellular pili and spores with a homogeneous contents. Especially Seaver's L. setosa agrees well with our specimens, whereas Rehm's conception of this species is probably different.

B. Subgenus *Eulachnea* Svrček. — Sporae maturae verrucosae. (sporae verrucosae, verrucoso-asperulae, echinulatae, sed non reticulatae).

a) Sectio *Albidae* m. — Thecium album, albidum vel subcinereum.

### 20. Lachnea hemisphaerica (Wigg. ex Fr.) Gill.

(Tab. II, fig. 5—6.)

*Lachnea hemisphaerica* Gillet, Champ. Fr. Disc. p. 73, 1879. — Massee, Brit. Fung. Fl. 4:290, 1895. — Rehm, Discom. p. 1058, 1896. — Schroeter, Pilze Schles. 2:47, 1908. — Bigeard-Guillemin, Fl. Champ. Fr. p. 525, 1913. — Velenovský, Čes. h. p. 876, 1922. — Mon. Disc. p. 310, tab. 6, f. 8, 1934. — Saccardo, Syll. Fung. 8:166, 1889.
*Peziza hemisphaerica* Wiggers, Fl. Hols. p. 105, 1780. — Fries, Syst. Myc. 2:83, 1823.
*Humaria hemisphaerica* Fuckel, Symb. Myc. p. 322, 1869.
*Sarcoscypha hemisphaerica* Cooke, Mycogr. pl. 30, f. 115, 1879.
*Scutellinia hemisphaerica* Kuntze, Rev. Gen. Pl. 2:869, 1891.
*Sepultaria hemisphaerica* Lambotte, Fl. Myc. Belg. p. 302, 1880.
*Peziza labellum* Bulliard, Champ. Fr. tab. 204, 1784.
*Peziza carniolica* Lamarck, Fl. Fr. 5:205, 1815.
*Peziza hirsuta* Holmskiold, Ot. II. tab. 19, 1790—1799.
*Peziza hispida* Sowerby, Engl. Fgi. pl. 147, 1798.
*Octospora fasciculata* Hedwig, Descr. 2:14, 1788.
*Elvella campanulata* Scopoli, Flor. Carniol. p. 480, 1772.
*Elvella albida* Schaeffer, Fgi. Bavar. 4:101, 1774.
*Patella albida* Seaver in Brenckle, Fgi. Dakot. p. 407, 1916. — North. Amer. Cup.-Fungi p. 175, pl. 14, f. 1, 1928.

Apothecia globosa, regulariter orbicularia, mox h e m i s p h a e r i c a, u r c e o l a t a, dein profunde patellaria, 5—20—30 mm diam., denique late patellaria usque explanata, margine irregulariter fissa, sessilia vel etiam ex parte immersa, subceraceo-carnosa, fragilia, thecio albido, saepe tinctu luteolo (praesertim serius), extus albida et dense fusco-pilosa vel floccoso-hispida, consociata, interdum gregaria et caespitosa.

Pili 300—1000 μ longi, e basi ventricosa cylindracei (basi 15—20 μ crassi) sursum sensim acute angustati, septati, recti, luteo-fusci, (membranis 2,5—3 μ crassis), simplices.

Asci 300—400/18—24 μ, longe cylindrici, apice obtusi, octospori, sporis monostichis.

Paraphysia simplicia, filiformia, apice ad 7—9 μ incrassata, recta, hyalina.

Sporae 19—25/11—14 μ, o b t u s e e l l i p s o i d e a e, g u t t u l i s b i n i s m a g n i s i n s t r u c t a e, (in speciminibus siccis plasma minute granulosa praeditae vel uniguttulatae), hyalinae, subtiliter, sed distincte verrucoso-asperulae.

O c c u r r e n c e: On vegetable soil in leafy and coniferous forests. It grows under the layer of fallen leaves as well as on the bare ground of forest clearings, on the rim of ditches etc., in often relatively dry places (where it appears, often in greater numbers, after summer rains). Sometimes it grows also directly on strongly putrefied stumps. It does not restrict itself to a special substratum but grows on limestone as well as on acid soils. — All over Europe and North America. In our country quite common in certain areas (Central Bohemia), elsewhere rarer (South Bohemia). In summer and autumn. — I saw the following specimens:

B o h e m i a: Mnichovice, leg. Velenovský et Pilát (h. NMP 151372, 151344, 149416). — Mirošovice, leg. Vel. (h. NMP 151392, 152812, 151389). — Hrusice, leg. Vel. (h. NMP 149489). — Ondřejov, leg. Vel. (h. NMP 149729). — Kersko pr. Poříčany, leg. Klika. — Běchovice, leg. Vel. (h. NMP 149581). — Radotín, leg. Fechtner (h. NMP 148811). — Chlumec nad Cidlinou, leg. Rigellová (h. NMP 148817). — Říp, leg. Novák (h. NMP 149631). — Vráž pr. Černošice, leg. Filípek. — Rokycany, leg. Maloch. — Lovětínská rokle, leg. Maximovič. — Kolín, leg. Vlach. — Vodňany, leg. Herink (h. NMP 499993, 499904). — Černoháj pr. Vodňany, leg. Herink (h. NMP 28062). — Přední Kopanina pr. Tuchoměřice, leg. Herink (500067). — Karlštejn, XI-1944, leg. Svrček. — Hlásná Třebáň, VI-1946, leg. Svrček (h. myc. 207/46). — Krčský les pr. Pragam, leg. Svrček (h. myc. 456/46). — Hořelice pr. Nučice, VIII-1947, leg. Svrček (h. myc. 286/47). — Mořinka, leg. Vacek. — Kožová hora pr. Kladno, leg. Herink. — Vrané nad Vltavou, leg. Vacek (h. NMP 150968). — Tuchoměřice, VII-1944, leg. Svrček (h. myc. 166/44). — Praha-Hodkovičky, leg. Herink. — Turnov, leg. Herink (ad lapidem arenosum musco tectum). — Čeřenice na Sázavě, leg. Kubička. — Srbsko, leg. Herink et Kubička. — Praha-Divoká Šárka, VII-1948, leg. Svrček (h. myc. 778/48).

— Roblín, leg. Svrček (h. myc. 803/48). — Senohraby, leg. Svrček (h. myc. 1311/48). — Horní Vltavice — Šumava, leg. Svrček. — etc.

M o r a v i a: Adamov, Vranov, Letovice, leg. Niessl. — Olomouc, leg. Picbauer (III. přísp. p. 47, 1913). — Lelekovice pr. Brno, Čebínka pr. Tišnov, Kuřim, Lomnice pr. Tišnov, Hády pr. Brno, leg. Fr. Šmarda. — Brno, leg. Hruby. — Netín, leg. Picbauer (h. NMP 129083). — Žarošice, leg. Vacek.

S l o v a k i a: Pukanec, leg. Kupčok. — Dolní Štubná, leg. Klika (h. NMP 129581). — Muráňská vysočina, VII-1947, leg. Svrček. — Ztratená, VII-1947, leg. Svrček.

V a r i a b i l i t y: Lachnea hemisphaerica belongs to our largest representatives of the genus Lachnea. It is upon the whole but little variable and therefore always easily recognisable. It is impossible to mistake it either for Lachnea gregaria to which it resembles most, of course only macroscopically (minute forms L. hemisphaerica); the two species have spores of quite different shape. L. hemisphaerica sometimes imitates the genus Sepultaria in that the receptacles are slightly inserted into the substratum (especially when they grow in a looser humus layer). Sometimes the receptacles grow bald in age a form with scantier pili was described as var. subcalva Ell. (— cf. Saccardo, Syll. Fung. 8:167, 1889). It is remarkable by the shape of the receptacles.

R e m a r k on the synonymic: The American mycologist Seaver (l. c.) mentions this species under the name of Patella albida. Though this name introduced by Schaeffer has priority, Wiggers name is used by Fries and has therefore to be respected.

f. **infusoria** (VEL.) n. c.

Syn.: *Lachnea hemisphaerica* var. *infusoria* VELENOVSKÝ, Mon. Disc. p. 310, 1934.

Apothecia oblongo-infundibuliformia, basi sensim attenuata, oblique truncata, pilis longioribus atrofuscis vestita.

Hrusice pr. Mnichovice, leg. Velenovský (h. NMP 149489).

## 21. Lachnea macrospora Svrček, n. n.

(Tab. III, fig. 3—4.)

*Lachnea livida* VELENOVSKÝ, Čes. h. 877, 1922. — Mon. Disc. p. 311, tab. VII, f. 4, 1934. — (non Lachnea livida Schumacher, cf. Rehm, Discom. p. 1065).

Apothecia 3—8 mm diam., sparsa, leniter patellaria, regulariter orbicularia, late sessilia, subcarnosa, extus margineque dense breviter rigide pilosula, t h e c i o l a c t e o - a l b o.

Excipulum e cellulis 20—50 μ diam., globosis usque irregulariter angulatis, luteolis, tenuiter tunicatis constat.

Pili simplices, 280—400/18—28 μ, longe cylindraceo-lanceolati, sursum sensim longe angustati, et acutati, deorsum angustati, recti vel leniter flexuosi, crebre septati, castaneofusci, membranis 3,5—4 μ crassis.

Asci 300—350/18—25 μ, cylindrici, apice obtuse rotundati, octospori.

Paraphysia simpliciter filiformia, apice ad 5—8,5 μ clavato-incrassata, hyalina, recta.

Sporae 23,5—28—30/18—22 μ late ellipsoideae, polis ambobus late rotundatis, guttula centrali magna et guttulis nonnullis minoribus impletae, primum laeves, denique minute verrucoso-asperulae.

Habitat: ad lignum putridum udum prope Zbiroh, VIII-1921, leg. Alb. Pilát (h. NMP 147293).

Remark: Velenovský (l. c.) gives this species under the name of Lachnea livida. I revised Pilát's specimens and arrived at the conclusion that this fungus cannot be identified with L. livida (Schum.), from which it differs by much larger spores and lighter colouring of the thecium.

b) Sectio *Luteae* m. — Thecium luteum vel ochraceum.

### 22. Lachnea Velenovskýi Vacek in herbario.

(Tab. V, fig. 5—6.)

Apothecia sparsa vel gregaria, molliter ceracea, primum globosa, dein patellaria usque explanata, anguste marginata, orbicularia, 3—6—9 mm diam., sessilia, ochracea usque pallide fusco-ochracea, extus concoloria, pilis indistinctis, brevibus, sparsis marginem versus longioribus, fuscis obsita. Thecium madidum submucidum.

Excipulum e cellulis globosis vel subangulatis, 17—39 μ diam., sat tenuiter tunicatis, fusco-luteis usque hyalinis constat.

Pili 200—350/18—36 μ, luteo-fusci, tenuiter tunicati, crebre septati (vulgo 6—7 cellulares), deorsum distincte conice incrassati, sursum sensim angustati, obtusi vel subacuti, apice saepe subhyalini.

Asci 150—215/9—14 μ, cylindrici, apice obtusi, octospori.

Paraphysia simpliciter filiformia, 2—3 μ crassa, apice recta, non incrassata vel ad 3—6 μ incrassata, subhyalina, sparse granulosa, vi solutionis iodi incolorabilia.

Sporae 12—17/7—8,5 μ, oblongo-ellipsoideae, polis obtusis, primum laeves, dein minute dense asperulae, plerumque guttulis binis minutis polaribus instructae, rarius eguttulatae, in ascis monostichae.

Habitat: in carbonario vetusto in Piceto nudo [inter gramina putrida, in societate Melastiziellae pseudotrechisporae (Schroet.) Svr.], prope Mnichovice (Bohemia centralis), 27.-VII-1946, leg. V. Vacek (typus in h. NMP!). Ad terram humidam inter muscos et aciculos in Piceto humido graminoso prope Říčany (Bohemia centralis), IX-1946, leg. Svrček.

Remark: A characteristic species easily recognized by the colouring of the thecium, the yellowish brown thin-walled and richly sep-

tated pili, and especially by the finely and densely spiniferous spores. It belongs to the affinity of Lachnea Cookei Svrček n. n. (= Lachnea vitellina sensu Cooke, Saccardo, Rehm et al. auct., non Persoon orig.), which differs by its much larger spores (18—24 × 12—15 μ). The other yellow species as Lachnea ochroleuca Bres., L. gilva (Boud.) etc. have all smooth spores.

c) Sectio *Rubrae* m. — Thecium plus minusve rubrum (lateritium, coccineum etc.).

### 23. Lachnea scutellata (L. ex Fr.) Gill.

(Tab. IV, fig. 1—2.)

*Lachnea scutellata* GILLET, Champ. Fr. Disc. p. 75, 1879. — SACCARDO, Syll. Fung. 8:173, 1889. — MASSEE, Brit. Fung. Fl. 4:315, 1895. — REHM, Discom. p. 1063, 1896. — VELENOVSKÝ, Čes. h. p. 875, 1922.
*Peziza scutellata* LINNÉ, Flor. Suec. p. 458, 1753. — FRIES, Syst. Myc. 2:85, 1823.
*Octospora scutellata* SCHRANK, Fl. Bavar. 2:504, 1789. — HEDWIG, Descr. 2:10, 1788.
*Humaria scutellata* FUCKEL, Symb. Myc. p. 321, 1869.
*Humariella scutellata* SCHROETER, Pilze Schles. 2:37, 1908.
*Scutellinia scutellata* LAMBOTTE, Fl. Myc. Belg. p. 299, 1880. — KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Ciliaria scutellata* BOUDIER, Nouv. Class. Disc. Eur. p. 105, 1885. — Icon. Myc. p. 207, pl. 368, 1910. — GRELET, Disc. Fr. p. 3, 1942. — LE GAL, in Rev. Myc. 2:218, 1937.
*Patella scutellata* MORGAN, Journ. Myc. 8:187, 1902. — SEAVER, North Amer. Cup-Fungi, p. 159, 1928.
*Peziza aurantiaca* BULLIARD, Herb. Fr. pl. 10, 1780.
*Elvella ciliata* SCHAEFFER, Icon. Fung. tab. 284, 1770.
*Humaria ciliata* QUÉLET, Enchir. Fung. p. 286, 1886.
*Patella ciliata* WEBER in WIGGERS, Fl. Hols. p. 106, 1780.
*Peziza ciliata* HOFFMANN, Veg. Crypt. 2:25, tab. 7, f. 3, 1799.
*Peziza hirta* SCHUMACHER, Enum. Plant. 2:422, 1803. — FRIES, Syst. Myc. 2:84, 1823.
*Lachnea hirta* GILLET, Champ. Fr. Disc. p. 75, 1879. — SACCARDO, Syll. fung. 8:175, 1889. — MASSEE, Brit. Fung. Fl. 4:314. 1895. — REHM, Discom. p. 1060, 1896. — VELENOVSKÝ, Mon. Disc. p. 303, tab. VII, f. 13, 1934.
*Ciliaria hirta* BOUDIER, Nouv. Class. Disc. Eur. p. 105, 1885. — Icon. Myc. p. 208, pl. 371, 1910. — GRELET, Disc. Fr. p. 4, 1942. — LE GAL in Rev. Myc. 2:218, 1937.
*Scutellinia hirta* COOKE, Mycogr. p. 71, pl. 33, f. 128, 1879.
*Lachnea hirtella* REHM, Ber. Nat. Verh. Augsb. 26:110, 1882. — SACCARDO, Syll. Fung. 8:174, 1889. (-non BOUDIER, Icon. Myc. p. 210, pl. 373, 1910, nec GRELET, Disc. Fr. p. 6, 1942, nec LE GAL in Rev. Myc. 2:215, 1937.)

Apothecia plerumque consociata, usque dense gregaria, rarius solitaria, primum globoso-inclusa, mox late patellaria, dein explanata, late sessilia, 2—10 mm diam., regulariter orbicularia, rarius subundulata, subcarnosa usque rigide carnosa, thecio laete cinnabarino vel coccineo-rubro, dein obscure rubro, extus margineque pallide rubella, plus minusve dense erecto-hirtula, setis obscure fuscis.

Excipulum e cellulis globosis, 30—45 μ diam., hyalinis vel subbluteis constat.

Pili 400—1000/25—42 µ, e basi lata vel oblongo lanceolata sensim longe angustati et acutati, simplices, rigidi, luteo-fusci usque obscure rubro-fusci, crasse tunicati, membranis 3,5—7—11 µ crassis, remote septati (plerumque 2—4 cellulares); immixtis pilis concoloribus, apice obtusis usque rotundatis, tantum 80—160 µ longis et 14—21 µ crassis, multicellularibus.

Asci 190—260—300/14—18—26 µ, cylindrici, apice rotundati, deorsum breviter stipitati, octospori.

Paraphysia filiformia, simplicia, 2,5—3 µ crassa, apice ad 7—10 µ clavato-incrassata, recta, pallide aurantiaca.

Sporae 18—25/10—12(—14) µ, ellipsoideae, polis late rotundatis, fere semper eguttulatae (in speciminibus siccis interdum guttulis binis polaribus instructae), maturae rugoso-scrobiculatae, hyalinae, in ascis monostichae. Sculptura sporarum sub miscroscopio cum immersione oleacea semina Papaveris somniferi in mentem revocat.

Occurrence: On moist to wet soil, generally mixed with rotten pieces of wood, or directly on rotten and moist wood, twigs and needles, preferably on coniferous woods, also on charred and singed branches. In forest seepages and at streams, one of the most widely distributed species of the genus Lachnea. From end of May to November. — All through the temperate zone of the northern hemisphere, Saccardo (l. c.) mentions it also from Java, Tasmania, Ceylon, Cuba.

Specimina, ut sequitur, vidi:

Bohemia: Stráněice, Radotín, Jevany, Mnichovice, leg. Velenovský (h. NMP 149628, 149693, 149262, 151339 etc.). — Šumava, leg. Cejp et Velenovský (h. NMP 150983, 149688). — Vodňany, XI-1942, leg. Herink. — Vrané nad Vltavou, VI-1941, leg. Vacek. — ibidem, VI-1943, leg. Svrček (ad ramum carbonisatum). — Soběslav—Blata, VI-1932, leg. Pilát (h. NMP 19587). — Řevnice, VII-1916, leg. Kavina (h. NMP 149766). — Chuchle pr. Pragam, VII-1945, leg. Vacek. — Karlštejn ,V-1943, leg. Svrček (h. myc. 347/43). — Srbsko ("Vodopády"), X-1947, leg. Svrček (h. myc. 352/47). — Třemblaty pr. Mnichovice, X-1946, leg. Svrček (h. myc. 872/46). — Prudice pr. Tábor (et alibi in territorio frequens), VIII-1946, leg. Svrček (h. myc. 704/46). — etc.

Moravia: Žarošice, VIII-1947, leg. Vacek.

Slovakia: Zadielská dolina pr. Turňa nad Bodvou, X-1934, leg. Pilát. — Ztratená, in fauce Kysel, VII-1947, leg. Svrček (Picea exc., ad ramos in aqua immersos). — Muráňská vysočina, VII-1947, leg. Svrček.

Variability: Though Lachnea scutellata is given in almost all books and manuals, which deal at least partly with the Discomycetes, as the most typical and most common species of the genus Lachnea. I may say from my own experience that it is not always easy to determine this species. Non-experts not engaged in a closer study of the whole group of red coloured Lachneae generally determine every red coloured Lachnea as Lachnea scutellata. But many of these specimens do not belong at all to this species; most often they are L. setosa or L. Lusatiae with which it is often confused. When we get a typical form with

spores as described above its correct determination is upon the whole easy (with the use of immersion). It is of course worse when — as happens more frequently — we have to determine one of the many transition forms, in which the spores vary in size as well as in shape and sculpture. Le Gal (in Rev. Myc. 2:218, 1927) points out the differences between Ciliaria hirtella (Rehm) Boud., C. hirta (Schum.) Boud., C. scutellata (Fr. ex L.) Boud. and C. umbrorum (Fr.) Boud. according to the different sculpture of the spores. Lachnea hirtella (sensu Boud.) and L. umbrorum are certainly two different species, but I cannot find any difference between L. hirta and L. scutellata.

f. **bulbopilosa** Svrček, f. n. (Tab. IV, fig. 3.)

Pili basi conspecte bulboso-incrassati (20—35 μ crassi) ; sporae 21—25/12,5—14 μ.

Slovenia austro-orientalis: ad terram in valle "Zadielská dolina" dicto, prope Turňa nad Bodvou, solo calcareo, X-1934, leg. Pilát (h. NMP).

Var. **subaurantiaca** Svrček, var. n.

Apothecia tota pallide aurantiaca, extus breviter et sparse pilosula, 3 mm diam., solitaria. Asci 260—280/21—26 μ. Paraphysia apice crasse clavato-incrassata, 9—14 μ crassa, saepe ramosa, hyalina, solum parte inferiore pallide aurantiaca, recta. Sporae 19—21/13—14 μ (vulgo 20/14 μ), obtuse ellipsoideae, eguttulatae, primum laeves, dein ut in forma typica sculpturatae. Pili 115—430/20—21 μ, recti vel subflexuosi, acuti, luteo-fusci, subtenuiter tunicati (2—3 μ), septati.

Bohemia: In prato uliginoso silvatico in caespitibus Caricis gracilis, prope Sudoměřice—Nemyšl (distr. Tábor), 16.-VIII-1947, leg. Svrček (h. myc. 234/47).

Colore, pilis brevioribus et paraphysibus apice hyalinis discrepat.

## 24. Lachnea flavo-brunnea (Rich.) Sacc.

(Tab. I, fig. 8—9.)

*Lachnea flavo-brunnea* Saccardo, Syll. Fung. 8:171, 1889. — Bigeard-Guillemin, Fl. Champ. Fr. p. 657, 1913. — Velenovský, Mon. Disc. p. 307, tab. VII, f. 27, 1934.

*Peziza flavo-brunnea* Richon, Pl. crypt. nouv. p. 551, t. 2, f. 1, 1879.

Apothecia leniter patellaria, sessilia, 2,5—5—8 mm diam., subcrasse carnosa, thecio sordide lateritio, subfusco-rubello usque fusco-sordide ochraceo vel aurantiaco-ochraceo, extus margineque pilis longis, rigidis fusco-setosa, consociata vel gregaria.

Excipulum e cellulis globosis, 20—31 μ diam., pallide fuscis, tenuiter tunicatis constat.

Pili 600—1500/22—42 μ, sensim acute angustati, castaneo-fusci vel pallide fusci, recti, crebre et tenuiter septati, crasse tunicati, membranis 3—8 μ crassis.

Asci 180—280/16—24 μ, cylindrici, apice rotundati, octospori, sporis monostichis.

Paraphysia filiformia, simplicia, apice ad 4—7 μ clavato-incrassata, fuscidula vel subhyalina.

Sporae 18—22/11—12,5 μ, late ellipsoideae, granulis minutis dense impletae, primum laeves, postea subtiliter scrobiculato-rugosae (ut in Lachnea scutellata).

Occurrence: On rotten wood of leafy and coniferous trees lying in the damp. Up till now reported only from France. According to Velenovský (l. c.) it occurs in Bohemia. I based my description in part on his specimens, in part I used my own material, unfortunately had only one find where the material was very scanty.

Bohemia: Hrusice, VI-1924, Picea exc., leg. Velenovský (h. NMP 147262). — Jevany, VIII-1925, Fagus, leg. Vel. (147249). — Bilichov, VII-1925, Pinus silv. leg. Vel. (150953). — Krč pr. Pragam, XI-1925, Populus leg. Vel. (147276). — Karlštejn, X-1926, Acer leg. Vel. (150992). — Mnichovice, VI-1931, Juniperus, leg. Vel. (151346). — Mnichovice, XI-1938, Salix amygd., leg. Vel. (151343). — Nižbor: in valle Vůznice, 2.-X-1948, Ulmus, leg. Svrček.

Moravia: cf. Fr. Šmarda, Výsledky p. 11, 1942.

Remarks: Critical species; provisionally I place it with Lachnea scutellata, with which it has the spores in common. In colouring it differs however from all red species of this group. Whether it is identical with the species of Richon is difficult to say. Conclusions will be possible only after investigating a larger living material.

## 25. Lachnea Nympharum Velenovský.

(Tab. III, fig. 9—10.)

*Lachnea Nympharum* Velenovský, Mon. Disc. p. 307, tab. VII, f. 19, 1934.

Apothecia solitaria usque gregaria, primum globoso-inclusa, mox discina, late explanata et sessilia, regulariter orbicularia, medio solum leniter depressa, sat rigide carnosa, 1—7(—10) mm diam., margine haud limbato, subacuto, integro, thecio laete et fulgide miniato usque coccineo, sed etiam pallide rubro, extus oculo nudo observata glabra vel tantum breviter pilosula, sub lente breviter dense et adpresse fusco-pilosa, pilis plus minusve distinctis.

Structura apothecii cf. p. 8.

Pili 112—200—280/14—21 μ (vulgo 140—180/16—18 μ), plus minusve lanceolati, recti vel saepius S-flexuosi, etiam irregulariter flexuosi, basi haud dilatati, sursum angustati et apice plerumque obtusi, basi plerumque radicato-ramiso, septati, luteo-fusci (numquam ita obscure colorati ut in L. scutellata vel L. setosa), laeves, membranis 2—3(—5) μ crassis.

Asci (220)—260—315/18—28 μ, late cylindrici, apice rotundati, basi breviter stipitati, octospori, sporis monostichis.

Paraphysia filiformia, simplicia, basi 3,5—4 μ crassa, apice ad 7—10—12,5 μ clavato- incrassata et ibi aurantiaca.

Sporae 20—23/14—17 μ, globoso-ellipsoideae vel late ellipsoideae, guttulis minutis dense impletae, laeves, maturae subtiliter verrucosae.

Occurrence: On rotting wood of leafy trees either lying in water or well soaked with water. Fairly rare.

Bohemia: Solopisky, X-1924, leg. Velenovský (Salix; h. NMP 147268-typus). — Libochovičky pr. Slané, X-1926, leg. Fechtner (Ulmus; h. NMP 147264). — Lysá nad Labem, VI-1927, leg. Velenovský (h. NMP 150979). — Zbečno pr. Křivoklát: ad corticem trunci deiecti Alni glut. in rivulo "Lánský luh", 30.-V-1947, leg. Svrček. — Nižbor pr. Beroun: in valle Vůznice, ad truncos Ulmi, 2.-X-1948, leg. Svrček (in societate Lachneae setosae et Lasiosphaeriae hirsutae).

Remark: Certainly a good species, strongly hygrophile. The covering of the apothecia depends on the outer conditions of which was able to convince myself in the specimens from Křivoklát, where on the same piece of bark were receptacles with a scarcely perceptible pilosity of the excipulum (those which were completely submerged in the water) beside receptacles with distinct pili (receptacles on the drier part of the substratum). To the characteristic features belong here especially the spherically ellipsoid spores whose wall is finelly roughened only in full maturity.

## 26. Lachnea superba Velenovský.

(Tab. IV, fig. 12—14.)

*Lachnea superba* Velenovský, Mon. Disc. p. 305, tab. VI, f. 11, 1934.

Apothecia semper solitaria et sparsa, late sessilia, leniter patellaria, primum regulariter orbicularia, dein undulata et flexuosa, 1—6 mm diam., cospecte rigide carnosa, thecio splendide coccineo (quasi velutino-coccineo), extus breviter et dense fusco-puberula, prorsus sine pilis erectis vel setosis, pallide rubella.

Pili 120—385/12—21 μ, pallide luteo-fusci, fere semper S-flexuosi, vel modo vario flexuosi, in speciminibus exsiccatis pallide luteoli usque subhyalini, remote septati, apice obtusi (pili breviores) vel obtuse subacuti, tenuiter tunicati, membranis 1—2,5(—3) μ crassis instructi.

Asci 250—300/(20)—25—32 μ, crasse cylindrici, apice late rotundati usque obtusi, basi tantum breviter angustati, octospori, sporis monostichis.

Paraphysia simplicia, filiformia, recta, basi 3—5 μ crassa, apice crasse clavato-incrassata (8—12 μ cr.), tota aurantiaca.

Sporae 19,5—24/14—18 μ, globoso-ellipsoideae, plasma minute granulosa impletae, distincte minute verrucoso-asperulae.

Occurrence: On bare, sandy, moderately moist ground in forests. Very rare and sporadic. Bohemia.

Stránčice: among the roots of the trees in an old pine-forest, together with Barlaea modesta, VIII-1926, leg. Velenovský (Typus in h. NMP 150964). — Borotín near Tábor: on the bare moist sandy-loamy soil on a grassy forest-path (Picea, Pinus silv.) in the forests of Sudoměřice, 7-VIII-1948, leg. Svrček (h. m. 1080/48).

Remarks: It is perhaps the most beautifully coloured species of the Lachneae. Its red colour cannot wel be compared with anything, and it is quite unlike all other species of the group Rubrae. My specimen corresponds entirely with the type, with which I compared it. I measured the spores of my receptacles as 20—21 × 16,5—18 μ, slightly broader than in the type.

All other finds — also those determined by Velenovský himself — kept in the herbarium of the National Museum and labelled Lachnea superba do not belong at all to the species described above.

### 27. Lachnea Lusatiae (Cooke) Sacc.

(Tab. III, fig. 1—2.)

*Lachnea Lusatiae* SACCARDO, Syll. Fung. 8:178, 1889. — REHM, Discom. p. 1064, 1896. — VELENOVSKÝ, Mon. Disc. p. 304, tab. VII, f. 16, 1934.
*Sarcoscypha Lusatiae* COOKE, Mycogr. p. 80, pl. 37, f. 146, 1879.
*Ciliaria Lusatiae* BOUDIER, Hist. Class. Disc. Eur. p. 62, 1907.
*Scutellinia Lusatiae* KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Patella Lusatiae* SEAVER, North Amer. Cup-Fungi, p. 162, 1928.
*Peziza badioberbis* BERKELEY, Grev. 8:61, 1879.
*Lachnea badioberbis* SACCARDO, Syll. Fung. 8:173, 1889.
*Lachnea Cejpi* VELENOVSKÝ, Mon. Disc. p. 305, tab. VII, f. 15, 1934.

Apothecia sparsa vel gregaria, leniter patellaria, dein explanata, late sessilia, regulariter orbicularia, 3—5—8 mm diam., plus minusve carnosa, extus margineque setis numerosis, erectis, ferrugineo-fuscis vestita, thecio laete aurantiaco rubro.

Excipulum e cellulis globosis, 25—30 μ diam., pallide fuscidulis, subhyalinis, in margine excipuli late et obtuse clavato-terminatis constat.

Pili 200—600(—1000)/14—18 μ, recti, rigidi, e basi sublatiore sursum sensim longe et acute acuminati, rarius etiam apice obtusi, luteofusci, obscure castaneo- usque rubro-fusci, crasse tunicati (membranis 3—7 μ crassis), remote septati (plerumque solum 2—3 cellulares), basi saepe radicato-ramosi.

Asci 180—250/(12)—17—23 μ, cylindrici, apice late rotundati, basi breviter stipitati, octospori, sporis monostichis.

Paraphysia simplicia, 2—3 μ crassa, apice ad 5,5—10 μ clavato-incrassata, recta, eguttulata vel minute granulosa, pallide aurantiaca usque hyalina.

Sporae 21—25(—27)/10—14 μ, plus minus elongato-ellipsoideae, polis plerumque subangustatae, distincte et saepe grosse verrucosae, eguttulatae, uni-vel biguttulatae, hyalinae.

Occurrence: On moist ground, among rotting remnants of wood, needles etc., or directly on putrifying moist coniferous and leafy wood, fairly abundant. Europe, North America, New Zealand.

Bohemia: montes Krkonoše, Labský důl, ad corticem Piceae exc., IX-1923, leg. Pilát (h. NMP 147283). Struhařov pr. Mnichovice, Carpinus, VIII-1933, leg. Velenovský (h. NMP 151426). — montes Brdy, Padrť pr. Rožmitál, VII-1924, leg. Cejp (typus L. Cejpi Vel., h. NMP 147280). — Čeřenice na Sázavě, X-1943, leg. Kubička (h. myc. 401/43). — Nemyšl pr. Tábor, ad terram arenosam in fossa silvatica, VIII-1946, leg. Svrček. — Prudice pr. Tábor, Picea exc., VIII-1942, leg. Svrček (h. myc. 448/42).

Moravia: Žákova hora (ad carposomata vetusta Fomitis fomentarii), leg. Fr. Šmarda. — Světlov pr. Telč (ad terram argill. in piceto), VIII-1941, leg. Fr. Šmarda. — In colle Ondřejník pr. Místek, VII-1940, leg. Fr. Šmarda (Picea exc.).

Variability: Lachnea Lusatiae resembles most L. scutellata, with which it probably was and is often confused. But it differs from it completely by the sculpture as well as by the shape of the spores. These features seem to me constant ones as up till now I have not found transitions between L. Lusatiae and L. scutellata. The spores are in L. Lusatiae more elongated and have a distinctly (already under a magnification of 450×) and rather roughly verrucous wall; this appears especially in the contours of the spore where the verrucae seem to be pasted — either solitary or coalesced into larger groups — to its surface. In using an oil immersion we find that the wall of the spores is very irregularly undulated as if crushed, here and there almost "crater-like", sometimes also with sporadic, fairly wide eyes (but always without sharp limits so that we cannot speak of a reticular thickening). The verrucae are about 0,8—1,2 μ high. The contents of the spores varies, either it is homogeneous, without droplets, or with several minute droplets, but also (and that mostly in exsiccata) with one central or two polar bodies.

Var. **macrospora** Svrček, var. n.

Sporis 28—31/10—14 μ, oblongo-fusoideis (polis rotundatis), minus verrucosis, discrepat.

Ad terram nudam humidam prope Třeboň, VIII-1926, leg. Weinzettl (h. NMP 150963).

### 28. Lachnea umbrorum (Fries) Gillet.

(Tab. V, fig. 3—4.)

*Lachnea umbrorum* Gillet, Champ. Fr. Disc. p. 209, 1886. — Saccardo, Syll. fung. 8:174, 1889. — Rehm, Discom. p. 1060, 1896. — Velenovský, Mon. Disc. p. 305, tab. VI, f. 10, 1934.

*Peziza umbrorum* FRIES, Syst. Myc. II. — Index p. 612, 1823.
*Humaria umbrorum* FUCKEL, Symb. Myc. p. 323, 1869.
*Scutellinia umbrorum* LAMBOTTE, Fl. Myc. Belg. p. 300, 1880. — KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Ciliaria umbrorum* BOUDIER, Nouv. Class. Disc. Eur. 1:105, 1885. — Hist. Class. Disc. Eur. p. 61, 1907. — GRELET, Disc. Fr. p. 6, 1942.
*Patella umbrorum* SEAVER, North Amer. Cup-Fungi p. 161, 1928.
*Sarcoscypha umbrorum* COOKE, Mycogr. pl. 35, f. 138, 1879.
*Lachnea umbrorum* var. *pratensis* VELENOVSKÝ, Mon. Disc. p. 412, 1934.
*Lachnea umbrorum* var. *limosa* VELENOVSKÝ, Mon. Disc. p. 305, 1934.
*Peziza umbrosa* FRIES, Syst. Myc. 2:85, 1823.
*Humaria umbrosa* FUCKEL, Symb. Myc. p. 323, 1869.
*Lachnea limosa* VELENOVSKÝ, Mon. Disc. p. 412, 1934.
*Lachnea Hrabanovi* VELENOVSKÝ, Mon. Disc. p. 304, 1934.
*Lachnea Chateri* VELENOVSKÝ, Mon. Disc. p. 305, tab. VII, f. 23, 1934. — nec Čes. h. p. 876, 1922. — non W. G. Smith! ( = Melastiza Chateri).

Apothecia solitaria, rarius consociata usque gregaria, e globoso profunde patellaria, denique late explanata, 2—4 mm diam., sessilia, regulariter orbicularia, humiliter patellaria, crasse carnosa, margine breviter fusco-pilosa, extus rubella et sat laxe pilis fuscis (in speciminibus siccis ferrugineo-nigris) vestita, thecio laete cinnabarino vel laete aurantiaco.

Pili 250—1000/15—32—42 µ, recti vel subflexuosi, e basi oblongo-lanceolata sursum sensim longe angustati et acutissimi (rarius subobtusi), crasse tunicati, membranis usque 6 µ crassis, obscure luteofusci vel rubro-fusci, margine immixtis pilis clavatis, cca 70 µ longis, et 20—28 µ crassis, concoloribus.

Asci 200—250/18—25 µ, crasse cylindrici, apice late rotundati, subtruncati, deorsum breviter stipitati, octospori, sporis monostichis.

Paraphysia simplicia, filiformia, basi 3—4 µ crassa, apice ad 7—12 µ clavato-incrassata, recta, granulis aurantiacis minutis impleta, interdum ascos superantia.

Sporae 18—25/14—17 µ, late usque g l o b o s o-e l l i p s o i d e a e, maturae d i s t i n c t e v e r r u c o s a e, eguttulatae (solum in speciminibus siccis cum guttula unica magna), hyalinae; verrucae hemisphaericae, 1,5—2 µ diam.

O c c u r r e n c e: On moist to wet ground, among the grass or in dense growths of hygrophile vegetation near streams, ponds, springs, in ditches (especially of meadows), all through Europe, but always sporadical. Cooke (l. c.) whose description and figuring agrees well with our fungus lists it from Great Britain, Scandinavia, Germany, Hungary, and North America. Summer species, rarely found in autumn.

B o h e m i a: Myšlín, Kožený vrch, Plecháč, Kunice, Všesimy, Božkov, VI—VIII, leg. Velenovský (h. NMP 147288, 151358, 150261, 151359, 151381, 151385, 147282, 151367, 151356, 151425). — Mirošovice, IX-1939, VI-1934, leg. Velenovský (h. NMP 151423, 151340-typus L. pratensis Vel.). — Mnichovice, VII-1923, leg. Velenovský (h. NMP 147279-typus L. limosa Vel.). — Všetaty, V-1920, leg. Pilát (h. NMP 147265-typus L. Hrabanovi Vel.). — Prudice pr. Tábor, V-1945, leg. Svrček (h. myc. 117/45). — Pelešany pr. Turnov, VI-1946, leg. Herink (h. m. H. 61/

46). — Nemyšl pr. Tábor (in societate Droserae rotundifoliae), VIII-1946, leg. Svrček (h. myc. 794/46).

M o r a v i a: cf. Fr. Šmarda, Výsledky p. 12, 1942.

S l o v a k i a: Vysoké Tatry, Temnosmrečianská dolina, VIII-1947, leg. Hadač.

R e m a r k s: Macroscopically this species is very reminiacent of L. scutellata, but it does not attain its size (the size of the receptacles is normally between 2 and 4 mm.). Characteristic are the broadly ellipsoid, sporadically verrucous spores. Lachnea umbrata (Fr.) Phill., sometimes confused with L. umbrorum, differs by its permanently smooth spores and short pili. Our species seems to prefer hill country and higher levels with a moister climate; up till now I have not found it around Praha.

f. **arenosa** (VEL.) Svrček, c. n.

Syn.: *Lachnea arenosa* VELENOVSKÝ, Mon. Disc. p. 306, tab. VI, f. 12, 1934.

Apotheciis 1—2 mm diam., pilis brevibus, sporis 18—23/16—17 μ, maxima ex parte subglobosis a typo discrepat.

Mnichovice: in arena humida inter gramina ad rivum silvaticum, VIII-1929, leg. Velenovský (h. NMP 151427-typus).

## Species incertae sedis:

**Lachnea convexa** VELENOVSKÝ, Mon. Disc. p. 309, tab. VI. fig. 3. — Typus in h. NMP 147284; In revising the scanty material I found in some spores the wall quite finely verrucously roughened. The general habitus points to a affinity with Lachnea superba Vel.

**Lachnea foliincola** VELENOVSKÝ, Mon. Disc. p. 413, 1934. — Typus (h. NMP) is useless.

**Lachnea fulva** VELENOVSKÝ, Novit. mycol. noviss. p. 144, 1947. — Typus (h. NMP 150980) is useless; according to Mr. V. Vacek who first collected this fungus and sent it to Velenovský for determination it seems to be a good species.

**Lachnea fuscidula** VELENOVSKÝ, Novit. mycol. p. 195, 1939. — Typus missing.

**Lachnea laricina** VELENOVSKÝ, Mon. Disc. p. 312, tab. VII, f. 1. — Typus missing.

**Lachnea Lojkaeana** (REHM) VELENOVSKÝ, Novit. mycol. noviss. p. 145, 1947. — Is not identical with Rehm's species; it is a Sepultaria sp.

**Lachnea Pilati** VELENOVSKÝ, Mon. Disc. p. 308, tab. VI, f. 5, 1934. — Typus missing.

**Lachnea salicina** VELENOVSKÝ, Mon. Disc. p. 312, tab. VII, f. 3. — According to the description it belongs perhaps in the neighbourhood of Lachnea Erinaceus (Schw.) Sacc.

**Lachnea umbrata** (FR.) VELENOVSKÝ, Mon. Disc. p. 307, tab. VII, f. 28. — Not identical with the species described under this name f. inst.

by Rehm (Discom. p. 1051, 1896) or Schroeter (Pilze Schles. 2:37, 1908). From the scanty material (h. NMP 149671) we cannot say whether it belongs to the affinity of Lachnea ignea Vel. or whether it is a Neottiella sp. (hyaline pili?).

## II. Melastiziella Svrček, gen. n.

*Melastiza* SEAVER, North Amer. Cup-Fungi, p. 103, 1928, pro parte.

Apothecia sessilia, primum globoso-inclusa, dein late patellaria, molliter carnosa, laete colorata, extus margineque longe stricte pilosa, setis longis, rigidis, fuscis, acutis, septatis, tenuiter vel crasse tuncatis ornata. Excipulum pseudoparenchymatosum, coloratum. Asci cylindrici, apice rotundati, IIK-, octospori. Paraphysia filiformia, septata, apice incrassata, subhyalina vel laete colorata, recta. Sporae ellipsoideae, hyalinae, unicellulares, dense reticulatae, monostichae; ocella reticuli 5—6 angulata.

Ad terram humidam.

Typus: *Humariella pseudotrechispora* SCHROETER.

Remarks: I formed this genus for those forms of true Lachneae which have bristly pili and reticularly sculptured spores. They are: Melastiziella pseudotrechispora (Schroeter) Svrček, c. n., Mel. asperrima (Ellis et Ev.) Sv. c. n., and Mel. pennsylvanica (Seaver) Sv. c. n. — The typical, pointed long pili distinguish these species from the genus Melastiza Boud., in which the last two of them are placed by Seaver (l. c.). As however Boudier based his genus on Humaria miniata Fuckel (or Peziza Chateri W. G. Sm.), which has non-typical, short cuneiform pili (pseudopili), these forms have to be separated. The relation of Melastiziella pseudotrechispora to Melastiza Chateri is decidedly smaller than that to the genus Lachnea (in our conception), from which it differs only by the reticular sculpture of the spores.

### Melastiziella pseudotrechispora (Schroeter) Svrček, c. n.

(Tab. VI, fig. 14—16.)

*Humariella pseudotrechispora* SCHROETER, Pilze Schles. 2:38, 1908.
*Lachnea pseudotrechispora* REHM, Discom. p. 1062, 1896. — ?VELENOVSKÝ, Mon. Disc. p. 304, 1934. — non Čes. h. p. 876, 1922 [= Lachnea umbrorum (Fr.) Gill.].

Apothecia sparsa et solitaria, leniter patellaria, dein explanata, late sessilia, 3—5 mm diam., orbicularia, leniter carnosa, extus margineque breviter et subdense fusco-setulosa, thecio aurantiaco-luteo.

Excipulum e cellulis globosis usque subangulatis, 18—35(—50) μ diam., tenuiter tunicatis, fuscidulis constat.

Pili 53—250—400/18—25—32 μ, recti, simplices, partim e basi latiore sensim acuminati, apice acuti, tenuiter tunicati, membranis 1,5—2 μ crassis, pallide fusci vel pallide luteo-fusci, crebre septati (interdum substrangulati), usque 6-cellulares, partim breviores, 1—2 cellulares, breviter conici, apice obtusi.

Asci 140—180/9,5—11 μ, sat anguste cylindrici, apice late rotundati, octospori, sporis monostichis.

Paraphysia filiformia, apice 5—6 μ incrassata, recta, subhyalina.

Sporae 17,5—21/7—9,5 μ anguste ellipsoideae, polis angustatis, guttulis binis minutis polaribus impletae, primum laeves, dein reticulatae cum ocellis reticuli elongatis, 5—6 angulatis.

Occurrence and Remarks: On moist ground in forests, very rare. Up till now known only from Silesia (Schroeter l. c.). From Bohemia given by Velenovský, from Hořovice (IX-1926, leg. Cejp). The specimen of this find (h. NMP 150986) which was at my disposal is useless; judging from the diagnosis in Velenovský's monograph I believe it to be another species (the pili are too thick-walled and the spores are figured rather as coarsely verrucous than as reticular). I myself collected this Discomycete (on an excursion together with Prof. Velenovský and Mr. V. Vacek), 27. VII. 1946, on an old burnt spot in the pine-grove under the Kožený vrch near Mnichovice, where it grew together with Lachnea Velenovskýi Vacek. It is quite possible that this Melastiziella is not limited to burnt spots and that its occurrence in that locality was sheer chance, just as in the case of Lachnea Velenovský (which I later found in a pure pine-grove in the needles among the grass). Our fungus differs a little from Schroeter's ariginal description; it is not so vividly coloured and has narrower spores and asci.

## III. Sphaerospora Saccardo.

*Sphaerospora* Saccardo, Syll. Fung. 8:188 (1889), 16:720 (1902), 18:38 (1906), 22:634 (1913). — Massee, Brit. Fung. Fl. 4:292, 1895. — Rehm, Discom., p. 1037, 1896. — Schroeter, Pilze Schles. 2:39, 1908. — Seaver, North Amer. Cup-Fungi p. 43, 1928. — Velenovský, Mon. Disc. p. 300, 1934.
*Peziza* § *Sphaerospora* Saccardo, Michelia 1:594, 1879.
*Sphaerosporula* Kuntze, Rev. Gen. Pl. 3:530, 1898.
*Ciliaria* Boudier, Hist. Class. Disc. Eur. p. 62, 1907 (p. p.).

Apothecia primum globoso inclusa, dein patellaria usque explanata, late sessilia, molliter carnosa, extus margineque pilis longis vel brevioribus adpresse vel erecte pilosa, thecio semper laete colorato. Excipulum pseudoparenchymatosum, e cellulis globosis vel subangulatis, hyalinis vel subfuscis compositum. Pili typici, simplices, recti, acuti, rigidi, obscure rubro-fusci vel luteo-fusci, septati, plerumque crasse tunicati. Asci cylindrici, apice rotundati, deorsum angustati et stipitati, IIK-, octospori, sporis monostichis. Paraphysia fliformia, simplicia vel basi divisa, apice plerumque clavato-incrassata, colorata vel hyalina. Sporae per-

fecte globosae, unicellulares, hyalinae (tantum in statu vetusto interdum fuscidulae), laeves vel varie sculpturatae, saepe guttula magna centrali impletae.

Occurrence: The representatives of this genus live saprophytically on the bare moist ground, more rarely on burnt spots, rarely also on rotten wood or dung.

Saccardo (l. c.) lists 13 species, among them 8 European ones. Velenovský (l. c.) describes from Bohemia 6 species.

Remarks: The only characteristic feature of this genus, the globular spores, distinguishes it from all other Lachneoideae, especially from the genus Lachnea, with which for the rest it has the greatest number of features in common. Sphaerospora can thus be considered rightly to represent a sphaerosporic parallel genus to the genus Lachnea, some of whose species approach by the shape of their spores considerably the Sphaerosporae [f. inst. Lachnea umbrorum (Fr.) Gill., L. Nymphaarum Vel.]. Similar parellel genera with globular spores occur in the most different places of the system of the Ascomycetes (Mollisia-Mollisiella, Humaria-Lamprospora, Plicaria-Plicariella). Saccardo (l. c.) compares Sphaerospora also with the genus Lamprospora De Not. (= Barlaea Sacc.). But there is no closer affinity between these two genera in view of the different configuration of the excipulum (no pili whatever are developed in the Lamprosporae). Also Pseudoplectania Fuckel, likewise with globular spores, does not show any closer affinity; it distinguishes itself completely by the consistence of the receptacle and the quite different covering of the excipulum.

Sphaerospora minor Velenovský, whose type is missing in Velenovský's herbarium, is probably identical (or closely related) with Lachnea superba Vel.

### Conspectus specierum.

I. Sporae permanenter laeves (*Sphaerosporella* m.).
   1. Thecium obscure fuscum . . . *S. brunnea* (A. et S.) MASS.
   2. Thecium ochraceo-luteum . . . *S. ochracea* (REHM) VEL.

II. Sporae sculpturatae (*Eusphaerospora* m.).
   1. Thecium cinnabarino-vel aurantiaco-rubrum . . . . . *S. trechispora* (B. et BR.) SACC.
   2. Thecium sordide ochraceo-luteum . . . . . *S. Diaboli* VEL.

A. Subgenus *Sphaerosporella* SVRČEK.
Sporae permanenter laeves, guttula centrali magna instructae, dein interdum luteolae.

### 1. Sphaerospora brunnea (Alb. et Schw. ex Fr.) Massee.

(Tab. VI, fig. 1—3.)

*Sphaerospora brunnea* MASSEE, Brit. Fung. Fl. 4:295, 1895. — SCHROETER, Pilze Schles. 2:39, 1908. — SEAVER, North Amer. Cup-Fungi p. 46, 1928.

*Peziza brunnea* ALBERTINI et SCHWEINITZ, Consp. Fung. p. 317, tab. 9, f. 8, 1805. — FRIES, Syst. Myc. 2:83, 1823. — NYLANDER, Pez. Fenn. p. 21, 1869. — KARSTEN, Myc. Fenn. 1:75, 1871. — Rev. Mon. p. 121, 1885.
*Scutellinia brunnea* KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Peziza confusa* COOKE, Bull. Buff. Soc. Nat. Sci. 2:291, 1875. — Mycogr. p. 69, pl. 32, f. 124, 1879.
*Lachnea confusa* PHILLIPS, Grev. 18:83, 1889.
*Sphaerosporula confusa* KUNTZE, Rev. Gen. Pl. 3:530, 1898.
*Ciliaria confusa* BOUDIER, Hist. Class. Disc. Eur. p. 62, 1907. — BOUDIER, Icon. Myc. p. 213, pl. 379, 1910. — GRELET, Disc. Fr. no. 249, 1942.
*Sphaerospora confusa* SACCARDO, Syll. Fung. 8:190, 1889. — MASSEE, Brit. Fung. Fl. 4:296, 1895. — REHM, Discom. p. 1037, 1896. — VELENOVSKÝ, Mon. Disc. p. 301, tab. XXIII, f. 29, 30, 34, 35, 1934.
*Sphaerospora sordida* VELENOVSKÝ, Mon. Disc. p. 301, 1934.
*?Peziza schizospora* PHILLIPS, Grev. 3:31, tab. 30, f. 59, 1874. — COOKE, Mycogr. p. 44, pl. 20, f. 80, 1879. — PHILLIPS, Man. Brit. Disc. p. 87, 1887.
*?Barlaea schizospora* SACCARDO, Syll. Fung. 8:116, 1889.

Apothecia solitaria vel gregaria, primum leniter patellaria, late sessilia, regulariter orbicularia, dein explanata et undulata, (2)—4—9 mm diam., subcrasse carnosa, crasse marginata, extus margineque obscure fusca, breviter et dense velutino-pilosa, thecio umbrino-fusco, rarius tinctu sordide ochraceo (= f. **sordida**), in speciminibus siccis obscure rubro-fusco, glabro, haud nitido.

Excipulum e cellulis irregulariter globosis usque subangulatis, 25—40 µ diam., pallide fuscis, sat tenuiter tunicatis constat.

Pili 50—110(—180)/6—14 µ, e basi sublatiore sensim longe acuminati, sed etiam obtusi (praesertim pili breviores), pallide fusci usque obscure castaneo-fusci, tenuiter tunicati, membranis 1—1,5 µ crassis, remote septati, recti vel curvati; pili breviores crassius tunicati.

Asci 170—190/(17)—20—23 µ, crasse cylindrici, apice late obtusi vel subtruncati, deorsum crasse breviter stipitati, octospori.

Paraphysia filiformia, 2,5—3 µ crassa, hyalina, apice ad 6—9 µ clavato-incrassata et castaneo-fusca, recta.

Sporae 13—16 µ diam. (creberrime 14 µ), perfecte globosae, guttula centrali magna impletae, permanenter laeves, hyalinae, denique interdum subluteae usque subfuscidulae (praesertim in speciminibus siccis).

Occurrence: On burnt spots in forests, especially on moister and higher sites. In the whole of Europe, in North America and in Australia. Upon the whole rare and sporadic, probably occurring more frequently only in certain years.

Bohemia: Vyžlovka pr. Jevany, VIII-1924, leg. Velenovský. — Jevany, IX-1928, leg. Velenovský (h. NMP 154037). — Jedlany pr. Tábor, VIII-1946, leg. Svrček (h. myc. 739/46).

Moravia: Svitavy, Jihlava, 1865, leg. Reichhardt (teste Niessl, Vh. N. V. 3:152, 1864). — Babí lom pr. Kuřim, leg. Fr. Šmarda. (Výsledky, p. 20, 1942.)

Remarks: Easily recognisable species by its colouring as well as by the relatively delicate covering of the excipulum and the smooth

spores. It belongs to the biologically delimited group of the anthracophile Discomycetes. I collected it on a burnt spot in the forest (in the woods north of Jedlany in the Tábor area, at an altitude of about 580 m), together with Flammula carbonaria, Coprinus Boudieri, Rhizopogon luteolus, Phylacteria sp., and Geopyxis carbonaria. On the burnt spot were a small colony of the moss Ceratodon purpureus and several seedlings of Pinus silvestris, also small clumps of Luzula pilosa. The tree level was composed (in loose formation) of Pinus silvestris, Picea excelsa and Populus tremula.

f. **sordida** (VEL.) m.

Syn.: *Sphaerospora sordida* VELENOVSKÝ, Mon. Disc. p. 301, 1934.

Thecium sordide ochraceum vel sordide fusco-ochraceum.

In carbonariis. — Vidi specimina:

Bohemia: Jevany, X-1925, leg. Velenovský (h. NMP 148954). — Struhařov et Myšlín pr. Mnichovice, leg. Vel. (h. NMP 147297, 153016). — Vyžlovka pr. Jevany, VII-1929, leg. Vel. (h. NMP 154038).

## 2. Sphaerospora ochracea (Rehm) Vel.

*Sphaerospora ochracea* VELENOVSKÝ, Mon. Disc. p. 301, tab. XXIII, f. 31, 1934.
*Sphaerospora confusa* var. *ochracea* REHM in Ann. Myc. 5:467, 1907. — SACCARDO, Syll. Fung. 22:634, 1913.
*Sphaerospora lobata* VELENOVSKÝ in litt. et in herbario.

Apothecia explanata et adpressa, late sessilia, 1 cm diam., profunde lobata, margine obtuso, extus subtiliter et breviter fusco-puberula, crasse carnosa, thecio ochraceo-luteolo usque pallide luteolo.

Pili 60—80/6—10 µ, in margine excipuli acuminati, extus obtusi usque rotundati, saepe flexuosi, septati, tenuiter tunicati, pallide luteofusci.

Asci 200—250/25 µ, crasse cylindrici, apice obtusi, basi curvato-pedicellati, octospori, sporis monostichis.

Paraphysia filiformia, basi 6 µ crassa, apice ad 10—12 µ clavato-incrassata.

Sporae 18 µ diam., globosae, laeves, guttula centrali magna instructae, subluteae.

Habitat: in carbonariis.

Bohemia: Jevany, in carbonariis ad piscinam, 3. VIII. 1925, leg. Velenovský (h. NMP 147296).

Remarks: Rehm (1907) describes this species as a variety of Sphaerospora brunnea (A. et S.) Sacc. as follows: "A typo (Sph. brunnea) differt ascomatibus pallidioribus (pallide ochraceis nec brunneo-castaneis) statura evidenter majore (usque ad 6 mm lata). In area combusta prope Zülz in Pakosz Silesiae (leg. Buchs)."

Velenovský (1934) raised this variety to the rank of a species; only further finds can decide whether he did so rightly. I have not yet collected

this form. I have adopted Velenovský's view because the colouring of the thecium in the genus Sphaerospora seems to be fairly constant for the different species.

B. Subgenus *Eusphaerospora* SVRČEK.

Sporae maturae varie sculpturatae.

### 3. Sphaerospora trechispora (Berk. et Br.) Sacc.

(Tab. VI, fig. 4—7.)

*Sphaerospora trechispora* SACCARDO, Consp. Disc. p. 4, 1884. — Syll. Fung. 8:188, 1889. — MASSEE, Brit. Fung. Fl. 4:292, 1895. — REHM, Discom. p. 1038, 1896. — SEAVER, North Amer. Cup-Fungi, p. 43, 1928. — VELENOVSKÝ, Mon. Disc p. 300, tab. 23, f. 38, 1934.

*Peziza trechispora* BERKELEY et BROOME, Ann. Nat. Hist. 18:77, 1846. — COOKE, Mycogr. pl. 33, f. 129, 1879.

*Ciliaria trechispora* BOUDIER, Nouv. Class. Disc. Eur. p. 105, 1885. — Hist. Class. Disc. Eur. p. 62, 1907. — GRELET, Disc. Fr. no. 246, 1942.

*Lachnea trechispora* GILLET, Champ. Fr. Disc. p. 77, 1879.

*Scutellinia trechispora* LAMBOTTE, Fl. myc. belg. p. 299, 1880.

*Sphaerosporula trechispora* KUNTZE, Rev. Gen. Pl. 3:530, 1898.

*Humaria trechispora* REHM, Ascom. exs. (teste Rehm).

*Peziza asperior* NYLANDER, Pez. fenn. p. 21, 1868. — KARSTEN, Mon. Pez. p. 128, 1869. — COOKE, Mycogr. pl. 13, f. 51, 1879.

*Ciliaria asperior* BOUDIER, Hist. Class. Disc. Eur. p. 62, 1907. — Icon. myc. p. 213, pl. 378, 1910. — GRELET, Disc. Fr. no. 247, 1942.

*Lachnea asperior* GILLET, Champ. Fr. Disc. p. 77, 1879.

*Leucoloma asperior* REHM in Ber. Nat. Verh. Augsburg, 26:6, 1881.

*Sphaerospora asperior* SACCARDO, Syll. Fung. 8:188, 1889. — MASSEE, Brit. Fung. Fl. 4:239, 1895. — SCHROETER, Pilze Schles. 2:39, 1908.

*Sphaerosporula asperior* KUNTZE, Rev. Gen. Pl. 3:530, 1898.

*Humaria limnophila* BECK, Flor. v. Bernst. p. 132, tab. I, f. 2b, et Pilzfl. v. Nieder-Oesterr. III, p. 50, 1885.

*Pyronemella limnophila* SACCARDO, Syll. Fung. 8:194, 1889.

Apothecia leniter patellaria, denique explanata, late sessilia, 3—10 mm diam., extus margineque setis rigidis erectis longis conferte vestita, sat crasse molliterque carnosa, thecio cinnabarino, lateritio, igneo-rubro vel aurantiaci, solitaria et sparsa.

Excipulum e cellulis magnis, 40—78 µ diam., irregulariter globosis usque subangulatis vel oblongis, sat tenuiter tunicatis, hyalinis constat.

Pili 300—1500 µ longi, basi 20—40 µ lati, sursum sensim et longe acuminati, acuti, obscure castaneo-rubro-fusci, recti, crasse tunicati, membranis 6—10 µ crassis, remote septati.

Asci 200—250(—300)/20—25 µ, crasse cylindrici, apice obtusi, deorsum stipitati, octospori, sporis monostichis.

Paraphysia copiosa, filiformia, apice 7,5—11 µ crassa et oblongo-clavata, basi 3 µ crassa, apice recta, pallide aurantiaca, ascos superantia.

Sporae 16—18—20 µ diam., magnitudine sat variabiles, perfecte globosae, dense distincte verrucoso-aculeatae, immaturae guttula centrali magna impletae; verrucae obtuse conicae, 1,5—3 µ altae, basi 2 µ latae.

Occurrence: On bare, permanently moist to rather wet, loamy or sandy soil, at streams, swamps, marshes etc. On a calcareous as well as on another substratum. Especially in summer. Ombrophile species, preferring warmer sites, but never abundant, always sporadical or in a small number of specimens. Saccardo (l. c.) remarks that it grows also on rotten wood, but I cannot confirm this. In the whole of Europe, in North America.

Bohemia: Radotín, IX-1924, leg. Fechtner (h. NMP 148777). — Karlštejn, frequens: VIII-1925, leg. Velenovský (h. NMP 149674), — VIII-1926, leg. Vel. (154035), — VIII-1941, leg. Vacek (h. myc. H. 614/41), — VI-1942, leg. Svrček et Vacek. — Myšlín pr. Mnichovice, X-1925, leg. Vel. (150175). — Butovice pr. Pragam, VII-1926, leg. Vel. (148409). — Hlásná Třebáň, VII-1939, leg. Vacek (h. NMP 154036). — ibidem VII-VIII-1945, leg. Svrček (h. myc. 178/45, 275/45). — Mořinka, VII-1946, leg. Svrček (h. myc. 443/46). — Krčský les pr. Pragam, VII-1946, leg. Svrček (h. myc. 457/46).

Moravia: Žarošice, frequens, VIII—IX-1941—43, leg. Vacek et Fr. Šmarda. — Místek, Sýkoř pr. Lomnice (Tišnov), Kuřim, leg. Fr. Šmarda. (Výsledky p. 20, 1942.) — Korytná (Bílé Karpaty), leg. Fr. Šmarda. (Výsledky 2:9, 1944.)

Remarks: Very characteristic Sphaerospora by the colouring of the thecium as well as by the sculpture of the spores and the thick-walled, dark and long pili. Already Saccardo (1889) remarks on Sphaerospora asperior (Nyl.): "A praecedente (Sph. trechispora) videretur diversa pilis paucioribus, fugacibus. An satis?" Rehm later combined the two species in one and also other authors followed him. Grelet (Disc. Fr. no. 247, 1942) following Massee's view (1895) distinguishes again between Sphaerospora asperior and Sph. trechispora because of the different sculpture of the spores, which in the latter species are said to be reticular rather than verrucous. I am, however, convinced that both these forms are identical and that the "reticular sculpture" of their spores rests on an error. The closely crowded, blunt verrucae sometimes really give the impression of a reticulation, but the outline of the spore always shows isolated verrucae. The identity of Humaria (Pyronemella) limnophila Beck with our species was confirmed by Rehm (1896) by the revision of the type in Beck's herbarium. It is also interesting that the verrucae of the spores disappear completely in a KOH preparation after five to ten minutes and the spores are then smooth (as is also the case in Sphaerospora Diaboli Vel.). This must be remembered when studying dry herbarium material.

f. **paludicola** (Boudier) m.

Syn.: *Ciliaria trechispora* var. *paludicola* Boudier, Icon. Myc. p. 212, pl. 376, 1910. — Grelet, Disc. Fr. no. 246, 1942.

Sporis 22—26 μ diam. discrepat. — Rarior.

### 4. Sphaerospora Diaboli Velenovský.

(Tab. VI, fig. 8—9.)

*Sphaerospora Diaboli* VELENOVSKÝ, Mon. Disc. p. 301, tab. 23, f. 32, 33, 38, 1934. — Novit. Mycol. Noviss. p. 143, 1947.

Apothecia crasse et leniter patellaria, sessilia, ad marginem longe stricte ferrugineo-ciliata, ceterum puberula, 5—8 mm diam., solitaria, tota luteo-ochracea vel luteo-fulvida.

Excipulum e cellulis globosis, 28—46 μ diam., subluteis, (membranis 1,5—2 μ crassis) constat.

Pili 200—3000/23—56 μ, e basi latiore sensim angustati, acuti, recti, obscure castaneo-fusci, crasse tunicati, membranis 3—7 μ crassis, remote septati, basi saepe radiciformiter ramosi.

Asci 250—300/14—20—25 μ, late clavati, apice rotundati, deorsum sensim stipitati, octospori, sporis monostichis.

Paraphysia filiformia, basi 2,5—3 μ crassa, apice ad 4,5—10 μ clavato-incrassata, hyalina, recta.

Sporae 16—18 μ diam., perfecte globosae, dense aculeis obtusis verrucosae, hyalinae, denique subochraceae; verrucae 2,5—3 μ altae, basi 1—1,5 μ latae, obtuse conicae usque fere semiglobosae.

Habitat: ad terram humidam argillaceam vel humosam, admodum rare.

Bohemia: Mnichovice, ad terram humidam argillaceam inter gramina ad marginem silvae prope Hubáčkov, 3. VIII-1931, leg. Velenovský (h. NMP 147298). — Mnichovice, ad terram nigram humidam inter herbas (Stachys silv., Impatiens, Milium, Carex silv.) sub Quercubus ad pedem mont. Kožený vrch, 15.-VII-1941, leg. Velenovský (h. NMP 153017).

Moravia: Žarošice, IX-1942, leg. V. Vacek (h. NMP 154034).

Remarks: Remarkable species of ochre yellow colouring by which it distinguishes itself from Sphaerospora trechispora, to which it corresponds upon the whole in other respects. The spores are more bluntly verrucous than in Sph. trechispora. Velenovský (Mon. Disc. p. 301) describes on the surface of the excipulum interlaced, brown, septated and ramified hyphes, 2—3 μ thick, which strangulate off on short stalks brown, globular, prickly conidie, 8—10 μ wide. In my revision of the specimen exsiccata I found neither these hyphae nor the conidie. Perhaps it is a forma imperfecta from the group of the Hyphomycetales, growing either near a receptacle or perhaps parasitically on it.

## IV. Neottiella (Cooke) Sacc.

*Neottiella* SACCARDO, Syll. fung. 8:190 (1889), 11:400 (1895), 14:760 (1899), 16:720 (1902), 18:39 (1906), 22:634 (1913). — MASSEE, Brit. Fung. Fl. 4:370, 1895. — GRELET, Disc. Fr. p. 18, 1942.

*Peziza* subg. *Neottiella* COOKE, Mycogr. p. 261, 1879.

*Leucoscypha* BOUDIER, Nouv. Class. Disc. Eur. p. 100, 1885. — BIGEARD et GUILLEMIN, Fl. Champ. Fr. p. 652, 1913.

*Lachnea* auct. pro parte.

Apothecia sessilia, patellaria vel cyathiformia, subcarnosa, minuta vel mediocri magnitudinis, laete colorata, extus albo-tomentosa vel albo-pilosa, thecio plerumque albo, luteo, rubello. Excipulum pseudoparenchymatosum, hyalinum vel luteolum. Pili typici, recti vel flexuosi, apice acuti vel obtusi, simplices, hyalini vel subhyalini, septati, membranis incrassatis vel tenuibus. Asci cylindrici, apice rotundati, sporis octonis, monostichis. Paraphysia filiformia, apice incrassata vel non, hyalina vel laete colorata, recta. Sporae ellipsoideae, oblongae, plerumque eguttulatae, sed etiam guttulis instructae, laeves vel verrucosae, rarius reticulatae, unicellulares, hyalinae.

On moist soil, among the moss, also on rotting wood and dung. Saccardo (Sylloge l. c.) lists 29 species from all parts of the world. All are however very rare and many of them are critical species, incompletely described and often found only once. — In our country only one species is certain:

### Neottiella regalis (Vel.) Svrček, c. n.

(Tab. VI, fig. 17—18.)

*Lachnea regalis* VELENOVSKÝ, Mon. Disc. p. 306, 1934.

Apothecia solitaria, 5—10 mm diam., explanata, centro impressa, molliter carnosa, igneo-violacea, margine longe, rigide albido-ciliata.

Excipulum e cellulis globosis, 16—30 μ diam., subluteis, constat.

Pili 400—500/22—30 μ, recti, sensim acutati, pallide luteoli usque hyalini, multicellulares, membranis 3,5 μ crassis.

Asci 250—300/14—25 μ, cylindrici, basi tenuiter stipitati, apice rotundati, octospori, sporis monostichis.

Paraphysia simpliciter filiformia, apice ad 5,5—7 μ incrassata, recta, luteola.

Sporae 19,5—22,5(—25)/14—15,5 μ, late usque globoso-ellipsoideae, polis late, fere obtuse rotundatis, eguttulatae (in specimininibus siccis nonnumquam guttula unica centrali magna impletae), minute dense verrucosae, hyalinae; verrucae fere semiglobosae, cca 0,8—1 μ diam.

Habitat: ad terram nudam humidam.

Bohemia: Mnichovice, ad rivulum in alneto paludoso (in societate Gyrodontis lividi), IX-1933, leg. Velenovský (h. NMP 151387-typus).

Remarks: Remarkable species whose microscopical diagnosis I supplemented according to the type. It belongs certainly to the genus Neottiella, but does not agree with any known form though it is so strikingly coloured. Seems to be unusually rare.

## V. Desmazierella Libert.

*Desmazierella* LIBERT, Ann. Sci. Nat. 17:82, 1829.

Apothecia primum globosa, dein patellaria, sessilia, molliter ceracea, extus longe nigro-setosa, basi tomento nigro-fusco, byssoideo obsessa, thecio paraphysium apicibus emergentibus atris hirtello, pallido. Excipulum pseudoparenchymatosum, coloratum. Asci cylindrici, apice truncati, octospori, IIK-. Paraphysia partim filiformia, ascos parum superantia, partim setiformia, ascos longe superantia, nigro-fusca. Sporae ellipsoideae, unicellulares, hyalinae.

Monotypical genus with only one species (D. acicola Libert), growing saprophytically on needles of Pinus sp. Rehm (Discom. p. 1041, 1896) places here (often with reservation) a very doubtful species of unclear position, Desm. melaxantha (Fr. et Hoff.) Rehm.

### Desmazierella acicola Libert.

(Tab. V, fig. 13—17.)

*Desmazierella acicola* LIBERT, Ann. Sci. Nat. 17:82, tab. 6B, 1829. — PHILLIPS, Man. Brit. Disc. p. 283, t. 8, f. 51, 1887. — SACCARDO, Syll. Fung. 8:386, 1889. — MASSEE, Brit. Fung. Fl. 4:324, 1895. — REHM, Discom. p. 1041, 1896. — SCHROETER, Pilze Schles. 2:84, 1908. — VELENOVSKÝ, Mon. Disc. p. 302, tab. VI, f. 13, 1934. — Novit. Mycol. Noviss. p. 143, 1947.
*Humaria acicola* QUÉLET, Enchir. Fung. p. 285, 1886.
*Peziza aterrima* LASCH in Rabenhorst, Herb. myc. no. 336.

Apothecia solitaria, sed semper consociata, leniter patellaria, sessilia, irregulariter orbicularia, 2—5 mm diam., 0,5—1,5 mm alta, margine conspecte setis longis (1—2 mm) strictis et nigris ciliata, basi adpresse nigro-tomentosa, crasse carnosa, thecio plano, subtruncato, denique leniter convexo, sordide et pallide cinereo-fulvidulo, paraphysibus exilientibus atro-hirtello.

Hyphae e basi excedentes longae, flexuosae, 3—5 μ crassae, simplices vel irregulariter ramosae, sparse septatae, obscuro-fuscae, apice obtusae.

Setae 0,5—2 mm longae, 12—15 μ crassae, multicellulares, simplices, nigrofuscae, sursum sensim acutatae, rectae, basi non dilatatae; pili breviores apice obtusi usque subincrassati.

Asci 200—250/13—14 μ, longe cylindrici, apice truncati et saepe strangulati, deorsum sensim longe angustati et stipitati, basi simplices vel bifurcati, octospori, sporis monostichis.

Paraphysia partim 3—5 μ crassa, filiformia, fusca, apice haud incrassata, obtusa, recta, ascos parum superantia, partim setiformia, 9—10 μ crassa, nigra, rigida, sensim acutata, ascos valde superantia, usque 1 mm longa.

Sporae 16—22/9—11 μ, obtuse oblongo ellipsoideae, laeves, eguttulatae vel guttulis binis minutis polaribus instructae, hyalinae.

Occurrence: On rotten needles of different species of the genus Pinus, always and only in early spring. It occurs especially in fairly dry old pine-forests, sometimes in great numbers together on fallen needles among the moss or in growths of Vaccinium Myrtillus. In South Bohemia it belongs together with Sclerotinia baccarum Schroeter to the characteristic vernal types of the mycoflora of pine-forests. It is probably fairly well distributed in our country, though not in all regions. Rarely it spreads from the needles also to the neighbouring plants (grasses etc.). — In the whole of Central Europe. I saw the following specimens from Bohemia: Mnichovice, IV—V, admodum frequens, leg. Velenovský (h. NMP 150712, 150713, 150714, 150711, 150715). — ibidem ad folia emortua Festucae ovinae in proximitate acuum, V-1941, leg. Vel. (h. NMP 150716). — Tábor: Prudice, Nemyšl, Jedlany etc., IV-V-1943—1944, leg. Svrček (h. myc. 324/43 etc.). — Hlásná Třebáň, 23.-IV-1944, leg. Svrček. — Roblín, Pinus nigra, 21.-V-1944, leg. Svrček. — Černošice, 7.-IV-1945, leg. Svrček. — Slivenec pr. Pragam, 2.-III-1946, leg. Svrček.

Remarks: Easily recognisable and so characteristic a species that it cannot be confused with any other. It is very little variable. Remarkable are the paraphyses — morphologically quite unusual in the Discomycetes — which evolutionarily seem to correspond to the marginal bristly pili. Also the strange strangulation below the apex of the asci does not occur in the other Lachneoideae. The genus Desmazierella belongs probably to the considerably old and constant types of this family, among whose genera it has a rather isolated position.

## VI. Arachnopeziza (Fuckel) Svr. emend.

Syn.: *Arachnopeziza* auct. pro parte.
Pseudotypus: *Peziza aurelia* Persoon, Myc. Eur. 1:270, 1822.

Apothecia gregaria vel sparsa, sessilia, primum globoso inclusa, dein patellaria, crasse molliterque carnosa, mediocri magnitudinis, laete colorata, extus pilis laete coloratis unicellularibus dense vestita, margine usque ciliata, hypothallo araneoso usque hyphoideo, albo vel pallide luteo insidentia. Excipulum pseudoprosenchymatosum, haud coloratum. Asci clavati, apice angustati, IIK+, octospori, sporis distichis. Paraphysia simpliciter filiformia, apice non incrassata, sine epithecio. Sporae oblongae, permanenter hyalinae, primum unicellulares, passim utrinque ciliatae, maturae 2—4 cellulares.

Species unica nota, ligni-, folii-vel fructicola.

### Arachnopeziza aurelia (Pers.) Fuckel.

(Tab. VII, fig. 1—6.)

*Peziza aurelia* Persoon, Myc. Eur. 1:270, 1822.
*Belonidium aurelia* De Notaris, Discom. p. 381, 1864. — Saccardo, Syl. Fung. 8:499, 1889.

*Arachnopeziza aurelia* FUCKEL, Symb. Myc. p. 303, 1869. — REHM, Discom. p. 699, 1896. — SCHROETER, Pilze Schles. 2:68, 1908 (non Velenovský Mon. Disc. p. 267, 1934).
*Polynema aurelia* FUCKEL, Symb. Myc. Nachtr. 1:49, f. 35, 1871.
*Lachnella aurelia* QUÉLET, Enchir. Fung. p. 315, 1886.
*Tapesia aurelia* PHILLIPS, Man. Brit. Disc. p. 280, 1887. — MASSEE, Brit. Fung. Fl. 4:299, 1895.
*Tapesia fulgens* HAZSLINSKY in Zool.-Bot. Verh. 1887, p. 163.
*Belonidium fulgens* SACCARDO, Syll. Fung. 8:500, 1889.
*Patellaria bicolor* CURREY in Linn. Soc. Trans. 24:491, tab. 51, f. 15—16,
*Lachnella flammea* VELENOVSKÝ, Mon. Disc. p. 242, tab. VIII, f. 1, 1934 (non auct. al.!).

Apothecia regulariter orbicularia, sessilia, primum profunde concava, dein patellaria, crasse et molliter carnosa, plerumque 1—3 mm diam., rarius 5—8 mm diam., sparsa vel gregaria, hypothallo araneoso usque hyphoideo, albido vel luteo insidentia, extus pilis adpressis, igneo-rubris vel aureis, fasciculatis, dense vestita, margine fimbriata. Thecium pallide aurantiacum vel flavidum, postea subtruncatum, glabrum. Apothecia in statu exsiccato aureo-rubiginosa.

Excipulum e hyphis longis, dense intricatis et flexuosis, 4,5—10 µ crassis, irregularibus, crebre septatis, tenuiter tunicatis, hyalinis constat.

Pili partim breves, 60—125/3 µ, recti e basi non dilatata sensim tenuiter acutati, hyalini, partim elongati, 200—300/4—4,5 µ, crassiores, e basi non dilatata longe acuminati vel apice defracti, parte inferiore hyalini et saepe flexuosi, parte superiore aurantiaco-lutei usque rubiginoso-lutei, laeves vel subgranulosi, conferte fasciculati, unicellulares, crasse tunicati, sed membranis indistinctis, cca 1—1,5 µ crassis destituti, sat conspecte lucem frangentes.

Asci 78—100/7—10 µ, elongato-clavati, apice angustati, deorsum sensim stipitati, octospori, sporis distichis. Porus vi solutionis iodi indistincte violaceo-coerulescit.

Paraphysia copiosa, tenuiter filiformia, 0,8—1 µ crassa, apice non incrassata, recta, hyalina, simplicia.

Sporae 12—18—20/3—4 µ cylindrico-fusoideae, basi subangustatae, apice obtusae, rectae, maturae 2—4 cellulares, haud strangulatae, hyalinae, iuventute utrinque ciliatae (ciliis cca 5 µ longis, hyalinis).

Hyphae hypothalli usque 1 cm longae, simplices vel parce ramosae, irregulariter intricatae, 3—4 µ crassae, hyalinae vel pallide aurantiaco luteae, laeves, membranis cca 0,5—1 µ crassis, admodum remote septatae.

Occurrence: On dead twigs of Quercus, more rarely of Fagus silv., lying on the ground under fallen leaves, on fragments of wood, showing a special preferance for old acorns and rotten nut-shells of Corylus avellana; sometimes it spreads also to rotten leaves. In spring, rarely in autumn. This extraordinarily beautiful and striking species occurs in Bohemia probably the most abundantly in Central Bohemia, especially in the area of the thermophile flora where it accompanies old and sunny oak-growths sufficiently warmed by the vernal sun; often it appears early in spring and persists at most till the end of May, then

it disappears completely. The following specimens collected by Velenovský are in the herbarium of the National Museum in Praha.

B o h e m i a: Mnichovice, collis "Plecháč", in nucibus foliisque Coryli avell., IV-1923, (h. NMP 150192). — Krč pr. Pragam, V-1923 (Quercus-148465). — Jirny, Quercus, V-1925 (150944). — Všenory, Fagus, V-1927 (150943). — Radotín, Quercus, IV-1929 (149807). — Božkov et Kunice pr. Mnichovice, Quercus, III. et V-1934, XI-1931 (151452, 151453, 151436, 151454, 151451). — Localitates ceter.: Dobřichovice (Brdské hřebeny, Fagus), V-1944, leg. Vacek et Svrček. — Lutová (Chlum pr. Třeboň, Quercus), IX-1945, leg. Svrček (h. myc. 419/45). — Černošice, Quercus, V-1946, leg. Doubová et Vacek. — Třebotov, Quercus, III-1946, leg. Svrček (h. myc. 841/46).

R e m a r k s: This fungus was first described briefly but accurately by Persoon (1822): "Sparsa, sessilis subventricosa aureo-rubiginosa, subiculo tenui niveo. — Species pulchella innascitur foliis deciduis fagineis, vere in Vogesia ubi a D. Mougeot reperta. Color in fungillo recente aurorae. Cupulae majusculae, submembranaceae, subcrispatae, 2 lin. latae". — Since then it has been placed by different authors in different genera. Because of its pilocellular cells de Notaris placed it in the genus Belonidium, Quélet in the genus Lachnella; Phillips according to the hypothallus in the genus Tapesia; Fuckel who places it in the genus Arachnopeziza and is followed by Rehm and Schroeter later shifted this species to the genus Polymena Léveillé, in a new delimination (cf. Nannfeldt 1932, p. 279). But it has no relation whatever to any of these genera. Thus Polymena Lév. belongs today among the Discellaceae (Deuteromycetes, cf. Clements-Shear p. 377, 1931); genera like Belonidium, Tapesia and Patellaria distinguish themselves by the completely different structure of the receptacles; Lachnella is a critical genus, very close to the genus Dasyscypha from which it differs by its two-cellular spores. Nannfeldt (1932), who does not know our species, regards Peziza aurelia as pseudotype of the genus Arachnopeziza. But to place side by side such different species as Arachnopeziza delicatula Fuck. and Ar. aurelia (Pers.) would lead sooner or later to a different conception of the genus Arachnopeziza. It is possible either to see in Arachnopeziza aurelia the pseudotype of the genus Arachnopeziza and then to place in it only Ar. aurelia, or to leave the genus Arachnopeziza in its present sense to Arachnopeziza delicatula (and related species) and to separate from it Arach. aurelia as an independent genus. I choose the first possibility to preserve the Fuckel's original opinion. The species described above cannot well be placed in any genus described without emending it. It is probably a monotypical genus.

## VII. Anthracobia Boudier.

*Anthracobia* BOUDIER in Bull. Soc. Myc. Fr. 1:106, 1885. — Icon. Myc. p. 218, pl. 387, 1910. Hist. Class. Disc. Eur. p. 65, 1907. — GRELET, Disc. Fr. p. 23, 1942.
*Ramulina* VELENOVSKÝ, Novit. Mycol. Noviss. p. 146, 1947 (saltem pro parte).
*Lachnea* auct. p. p.

Apothecia primum globoso-inclusa, orbiculariter aperta, thecio solum leniter concavo, mox plano, late sessilia, extus margineque o c u l o n u d o s u b g l a b r a, pseudopilis vestita, plerumque fusca vel rubrofusca, thecio pallidiore. Excipulum pseudoparenchymatosum, e cellulis plus minusve globosis, fuscis constans. Pseudopili b r e v e s, hyphoidei, apice obtusi, fasciculati vel intricati, fusci, septati, tenuiter tunicati, flexuosi. Asci cylindrici, apice rotundati, octospori, sporis monostichis; reactio IIK—. Paraphysia filiformia vel capilliformia, septata, simplicia vel basi ramosa, apice incrassata vel non, recta, hyalina vel laete colorata. Sporae ellipsoideae, laeves, eguttulatae vel guttulis instructae.

Species carbonaria, excrementa vel caules marcidos herbarum incolentes.

R e m a r k s: The genus Anthracobia established by Boudier comprised originally only the forms around Peziza melaloma Alb. et Schw., which have morphological as well as biological features in common, thus f. inst.: short, hyphic, blunt pili, smooth spores with bodies, and an anthracophile manner of living. In this sense this genus is understood f. inst. by Grelet (l. c.), other authors do not recognise it at all and simply connect it with the genus Lachnea (Rehm, Velenovský, Seaver a. o.). Today when the number of species in the whole affinity of this group has grown and when the systematic has rather the tendency to maintain and to form smaller genera, I think it proper to maintain also this genus enlarged by the features of those forms whose relations to the original representatives of the genus are incontestable, even if they differ in other features as in manner of living.

**Conspectus specierum.**

I. Sporae plasma perfecte homogenea instructae. Species non anthracophilae. (*Pseudoanthracobia* m.)
   1. Paraphysia subcapilliformia, 1,2—1,5 μ crassa, apice non incrassata, hyalina; ad caules herbarum . . . *A. ramosa* (VEL.) SVR.
   2. Paraphysia filiformia, 2—3 μ crassa, apice haud incrassata vel subincrassata luteola; ad excrementa . . . *A. humana* (VEL.) SVR.

II. Sporae guttulis binis magnis instructae. Species anthracophila. (*Euanthracobia* m.). . . . . *A. melaloma* (A. et S.) BOUD.

A. Subgenus *Pseudoanthracobia* SVRČEK.
Sporae eguttulatae, plasma perfecte homogenea instructae. Paraphysia apice haud incrassata vel subincrassata. Ad excrementa et caules marcidos herbarum.

**1. Anthracobia ramosa (Vel.) Svrček, c. n.**

(Tab. VII, fig. 7—9.)

*Lachnea ramosa* VELENOVSKÝ, Mon. Disc. p. 309, tab. VI, f. 2, 1934.
*Ramulina ramosa* VELENOVSKÝ, Novit. Mycol. Noviss. p. 146, 1947.

Apothecia consociata usque gregaria, rarius sparsa, leniter patellaria, regulariter orbicularia, postea subflexuosa, basi brevissime conice angustato-sessilia, 3—12 m diam., praesertim in iuventute subcrasse carnosa, extus laevia et oculo nudo subglabra, sub lente minute fusco-punctata usque adpresse floccosa, pallide rubro-fusca, margine acuto anguste limbato, fusco. Thecium sordide rubellum, rubro-fuscum, interdum obscure coloratum, rarius subpallidum et dealbatum.

Excipulum e cellulis globosis, sat minutis, 3,5—10 μ diam., pallide fuscidulis, tenuiter tunicatis constat.

Pseudopili 28—84/3—6 μ, fasciculati vel solitarii, flexuosi, adpressi, conspecte hyphoidei, e basi haud latiore sursum paulum vel non angustati, apice late rotundati vel saltem obtusi, 2—4 cellulares, interdum strangulati, tenuiter tunicati, obscure luteo-fusci.

Asci 165—175/10—14 μ, longe cylindrici, apice rotundati, deorsum sensim attenuati, octospori, sporis monostichis.

Paraphysia admodum copiosa, tenuiter filiformia usque capilliformia, 1,2—1,5(—2) μ crassa, apice haud incrassata (vel subincrassata), recta, hyalina, simplicia vel ramosa, eguttulata.

Sporae 10—12,5/7—8 μ, laeves, breviter ellipsoideae, polis ambobus late rotundatae, plasma homogenea destitutae.

Occurrence: On rotten stems of herbs, very rare.

Bohemia: sv. Anna near Stráněice, on rotten stems of Trifolium pratense, X-1927, leg. Velenovský (typus in h. NMP 147263) — Praha XIX-Bubeneč: on last year's mouldering stems of herbs (probably cultivated in gardens) in a compost heap, in the garden of the former Botanical Institute of the National Museum, 22-V-1948, leg. Svrček.

Remarks: I have supplemented Velenovský's original diagnosis according to the type and according to beautiful living receptacles, which I had collected at the above locality. This species resembles in many respects Humaria Schroeteri (Cke.) Schroet. (Pilze Schles. 2:36, 1908), which, however, distinguishes itself by its whitish hypothallus and by its paraphyses which at the top are cuneiformly thickened up to 5 μ and brownish. The type Lachnea ramosa Vel. has shorter and narrower asci (100—140 × 8—10 μ) than the receptacles of my find, and I found also the cells of the excipulum larger (11—23 μ in diameter); presumably these features vary. In the other details — especially the spores — they correspond perfectly.

## 2. Anthracobia humana (Vel.) Svrček, c. n.

*Lachnea humana* VELENOVSKÝ, Novit. Mycol. p. 208, 1939. — SVRČEK in Česká Mykologie 1:119, 1947.

Apothecia primum globosa, dein orbiculariter aperta, patellaria, centro plerumque impressa, denique explanata, regulariter orbicularia

vel subangulata et varie undulata, basi sensim coniformiter angustata sed sessilia, 3—8 mm diam., dense gregaria usque caespitosa, interdum confluentia (usque ad 300 specim.!), basi interdum paulisper (praesertim in iuventute) albo-tomentosa (fragmenta mycelii), extus adpresse obscure fusco-tomentosa, margine subacuto, integro, solum serius minute fisso. Thecium pallide castaneo-fuscum vel ochraceo-fuscum, in statu exsiccato cinereo-luteofuscum, sub lente dense albo-pruinosum.

Excipulum e cellulis plus minusve globosis, 10—21 μ diam., obscure fuscis (structuram apothecii cf. p. 8.)

Pseudopili hyphoidei, dense intricati et flexuosi, 4—7 μ crassi, obscure fusci, crebre septati, saepe strangulati, membranis 1—1,5 μ crassis, laeves vel minute granulosi, apice obtusi vel subclavati.

Asci 175—200/10—14 μ (in speciminibus minutis solum 105—123/10—11 μ), cylindrici, apice rotundati, deorsum sensim attenuati, octospori, sporis monostichis.

Paraphysia filiformia, plerumque solum basi parce ramosa, apice recta, 2—2,5—3 μ crassa, subincrassata vel non incrassata, copiosa, pallide lutea, in cummulo fusca.

Sporae 11—13/7—7,5—8 μ (plerumque 12/7,5 μ), ellipsoideae, polis rotundatae (sed non obtusae), eguttulatae, plasma homogenea instructae, laeves, hyalinae.

Occurrence: On human excrements, very rare, found up till now only twice.

Bohemia: Radotín near Praha, 19-V-1940, leg. Vacek (type in h. NMP 150991).

Moravia: Jeseníky, on old human excrements in the moist swampy pine forest on the road from Vozka to the Keprník (1420 m. above sea-level), 4.-VII-1947. (This find I already published in the journal Česká Mykologie, l. c.).

Remarks: Our find, on which also the above description is based, corresponds well to the description of Lachnea humana Vel. in Velenovský's Novitates (l. c.) and especially to the description kindly placed at my disposal by Mr. Václav Vacek, who was the first to collect this interesting fungus and sent it to Velenovský for determination. On this occasion I wish to mention that the paraphyses are not (not even in the original) "capilliform, scarcely 1 μ thick at the top" — as the original diagnosis says — but that they are up to 3 μ broad. The other features correspond very well.

B. Subgenus *Euanthracobia* Svrček.

Sporae guttulis binis magnis instructae. Paraphysia apice clavato-incrassata. In carbonariis.

### 3. Anthracobia melaloma (Alb. et Schw.) Boud.

(Tab. VII, fig. 10—12.)

*Anthracobia melaloma* BOUDIER, Nouv. Class. Disc. Eur. p. 106, 1885. — Icon. Myc. p. 218, pl. 387, 1910. — Hist. Class. Disc. Eur. p. 65, 1907. — GRELET, Disc. Fr. p. 24, 1942.
*Peziza melaloma* ALBERTINI et SCHWEINITZ, Consp. Fung. p. 336, t. 2, f. 5, 1805. — *Pyronema melaloma* FUCKEL, Symb. Myc. p. 319, 1869.
*Aleuria melaloma* GILLET, Champ. Fr. Disc. p. 54, 1879.
*Humaria melaloma* KARSTEN, Rev. Mon. p. 120, 1885. — MASSEE, Br. F. Fl. 4:411, 1895.
*Lachnea melaloma* SACCARDO, Syll. Fung. 8:181, 1889. — REHM, Discom. p. 1046, 1896. — VELENOVSKÝ, Mon. Disc. p. 308, tab. VII, f. 20, 1934.
*Scutellinia melaloma* KUNTZE, Rev. Gen. Pl. 2:869, 1891.
*Humariella melaloma* SCHROETER, Pilze Schles. 2:37, 1908.
*Patella melaloma* SEAVER, North Amer. Cup-Fungi, p. 167, 1928.
*Peziza adusta* COOKE et PECK in Ann. Rep. N. Y. State Mus. 27:107, 1875.
*Humaria adusta* SACCARDO, Syll. Fung. 8:141, 1889.
*Peziza intermixta* KARSTEN, Mon. Pez. p. 119, 1869.
*Lachnea intermixta* REHM, Discom. p. 1047, 1896. — VELENOVSKÝ, Mon. Disc. p. 309, tab. IX, f. 42, 1934.
*Humaria melalomoides* REHM in SYDOW, Mycoth. march. no. 778 (1884).
*Humaria flavoaurantiaca* REHM in Ann. Myc. 2:35, 1904.

Apothecia primum globosa, dein patellaria, orbicularia, mox disciformia denique usque convexa, late sessilia, semper dense conferta usque caespitosa, contingenti-conferta et subangulata, hand raro irregulariter undulata, margine obtuso, hand limbato, subcrasse carnosa, 2—5 mm diam. (rarissime usque 1 cm lata), extus margineque minute fusco-floccosa, fasciculis pilorum adpressis vestita, fuscidula. Thecium s o r d i d e a u r a n t i a c u m, a r g i l l a c e o - l u t e u m, fusco-argillaceum vel obscure fuscidulum tinctu sordide luteo, iuventute obscurior quam maturum.

Excipulum e cellulis subangulatis vel ellipsoideo-elongatis, 10—28 µ diam., tenuiter tunicatis, pallide fuscis constat.

Pseudopili cylindrici, basi non dilatati, apice rotundati, 30—50—80/3,5—5,5—8 µ, luteofusci, septati, tenuiter tunicati, dense fasciculati.

Asci (150)—180—200/10—12(—14) µ, longe cylindrici, deorsum sensim attenuati, apice rotundati, octospori, sporis monostichis.

Paraphysia filiformia, simplicia, 2 µ crassa, apice 4—6 µ clavato-incrassata, recta, subhyalina.

Sporae 14—17—22,5/7—8,5—11 µ, oblongo-ellipsoideae, polis angustatae, guttulis binis magnis instructae (rarius guttula unica instructae), laeves, hyalinae.

O c c u r r e n c e: Characteristic anthracophile species growing on relatively freshly burnt places or also only on soil singed and blackened by fire, in coniferous and leafy forests. In summer and autumn, rarely in spring. Probably a cosmopolite distributed all through Europe and North America. In our country it is besides Geopyxis carbonaria (Alb. et Schw.) Sacc. and Plicaria violacea (Pers.) Fuck. the typical and most abundant representative of the anthracophile types of the Discomycetes in the association of the mycoflora of burnt places.

I saw the following specimina from these Bohemian localities:

B o h e m i a: Mnichovice, frequens, leg. Velenovský (h. NMP 151357, 151400, 151342). — Božkov et Kunice pr. Mnichovice, leg. Vel. (151429, 151391). — Stráněice, leg. Vel. (150976). — Mirošovice, leg. Vel. (151352). — Jevany, leg. Vel. (148989). — Solopisky, leg. Vel. (150972). — Strádonice, leg. Vel. (148866). — Všenory, leg. Vel. (149810). — Doksy, leg. Japp (150975). — Čeřenice na Sázavě, VII-1943, V-1944, leg. Kubička. — Černošice, VII-1941, leg. Vacek, XI-1942, leg. Svrček (h. myc. 40/42). — Dobřichovice, X-1945, leg. Vacek. — Tábor: Prudice, Jedlany, Nemyšl, Borotín etc, frequens, VII-VIII, leg. Svrček (h. myc. 372/43, 449/43, 667/48). — Jirny pr. Pragam, VI-1943, leg. Svrček. — Dobřichovice, V-1944, leg. Svrček (h. myc. 162/44). — Karlštejn, VI-1944, leg. Havlena. — Praha-Hlubočepy, VII-1948, leg. Svrček (h. myc. 761/48) — etc.

M o r a v i a: Heroltice et Lomnice pr. Tišnov, Místek, Obřany pr. Brno, leg. Fr. Šmarda (Výsledky, p. 12, 1942). — Žarošice, VIII-1946, leg. Vacek.

V a r i a b i l i t y: Though Anthracobia melaloma is fairly constant in its microscopical features (except for the rather considerable differences in the size of the spores varying according to the habitat) it is the most variable one with regard to the colouring of the thecium. No greater systematic value than that of a mere form can, however, be attributed to this feature as we find generally differently coloured receptacles together simultaneously in the same locality and usually in the most varied transitions. Thus f. inst. the two forms given below grew in the Tábor region always together with normally coloured forms.

f. **dubia** (VEL.) m.

Syn.: *Lachnea melaloma* var. *dubia* VELENOVSKÝ, Mon. Disc. p. 308, 1934.

Thecio albido usque pure albo discrepat. — Rara.

B o h e m i a: Všenory, XI-1926, leg. Velenovský (h. NMP 147269-typus). — Nemyšl pr. Tábor, VIII-1943, leg. Svrček.

f. **combusta** (VEL.) m.

Syn.: *Lachnea melaloma* var. *combusta* VELENOVSKÝ, Mon. Disc. p. 308, 1934.

Thecio laete aurantiaco discrepat. — Frequens.

B o h e m i a: Kunice pr. Mnichovice, X-1928, leg. Velenovský (h. NMP 147270-typus). — Prudice et Jedlany pr. Tábor, VIII-1943, leg. Svrček.

R e m a r k s: In its general aspect this Anthracobia — as also all other species of this genus — resembles rather the genus Humaria, in which it is commonly placed. I connect with our species — as does Seaver (l. c.) — also Lachnea intermixta (Karsten) Rehm, as no differences can be found between them. The species listed by Grelet (A. humillima Malençon, A. maurilabra [Cke.] Boud., A. nitida Boud.) seem to me also rather doubful, and they are perhaps mere forms of A. melaloma.

According to my experience this Anthracobia is more frequent on burnt spots in coniferous woods (especially pine-woods) than in leafy woods. It grows on well charred remnants of wood as well as directly on the burnt, blackened soil from which the rain already has washed out the carbons.

## VIII. Melastiza Boudier.

*Melastiza* BOUDIER, Nouv. Class. Disc. Eur. p. 106, 1885. — Icon. Myc. p. 218, pl. 386, 1910. — Hist. Class. Disc. Eur. p. 64, 1907. — GRELET, Disc. Fr. p. 22, 1942. — SEAVER, North Amer. Cup-Fungi p. 103, 1928 (p. p.)
*Lachnea* auct. p. p.

Apothecia consociata, patellaria, mox explanata, discina, e mediocri magnitudinis sat magna, extus margineque oculo nudo observata subglabra, pseudopilis brevibus, clavatis, fuscis vestita, margine obtuso; thecio laete colorato. Excipulum pseudoparenchymatosum, fuscidulum. Asci clavati, octospori, IIK—. Paraphysia filiformia, septata, apice incrassata, hyalina vel laete colorata. Sporae ellipsoideae, hyalinae, unicellulares, insigne reticulatae.

On bare moist ground. — Probably only one species, Melastiza Chateri (W. G. Sm.) Boud.

Remarks: Perfectly characterised genus with short, atypical pili and reticularly sculptured spores in maturity. Established by Boudier (l. c.) on the basis of these features, but enlarged by the American mycologist Seaver (l. c.) by species which I place in the new genus Melastiziella. The genus Melastiza might be considered a connecting link between the genera Aleuria Fuck. of the subfamily of the Humarieae and Anthracobia Boud. of the subfamily of the Lachneoideae, if we can speak at all of an affinity of these two genera.

### Melastiza Chateri (W. G. Smith) Boudier.

(Tab. VI, fig. 10—13.)

*Melastiza Chateri* BOUDIER, Nouv. Class. Disc. Eur. p. 106, 1885. — PHILLIPS, Man. Brit. Disc. p. 89, 1887. — BOUDIER, Icon. Myc. p. 218, pl. 386, 1910. — Hist. Class. Disc. Eur. p. 64, 1907. — SEAVER, North Amer. Cup-Fungi p. 104, 1928. — GRELET, Disc. Fr. p. 22, 1942.
*Peziza Chateri* W. G. SMITH, Journ. of Bot. 1872, p. 86. — Grevillea 1, t. 8, f. 1—2, 1873.
*Humaria Chateri* COOKE, Mycogr. p. 35, pl. 16, f. 62, 1879.
*Leucoloma Chateri* SACCARDO, Mich. 1:69, 1879.
*Lachnea Chateri* REHM, Discom. p. 1059, 1896. — [non Velenovský, Čes. h. p. 876. 1922 nec Mon. Disc. p. 304, 1934. = Lachnea umbrorum (Fr.) Gill. (p. p.)
*Humaria miniata* FUCKEL, Symb. Myc. 3:32, 1875.
*Ciliaria miniata* PATOUILLARD, Tab. An. f. 276, 1884.
*Lachnea miniata* GILLET, Champ. Fr. Disc. p. 210, 1879. — SACCARDO, Syll. Fung. 8:174, 1889. — REHM, Discom. p. 1061, 1896. — VELENOVSKÝ, Mon. Disc. p. 303, tab. VII, f. 18, 1934.

*Melastiza miniata* BOUDIER, Hist. Class. Disc. Eur. p. 32, 1907. — Icon. Myc. p. 218, pl. 386, 1910. — GRELET, Disc. Fr. p. 22, 1942.
*Sarcoscypha miniata* COOKE, Mycogr. p. 71, pl. 33, f. 127, 1879.
*Scutellinia miniata* LAMBOTTE, Fl. Myc. Belg. p. 300, 1880. — KUNTZE, Rev. Gen Pl. 2:869, 1891.
*Ciliaria rubicunda* QUÉLET, Suppl. 14:8, pl. 12, f. 20, 1890.
*Melastiza rubicunda* BOUDIER, Hist. Class. Disc. Eur. p. 64, 1907. — GRELET, Disc. Fr. p. 23, 1942. — (non Peziza miniata Batsch, Elench. fung. 2:207, 1786. = Phialea miniata Rehm, l. c.)

Apothecia primum profunde concava, mox leniter patellaria, dein explanata, sessilia, orbicularia, denique saepe undulata, 1—2,5 cm diam., subcrasse carnosa, consociata usque gregaria, extus pallide rubella, breviter et indistincte fusco-floccosa vel subtomentosa, oculo nudo observata subglabra, laevia, margine integro, thecio cinnabarino vel coccineo.

Excipulum e cellulis magnis, globosis vel subangulatis, 30—50—70 µ diam., subcrasse tunicatis (2—3 µ), pallide luteolis, constat.

Pseudopili 50—150/10—15 µ, recti vel flexuosi, apice late rotundati, clavati, basi haud incrassati, 2—5 cellulares, tenuiter tunicati, pallide fusci, plerumque fasciculati.

Asci 200—300/12—15 µ, cylindrici, apice obtuse rotundati, deorsum sensim attenuati, octospori, sporis monostichis.

Paraphysia filiformia, apice ad 6—10 µ clavato-incrassata et aurantiaca, recta.

Sporae 15—20/9—12 µ, ellipsoideae, polis rotundatis, guttula unica vel guttulis binis maioribus instructae, primum verrucoso-asperulae, maturae reticulatae; ocella reticuli plus minusve 6 angulata, 2—3 µ diam., rarius maiora. Guttulae in sporis denique evanescunt.

Occurrence: On moist, loamy or sandy soils, mostly outside the forest or on forest-paths, in ditches, on the banks of waters etc., fairly rare. Recorded from most European countries and from North America.

Bohemia: Malá Chuchle near Praha, X and XI-1926, leg. Rohlena (h. NMP 147291 and 148428). — Přední Kopanina near Tuchoměřice, leg. Herink (on the rim of a pit for beet-cuttings). — Divoká Šárka near Praha, VI-1946, leg. Landkammer (h. m. 286/46).

Moravia: Žarošice (Ždánský les), VIII-1942, leg. Vacek.

Remarks: Lachnea Chateri and Lachnea miniata are usually given in the literature as two independent species. As L. Chateri were described receptacles with still immature spores, without reticular ornamentation. Sometimes the spores continue for a long time only verrucous or the reticulation is indistinct. Already Boudier (l. c.) thought that the two species were identical; Seaver (l. c.) unites them in one species. But Velenovský's Lachnea Chateri does not belong here, as most of the specimens thus labelled are Lachnea umbrorum (Fr.) Gill. with typical pili and globularly ellipsoid, verrucous spores.

## IX. Sepultaria (Cooke) Massee.

*Sepultaria* MASSEE, Brit. Fung. Fl. 4:389, 1895. — REHM, Discom. p. 1075, 1896. — BOUDIER, Hist. Class. Disc. Eur. p. 59, 1907. — VELENOVSKÝ, Čes. h. p. 872, 1922. — Mon. Disc. p. 317, 1934. — SEAVER, North Amer. Cup-Fungi, p. 148, 1928.
*Peziza* § *Sepultaria* COOKE, Mycogr. 1:259, 1879.
*Lachnea* subg. *Sepultaria* SACCARDO, Syll. Fung. 8:166, 1889.
*Lachnea* auct. p. p.

Apothecia plerumque consociata, saltem iuventute plus minusve profunde in terram immersa, primum globoso-inclusa, apice impressa, dein irregulariter aperta, margine laciniato-fissa, profunde concava, urceolata, denique interdum explanata, fragiliter carnosa, extus fusco-floccosa usque fusco-tomentosa, e mediocri magnitudine sat magna (1—5 cm), rarius minuta. Thecium laete coloratum. Pili (resp. pseudopili) longi, hyphoidei, flexuosi, septati, fusciduli, apice plerumque obtusi. Excipulum pseudoparenchymatosum, pallide fuscum. Asci cylindrici, apice rotundati vel obtusi, octospori, sporis oblique monostichis; reactio IIK—. Paraphysia filiformia, septata, apice incrassata, hyalina vel laete colorata. Sporae ellipsoideae, polis obtusis, plerumque guttula unica magna centrali instructae, rarius plasma homogenea impletae, laeves, unicellulares, hyalinae.

Terricol species growing on sandy or partly sandy soil. Velenovský (Mon. Disc. l. c.) records four species from Bohemia. Saccardo (l. c.) does not separate the genus Sepultaria from the genus Lachnea, and so it is not possible to say with certainty how many of the species listed by him belong to this genus.

Remarks: This genus is characterised especially by the (up to a point) subterranean development of the receptacles and their opening. The covering is also characteristic. The genus Sepultaria shows clearly a certain affinity to the genus Sarcosphaera Boudier (of the subfamily of the Plicarioideae) whose receptacles are also in their youth plunged into the substratum and open in a similar way as in the Sepultariae (Massee, l. c. places Sarcosphaera (Pustularia) coronaria among the Sepultariae!). This genus lacks however completely a covering of the outer surface of the apothecium and its asci give a positive reaction to iodine. In all other respects Sepultaria resembles the biology of the genus Hydnocystis Tul. of the order of the Tuberales (especially Sepultaria arenosa) as pointed out already by Phillips (Man. brit. Disc. p. 209, teste Rehm, l. c.). Therefore also Boudier (Bull. Soc. myc. I, p. 104) placed this genus in the Pezizaceae and distinguishes it from the Sepultariae only by the permanently submerged and permanently closed apothecia whose mouth is only sometimes faintly outlined. On the other hand there is a distinct affinity with the genus Lachnea as proved f. inst. by Lachnea speluncarum (Vel.) Svr. whose receptacles are also partly inserted in the substratum and have a similar covering. Even the ordinary Lachnea hemisphaerica (Wigg.) Gill. has almost always — especially in a thicker layer of vegetable soil — partly submerged apothecia.

The covering of this species and the opening of the thecium are, however, different.

I cannot say what Sepultaria ligniseda Vel. (Mon. Disc. p. 318, 1934) is, as I have not found the type in Velenovský's herbarium. Probably this species does not belong at all to the genus Sepultaria (according to the description it would be quite bald).

### Conspectus specierum.

I. Sporae saltem guttula unica magna instructae.
   1. Apothecia minuta vel media, 5—15 mm diam., saepe solum ex parte in terram immersa.
      a) Sporae polis angustatae, sublate ellipsoideae, 18,5—22/11—12,5 µ, uni-vel biguttulatae . . . *S. arenicola* (LÉV.) MASSEE
      b) Sporae oblongo-vel cylindraceo-ellipsoideae, saepe inaequales, 23—28,5/11—12 µ, guttulis binis magnis nonnullisque minoribus instructae . . . . . *S. cervina* VEL.
   2. Apothecia magna, 1—5 cm diam., tota in terram immersa; sporae late rotundato-ellipsoideae, 25—28/15,5—18 µ, guttula magna instructae . . . . . *S. arenosa* (FUCK.) REHM.

II. Sporae eguttulatae, plasma homogenea impletae *S. Herinkii* SVRČEK.

### 1. Sepultaria arenicola (Lév.) Massee.

(Tab. VII, fig. 13.)

*Sepultaria arenicola* MASSEE, Brit. Fung. Fl. 4:390, 1895. — REHM, Discom. p. 1076, 1896. — VELENOVSKÝ, Mon. Disc. p. 318, 1934. [Non Seaver, North Amer. Cup-Fungi p. 149, 1928. = Sep. arenosa (Fuck.) Rehm.]
*Peziza arenicola* LÉVEILLÉ, Ann. Sci. Nat. 9:140 (p. p.), 1848.
*Lachnea arenicola* QUÉLET, Enchir. Fung. p. 283, 1886. — SACCARDO, Syll. Fung. 8:172, 1889.
*Sarcoscypha arenicola* COOKE, Mycogr. p. 66, pl. 30, f. 118, 1879.
*Sepultaria arenosa* SEAVER, North Amer. Cup-Fungi p. 151, 1928. (Non Rehm, Velenovský et auct. al.)

Apothecia sparsa, consociata, rarius solitaria, primum tota vel ad medium in terram immersa, globosa, mox tantum basi immersa, rarius permanenter tota immersa, urceolata, denique explanata 5—10 mm diam., fragiliter carnosa, 1—1,5 mm crassa, extus minute fusco-tomentosa vel fibrillosa (pilis arena crustatis) margine in lobos acutos irregulariter fissa; thecio lacteo-albo, dein pallido, subcinereo vel subluteolo, glabro, interdum rugoso.

Excipulum e cellulis oblongis vel globosis, 17—37 µ diam., luteofuscis (membranis 1,5—2 µ crassis) constans.

Pili 200—300/6—10 µ, hyphoidei, flexuosi et intricati, simplices, apice obtusi et interdum incrassati, remote septati, tenuiter tunicati, fusciduli.

Asci 200—230/15—20 μ, cylindrici, apice late rotundati, deorsum breviter stipitati, octospori, sporis monostichis.

Paraphysia filiformia, 3 μ crassa, apice sensim ad 6—8 μ incrassata, hyalina, recta.

Sporae 18,5—22(—24)/11—12,5(—14) μ, ellipsoideae, polis angustatae, guttula magna centrali instructae, vel biguttulatae nonnulisque guttulis minoribus impletae, laeves, hyalinae.

Occurrence: In sandy, rather moist soil on the banks of forest- or meadow-brooks and on the rim of swamps, on the bare or also moss covered ground, occasionally also on strongly rotten and wet wood. Rather in autumn. More frequent than Sepultaria arenosa. Europe, North America.

Bohemia: Radotín, 1924, leg. Fechtner (h. NMP 148863). — Mnichovice, X-1929, leg. Velenovský (h. NMP 153019). — Černínosk in Polabí, VIII-1933, leg. Vel. (I have not seen the specimen). — Srbsko pr. Karlštejn ("Vodopády"), X-1947, leg. Svrček (h. myc. 488/47). — Nižbor: in valle rivi Vůznice, X-1948, leg. Svrček.

Moravia: Žarošice, IX-1940, leg. Vacek (h. NMP 154004, 154005).

Remarks: In its typical form (relatively small, often shallowly submerged receptacles in maturity, spores narrowing towards the poles) this species can be distinguished with certainty from Sepultaria arenosa; more difficult are those cases where some features point to Sep. arenicola and others to Sep. arenosa, when the correct determination becomes rather difficult. Sepultaria arenicola seems to be more hygrophile and often accompanies an interesting association of terricol Discomycetes on bare, permanently moist soil. Thus it grew at Srbsko together with Lamprospora haemastigma (Hedw.) Seaver, in the Vůznice valley I collected it together with Lachnea violacea Vel. and Plicaria ampliata (Pers.) Rehm.

### 2. Sepultaria cervina Velenovský.

(Tab. VII, fig. 16—17.)

*Sepultaria cervina* Velenovský, Mon. Disc. p. 318, tab. I, f. 37, 1934.

Apothecia sparsa vel conferta, 8—15 mm diam., solum ⅓—½ in terram immersa primum ellipsoidea vel ellipsoideo-globosa, dein cyathea, margine in lobos 3—5 fissa, denique explanata, fragiliter carnosa, extus minute fusco-puberula usque subtomentosa, 1—1,5 mm crassa; thecio lacteo-albo.

Excipulum e cellulis irregulariter globosis, 25—28 μ diam., pallide luteo-fuscis constat.

Pili 300—400/7—12,5 μ, longi, flexuosi, apice obtusi, basi non dilatati, pallide lutei, remote septati, membranis ad 1,5—2,5 μ incrassatis instructi.

Asci 210—250/15,5—21 μ, cylindrici, apice obtuse rotundati, deorsum breviter attenuati, octospori.

Paraphysia filiformia, 4—5 μ crassa, apice leniter ad 6 μ incrassata, vel subincrassata, recta, hyalina.

Sporae 23—26—28,5/11—12 μ (vulgo 25—26/11,5 μ), laeves, conspecte elongato-ellipsoideae usque cylindraceo-ellipsoideae, saepe inaequales, polis angustatae, sed obtusae, guttulis binis magnis nonnullisque minoribus instructae (in speciminibus exsiccatis guttula unica magna vel duae minores adsunt).

Occurrence: In loamy, clayey or sandy, permanently moist soil, either bare or covered with moss, on the walls of ditches, under bushes, on the banks of streams etc., upon the whole rare. — I revised the following specimens:

Bohemia: Bilichov pr. Slaný, VII-1925, leg. Velenovský (h. NMP 147304). — Mnichovice, IX-1928, Mirošovice IX-1929, Kunice, VIII-1930, leg. Velenovský (h. NMP 150079, 147698, 153020).

Moravia: Kuřim, X-1941, leg. Fr. Šmarda. — Žarošice, VIII-1939, leg. Vacek (h. NMP 154006).

Remarks: Macroscopically it resembles most Sepultaria arenicola, from which it can be, however, relatively well distinguished by the different shape of the spores which are strikingly elongated. Velenovský (l. c.) compares his species with Lachnea (Sepultaria) Boudieri Sacc. et Trott., which, however, has uniguttular spores.

### 3. Sepultaria arenosa (Fuck.) Rehm.

(Tab. VII, fig. 14—15.)

*Sepultaria arenosa* Rehm, Discom. p. 1077, 1896. — Velenovský, Čes. h. p. 872, 1922. — Mon. Disc. p. 318, 1934. [Non Seaver, North Amer. Cup-Fungi, p. 151, 1928 = Sep. arenicola (Lév.) Mass.]
*Peziza arenosa* Fuckel, Fungi Rhen. no. 1212, 1865. — Hedwigia, 5:15, 1866.
*Humaria arenosa* Fuckel, Symb. Myc. p. 321, 1869.
*Lachnea arenosa* Saccardo, Syll. Fung. 8:167, 1889.
*Sarcoscypha arenosa* Cooke, Mycogr. p. 66, pl. 30, f. 117, 1879.
*Sarcosphaera arenosa* Lindau in Engl.—Prantl Plf. 1:182, 1897.
*Peziza sepulta* Fries, Nov. Symb. Myc. p. 26, 1851.
*Humaria sepulta* Cooke, Mycogr. p. 63, pl. 29, f. 112. 1879.
*Lachnea sepulta* Phillips, Man. Brit. Disc. p. 209, pl. 6, f. 39, 1887. — Saccardo, Syll. Fung. 8:170, 1889.
*Scutellinia sepulta* Kuntze, Rev. Gen. Pl. 2:869, 1891.
*Sepultaria sepulta* Massee, Brit. Fung. Fl. 4:389, 1895. — Boudier, Hist. Class. Disc. Eur. p. 59, 1907.
*Peziza geaster* Berkeley et Broome, Ann. Nat. Hist. III, 18:125, 1866. — Cooke, Mycogr. pl. 29, f. 114, 1879.
*Lachnea geaster* Phillips, Man. Brit. Disc. p. 210, 1887. — Saccardo, Syll. Fung. 8:172, 1889.
*Sarcosphaera geaster* Lindau in Engl. — Prantl Pflf. 1:182, 1897.
*Scutellinia geaster* Kuntze, Rev. Gen. Pl. 2:869, 1891.
*Sepultaria geaster* Boudier, Hist. Class. Disc. Eur. p. 59, 1907.
*Sepultaria heterothrix* Clements, Bull. Torr. Club 30:91, 1903.
*Lachnea heterothrix* Saccardo et D. Saccardo, Syll. Fung. 18:33, 1906.

*Sepultaria arenicola* SEAVER, North Amer. Cup-Fungi, p. 149, 1928. [non Rehm, Vel. et auct. al. = Sep. arenicola (Lév.) Mass.]
*?Peziza lanuginosa* BULLIARD, Herb. Fr. pl. 396, f. 2, 1788.
*Lachnea lanuginosa* SACCARDO, Syll. Fung. 8:167, 1889.

Apothecia sparsa, plerumque consociata, interdum usque gregaria, permanenter fere tota in terram immersa, solum interdum parte superiore emergentia, 1—5 cm diam., primum globosa, vertice orbiculariter aperta, extus adpresse fusco-tomentosa, fragiliter carnosa, 1—2,5 mm crassa, margine lobis (4—6) acutis, triangularibus profunde lacerata; thecio albido, griseo-albido, denique subluteolo, glabro, laevio vel subrugoso.

Excipulum e cellulis irregulariter globosis usque subangulatis, 30—37 µ diam., sat tenuiter tunicatis, parte externa apothecii pallide luteo-fuscis, constat.

Pili longi (300—500 µ), flexuosi et intricati, parieti excipuli appressi, hyphoidei, maxima ex parte simplices, pallide luteoli usque pallide luteo-fusci, remote septati, 5—9 µ crassi, tenuiter tunicati, (1—1,5 µ), apice obtusi.

Asci 200—280/20—25 µ cylindrici, apice late rotundati, basi stipitati, octospori, sporis monostichis.

Paraphysia filiformia, 2,5—3 µ crassa, apice clavato-incrassata (5—6 µ), hyalina, recta.

Sporae (23)—25—28/15,5—18 µ, ellipsoideae, polis late rotundatis, guttula magna centrali instructae, laeves, hyalinae.

Occurrence: In sandy, moderately moist or also in relatively dry soil in leafy and mixed forests, especially on the border of roads or in ditches. Everywhere very scattered and occasional in its occurrence. Europe, North America, Africa.

Bohemia: Domažlice, 1917, leg. Melzer (h. NMP 149629). — Sv. Prokop pr. Pragam, XI-1923, leg. Reisner (h. NMP 149639). — Radotín, XI-1924, leg. Velenovský (149751). — Lotouš pr. Slaný, leg. Reisner (teste Velenovský, l. c.). — Praha-Divoká Šárka, VII-1948, leg. Kubička, Herink et Svrček (h. myc. 781/48). — Praha-Dolní Liboc, X-1943, leg. Herink (h. myc. H. 1365/43). — Kožová hora pr. Kladno, VI-1942, leg. Herink (h. myc. H. 106/42).

Moravia: Hodonín, leg. Bayer (teste Vel.). — Tišnov, V-1941, leg. Fr. Šmarda.

Remarks: As follows from Seaver's remarks (l. c. apud Sep. arenicola) our species is certainly identical with Peziza arenosa Fuckel, whose authentical specimen was revised by Nannfeldt. Of course Seaver describes this species under the name of Sep. arenicola and his Sep. arenosa is our S. arenicola. This is the usual conception of these two species, which are really very close to each other, so much so that some authors believe one of them to be only a form of the other. [Already Cooke (l. c.) voiced the opinion that S. arenicola and S. arenosa are so similar to each other in aspect, size, spores and habitat that most probably

they are but varieties of one species]. Up till now I have always been able to distinguish the two species with certainty, though sometimes one really finds certain tendencies to form transition forms (especially with regard to the size of the receptacles and the shape of the spores). Only a richer material and field observations of both species can bring a final answer to this question; unfortunately they are rather rare.

### 4. Sepultaria Herinkii Svrček, sp. n.

(Tab. VII, fig. 18—20.)

Apothecia primum profunde cyathea, fere tota in terram immersa, mox autem leniter patellaria, usque explanata, orbicularia vel oblonga, 6—15 mm diam., extus appresse fusco-tomentosa, margine irregulariter fissa et minute denticulata, molliter carnosa usque fragilia, sparsa sed consociata; thecio sordide albido.

Pili longi, flexuosi, 4—5 μ crassi, septati, fusci, apice usque ad 10 μ incrassati, obtusi, simplices, laeves, tenuiter tunicati.

Asci 250/14—17 μ, clavato-cylindrici, apice truncati, octospori.

Paraphysia simpliciter filiformia, capillaria, apice haud incrassata, recta, hyalina.

Sporae 16—20/9—10 μ (plerumque 20/9—10), l o n g e f u s o i d e o-e l l i p s o i d e a e, polis angustatis, sed obtusis, e g u t t u l a t a e, plasma homogenea instructae, laeves.

H a b i t a t: Praha-Královská obora, in terra nigra, argillaceo-arenosa humida, sub fruticibus, 25.-IX-1943, legi unacum amico meo Jos. Herink (h. myc. H. 1026/43).

A d n o t a t i o: Sepultaria typica, sed sporis permanenter eguttulatis, minoribus, ab omnibus notis discrepat. Amicus meus J. Herink in localitate commemorata, hodie devasta, iam annis praecedentibus hanc speciem observavit.

*Lachnea Lojkaeana* sensu VELENOVSKÝ Novit. Mycol. Noviss. p. 145, 1947 (non REHM, Discom. p. 1045, 1896) similis videtur.

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## ABBREVIATIONES.

h. NMP — herbarium Musei Nationalis Pragae.
h. m. H. — herbarium mycologicum J. Herink.
h. m. — herbarium mycologicum M. Svrček.

## ICONES

Tab. I, fig. 1—3: Lachnea amphidoxa Rehm.
1. Apothecium (4:1). 2. Pilus (500:1). 3. Sporae (1000:1).

Tab. I, fig. 4—5: Lachnea cadaverina Vel.
4. Pili (500:1). 5. Sporae (1000:1).

Tab. I, fig. 6—7: Lachnea Erinaceus (Schw.) Sacc.
6. Apex pilorum (500:1). 7. Sporae (1000:1).

Tab. I, fig. 8—9: Lachnea flavo-brunnea Rich.
8. Apex pili (500:1). 9. Spora (1000:1).

Tab. I, fig. 10—11: Lachnea gilva (Boud.) Sacc.
10. Pilus et basis pili cum cellulis excipuli (500:1). 11. Sporae (1000:1).

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12. Basis et apex pili (500:1). 13. Pilus clavatus cum cellulis excipuli (500:1). 14. Spora (1000:1).

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Tab. II, fig. 4: Lachnea gregaria f. pseudogregaria Rick — spora (1000:1).

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5. Pilus (500:1). 6. Spora (1000:1).

Tab. II, fig. 7—8: Lachnea hemisphaerioides Mout.
7. Pili (500:1). 8. Sporae (1000:1).

Tab. II, fig. 9: Lachnea hemisphaerioides var. tenuipilosa Svr. — pili (500:1).

Tab. II, fig. 10—12: Lachnea ignea Vel.
10. Apex pili (500:1). 11. Asteropili (500:1). 12. Spora (1000:1).

Tab. II, fig. 13—14: Lachnea iuliana Svrček.
13. Pili (500:1). 14. Spora (1000:1).

Tab. II, fig. 15—17: Lachnea leporina Vel.
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1. Basis et apex pili (500:1). 2. Sporae (1000:1).

Tab. III, fig. 3—4: Lachnea macrospora Svrček.
3. Apex pilorum (500:1). 4. Spora (1000:1).

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5. Pili (500:1). 6. Sporae (1000:1).

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9. Pili (pilus radicato-ramosus cum cellulis excipuli) (500:1). 10. Spora (1000:1).

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IV. (1948) - B (PŘÍRODOVĚDNÝ - HIST. NATURALIS) No. 6.
REDAKTOR IVAN KLÁŠTERSKÝ

# M. SVRČEK: ČESKÉ DRUHY PODČELEDI LACHNEOIDEAE (ČEL. PEZIZACEAE)
# BOHEMIAN SPECIES OF PEZIZACEAE SUBF. LACHNEOIDEAE.

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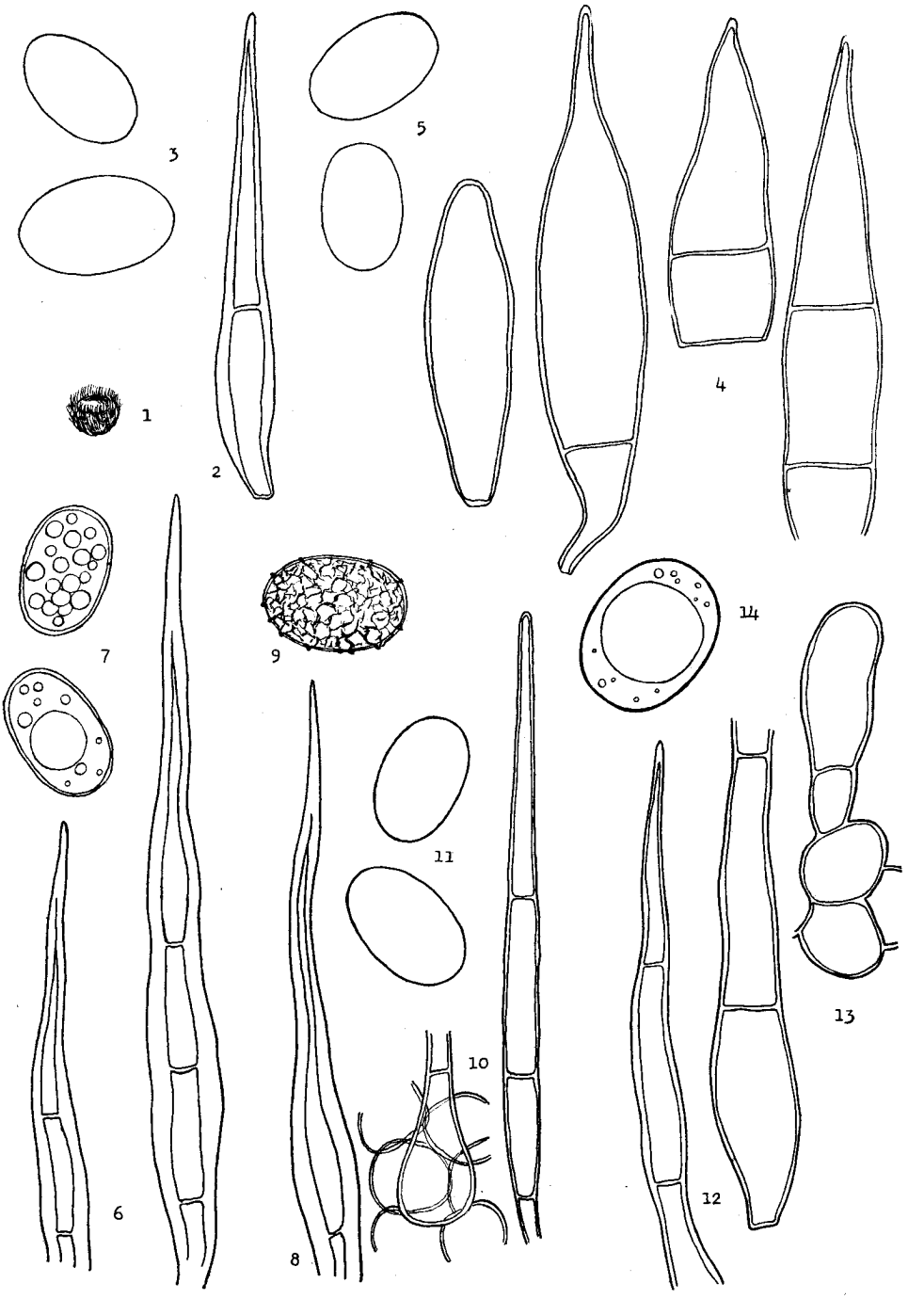
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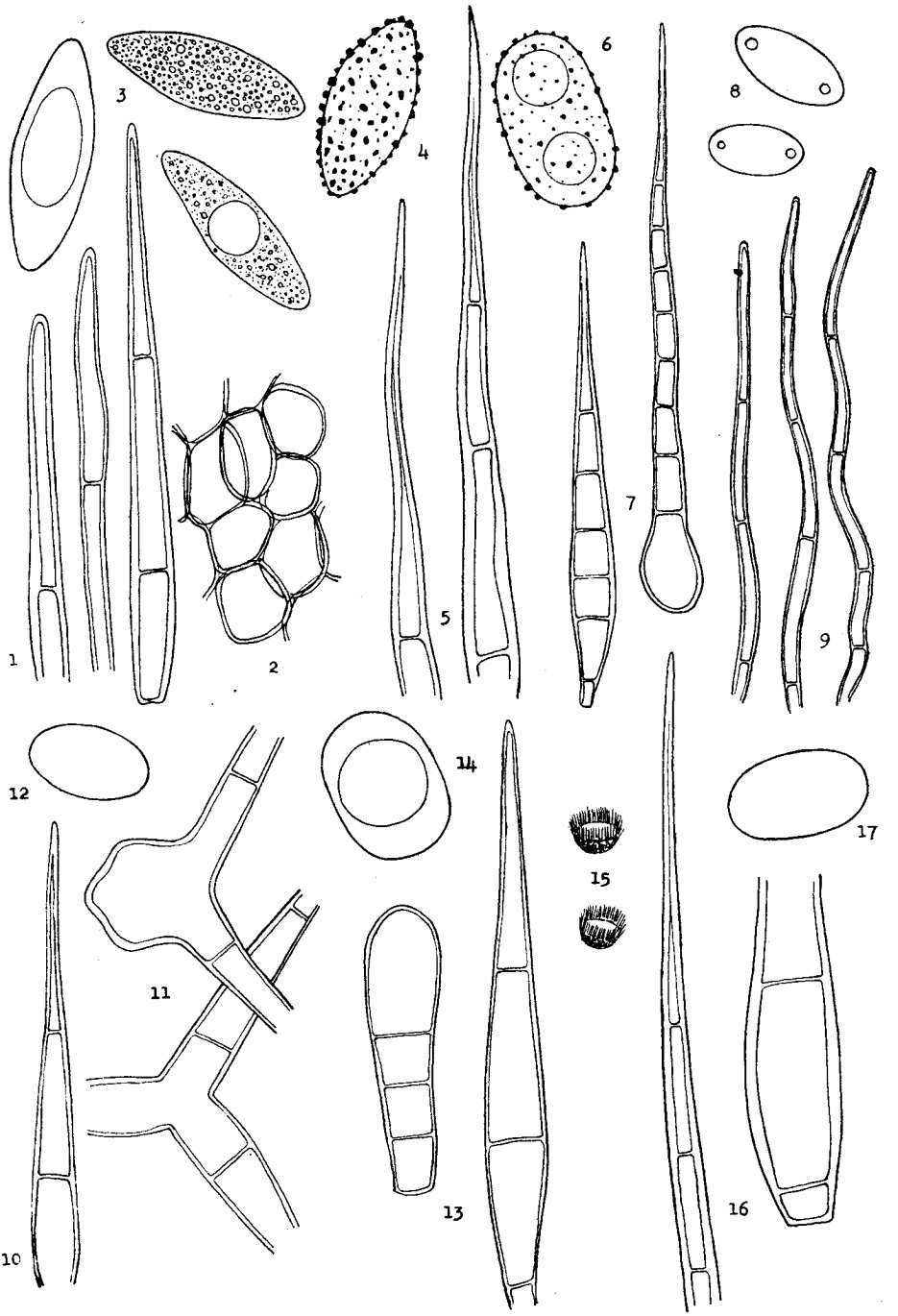
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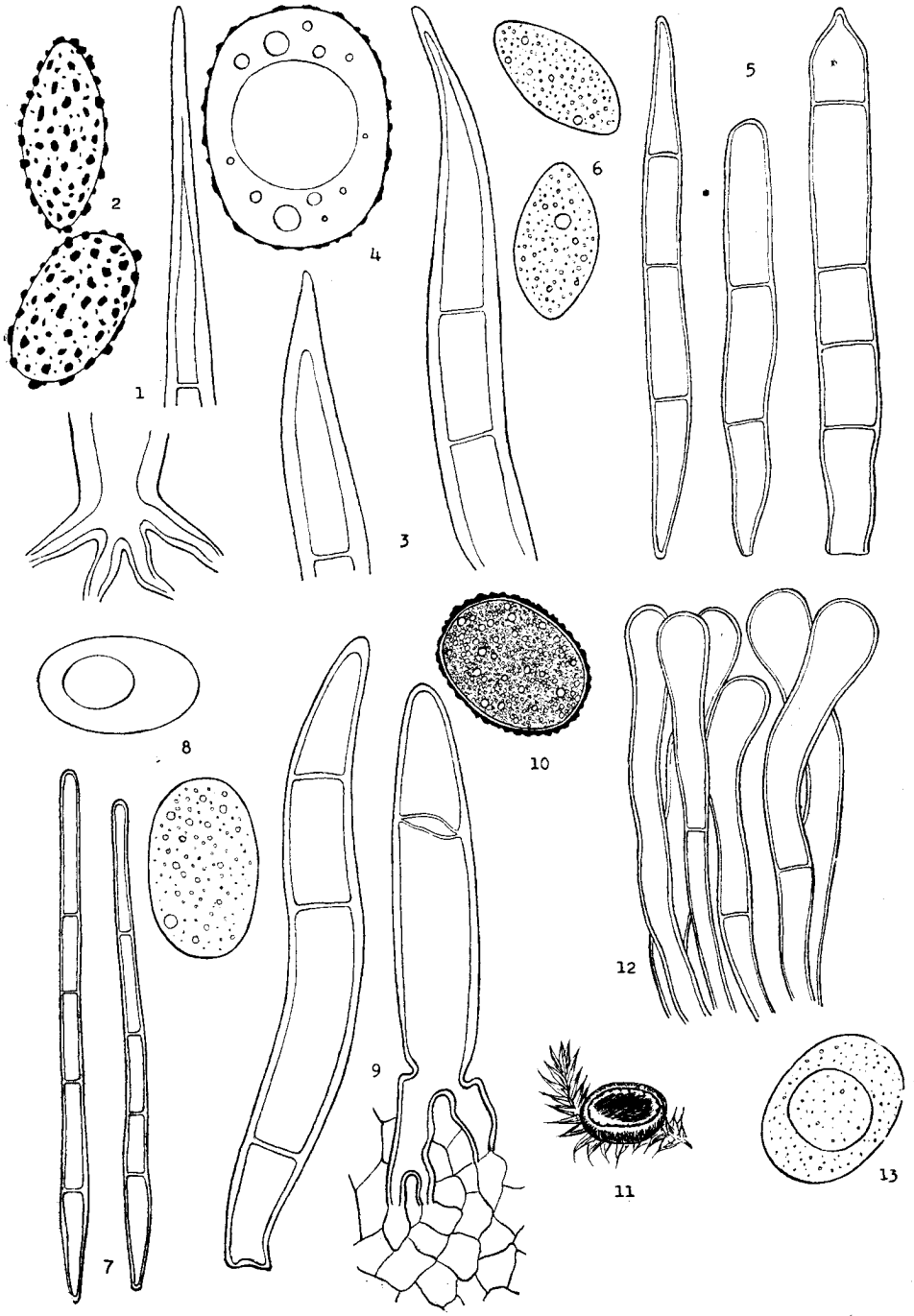
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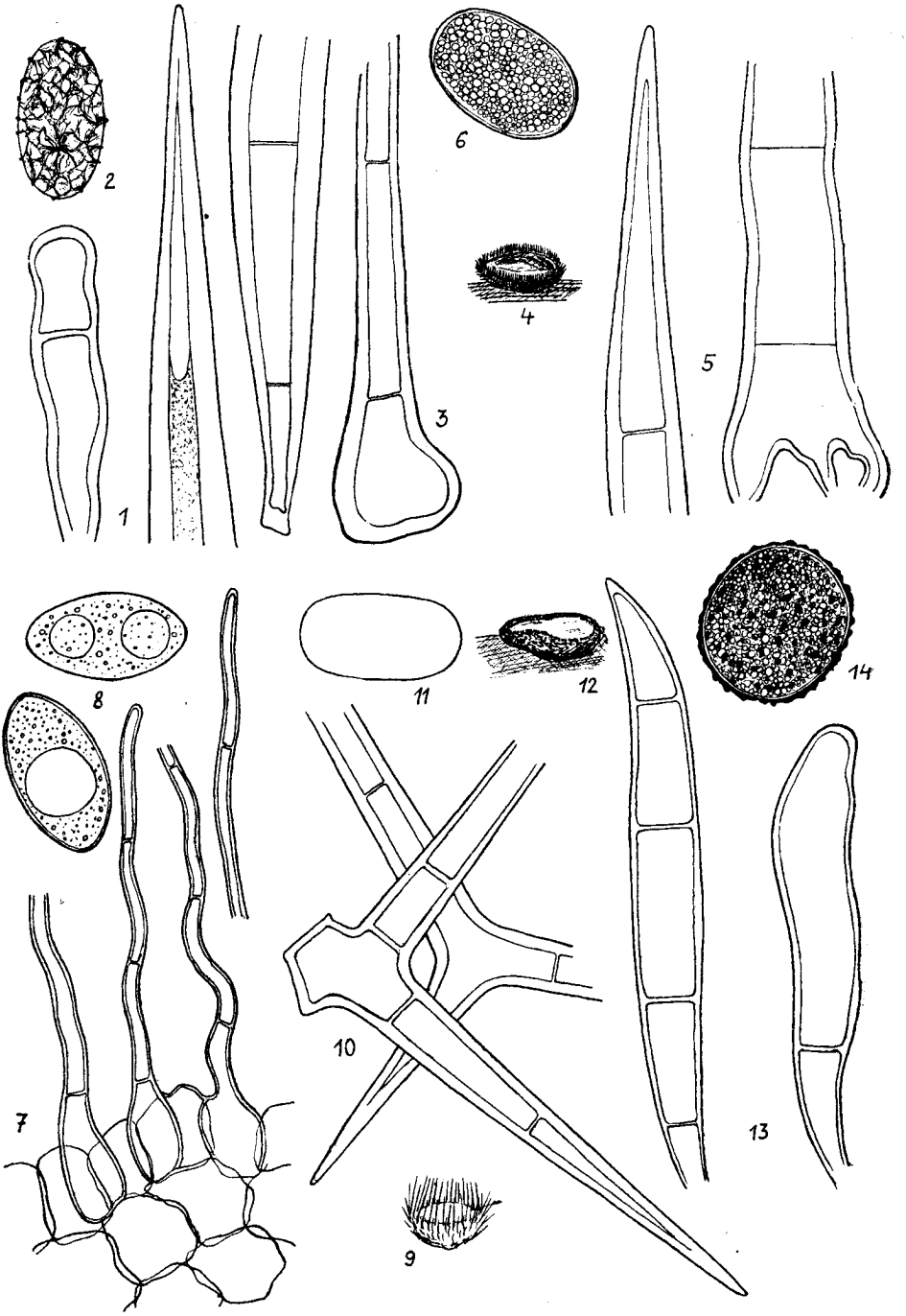
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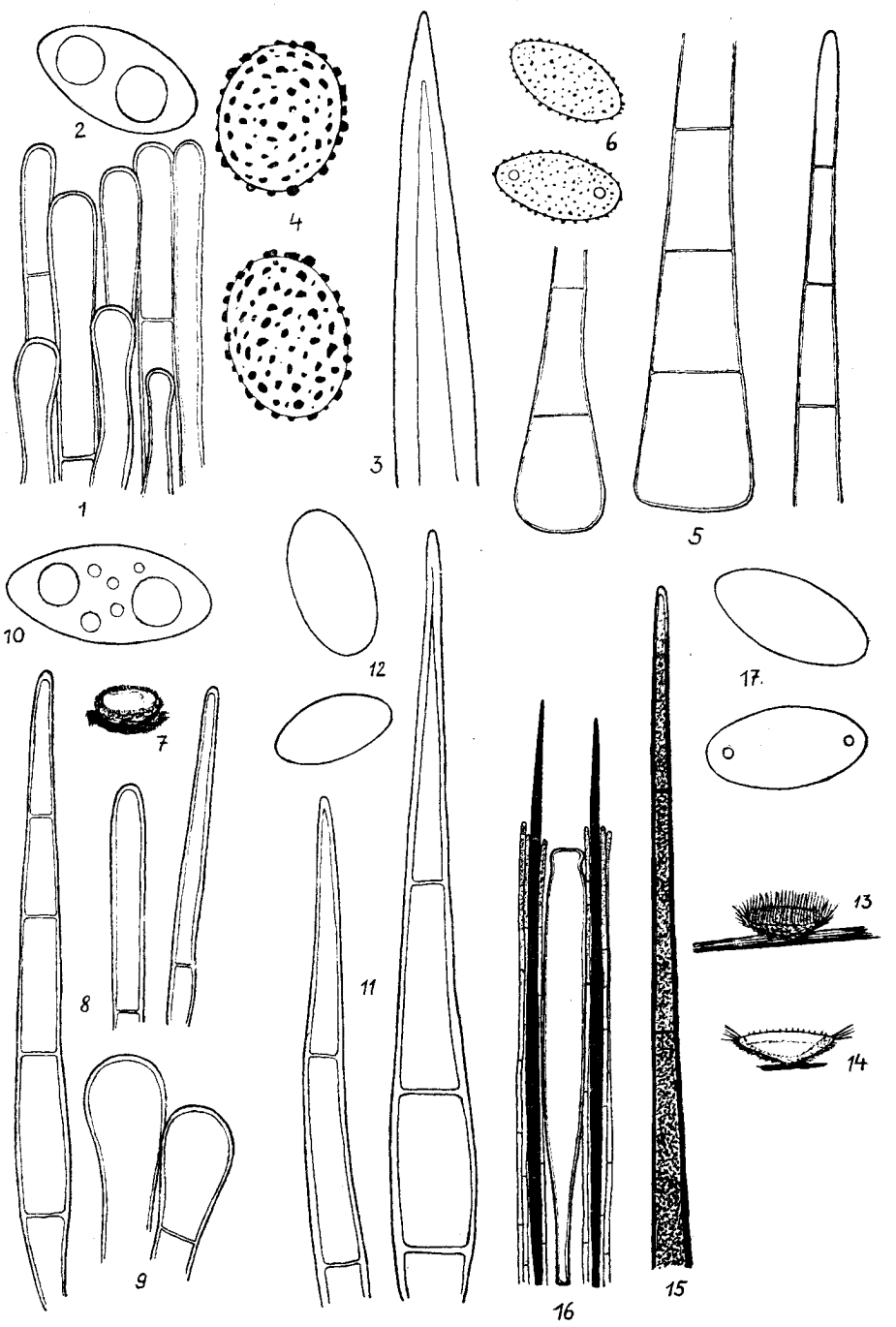
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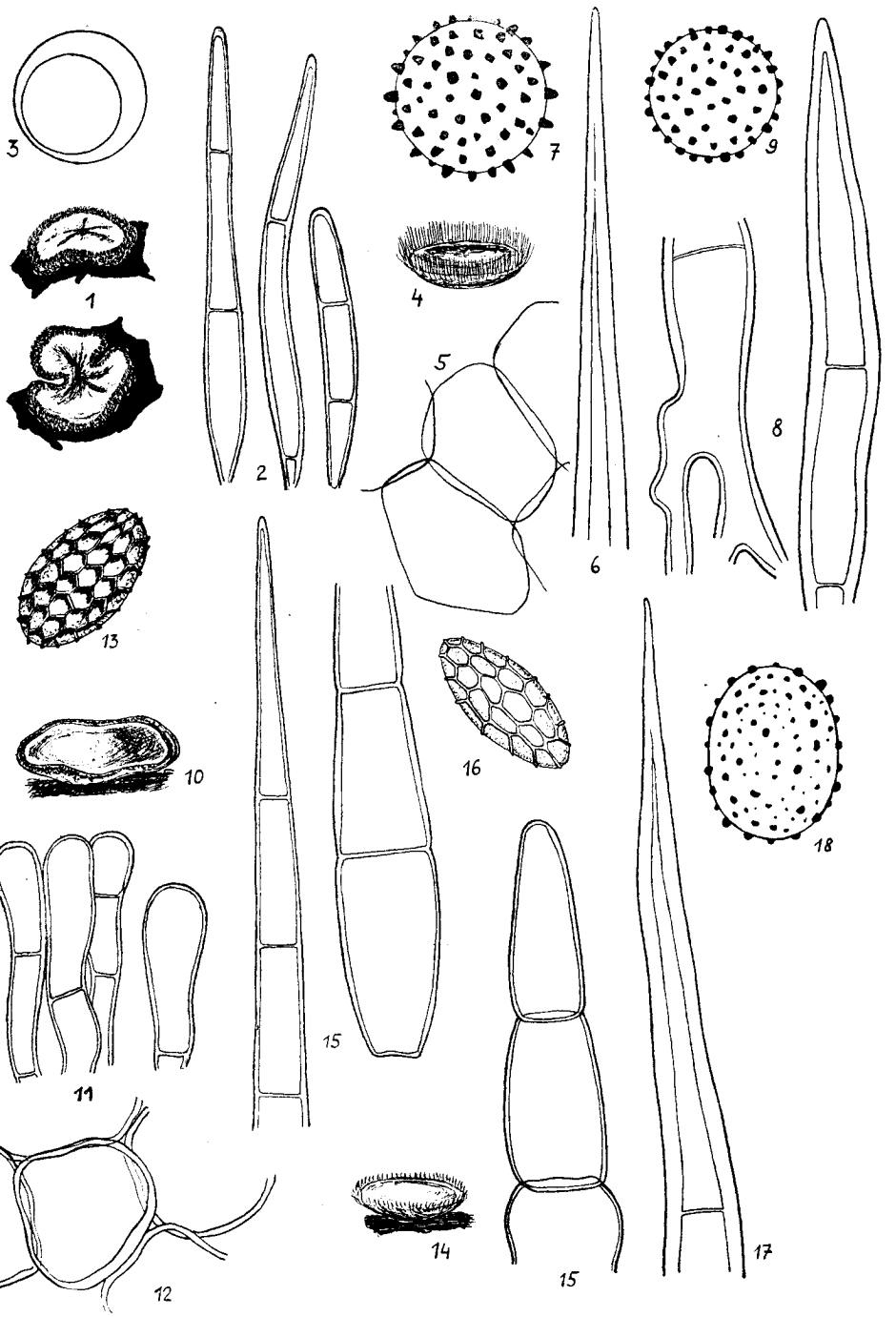
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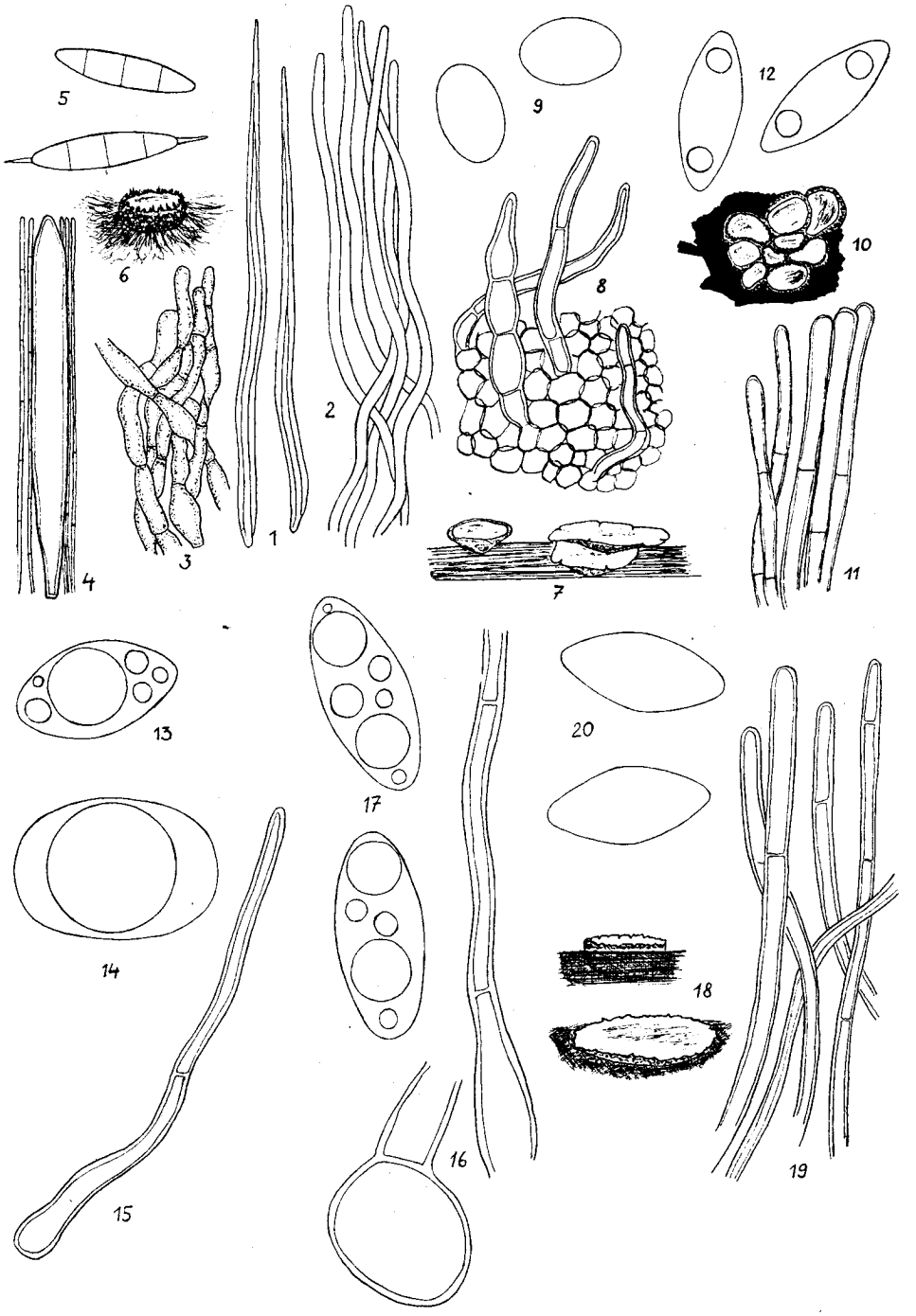
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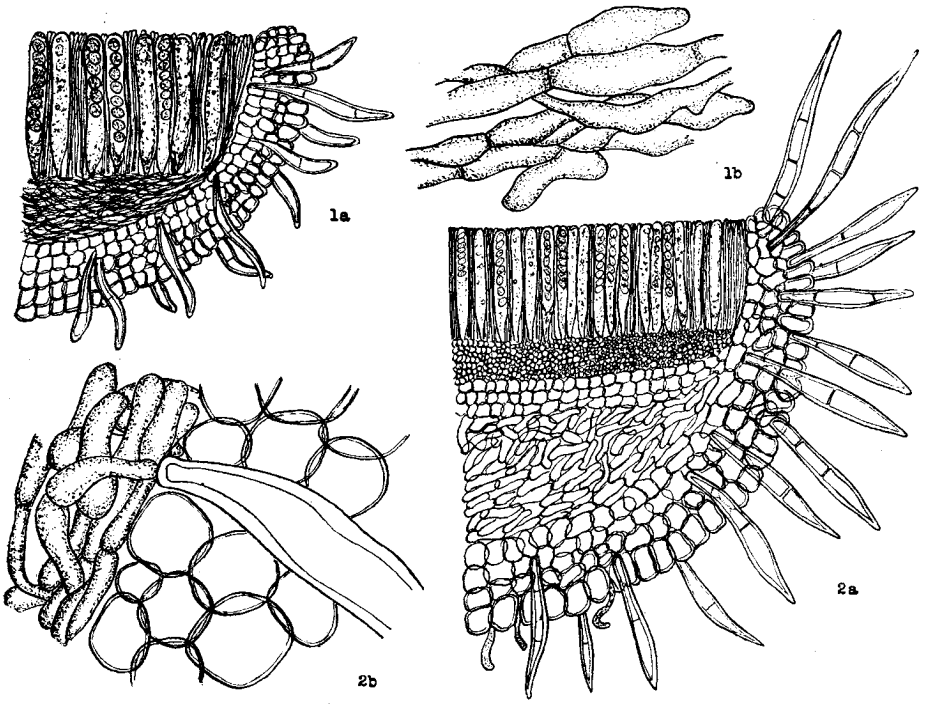
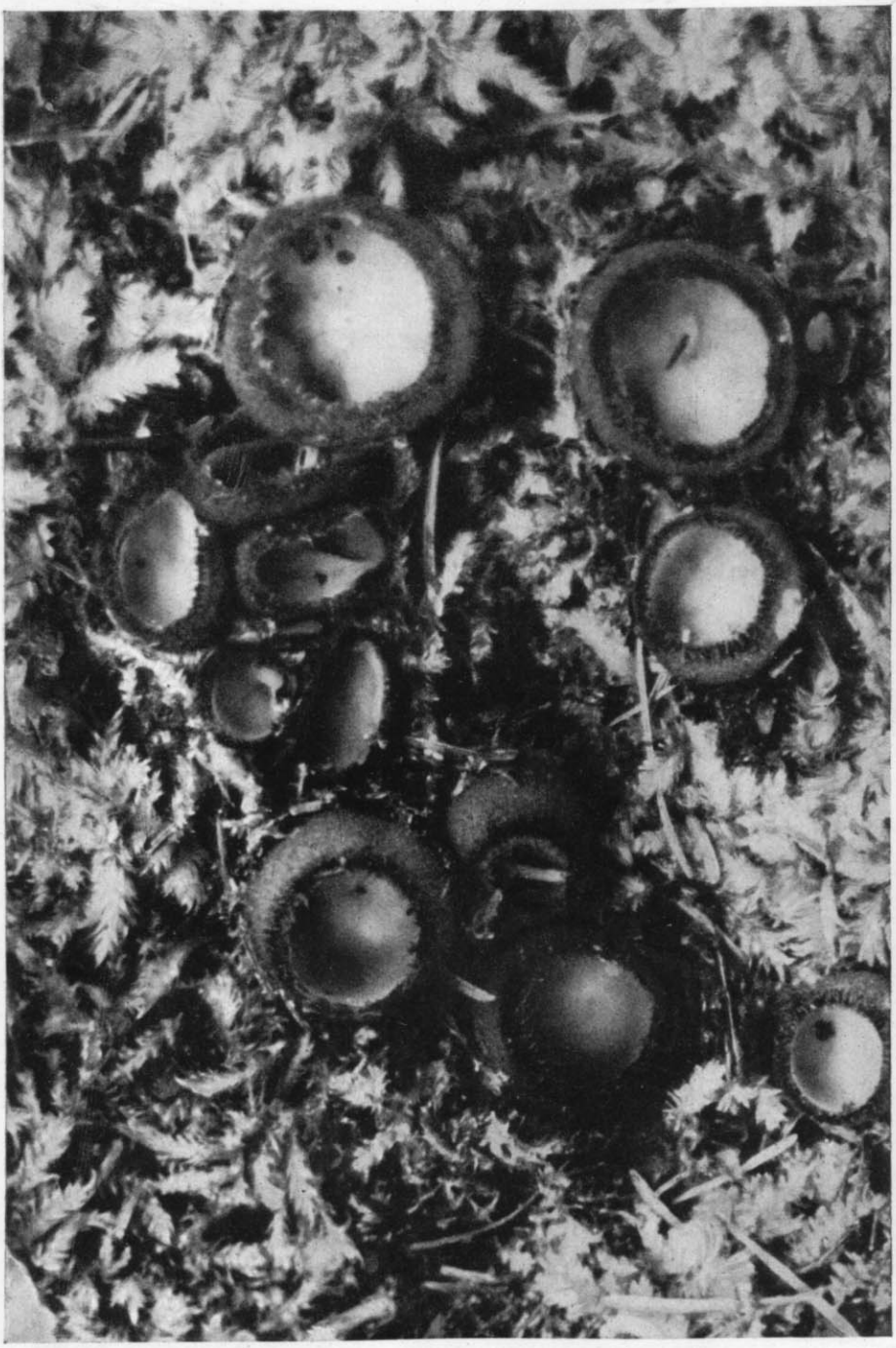



1. Lachnea Nympharum Vel.

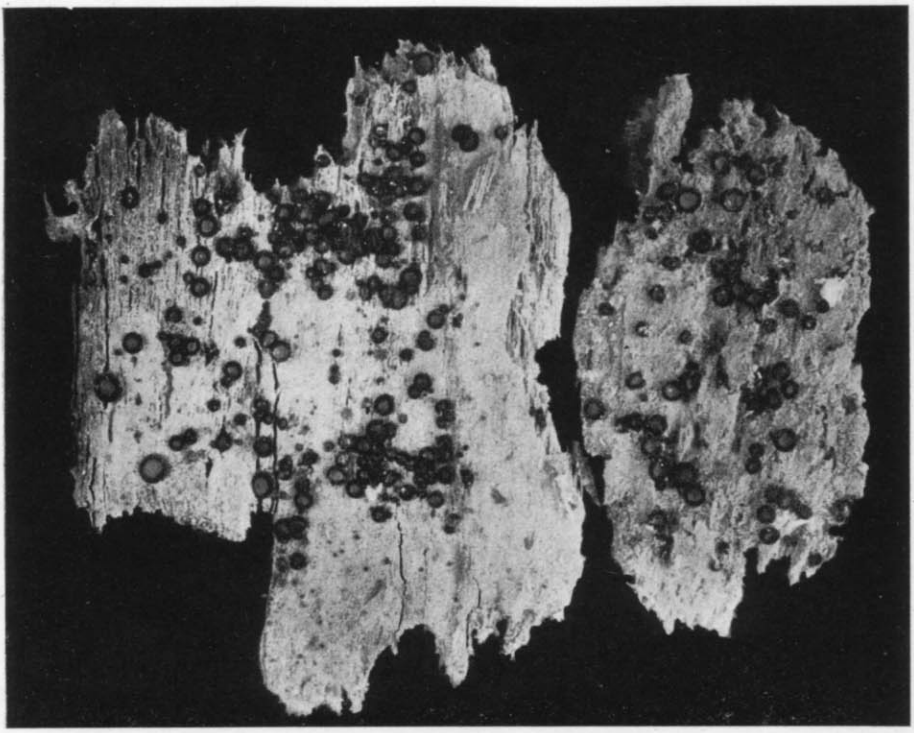
a) Apothecium in sectione (50:1). b) Hyphae hypothecii (1000:1).

2. Lachnea setosa (Nees ex Fr.) Phill.

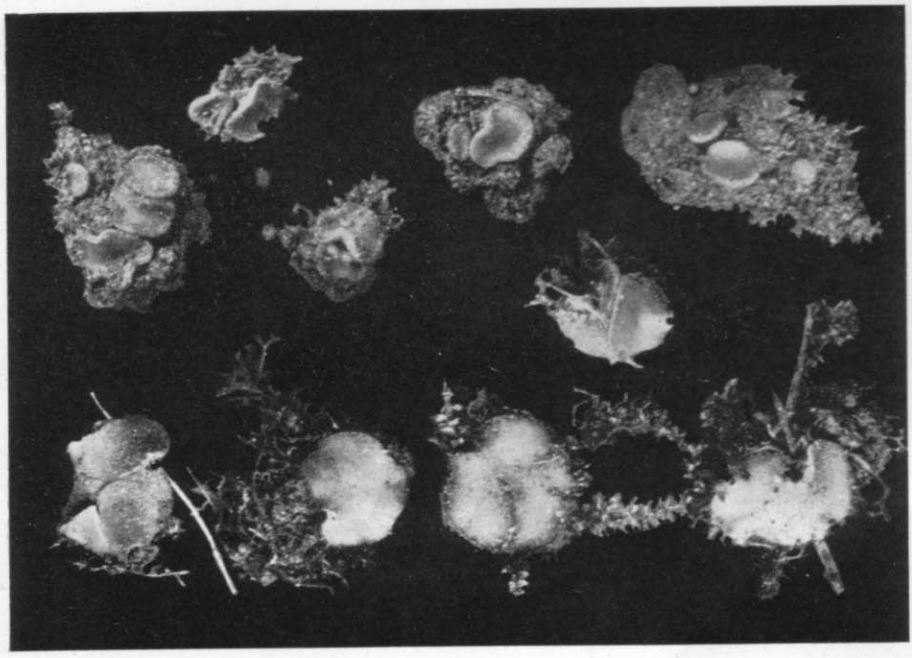
a) Apothecium in sectione (50:1). b) Hyphae hypothecii et pars excipuli (250:1).



Lachnea hemisphaerica *(Wigg.) Gill.*
Bohemia: Mnichovice prope Pragam, leg. A. Pilát. Photo A. Pilát.

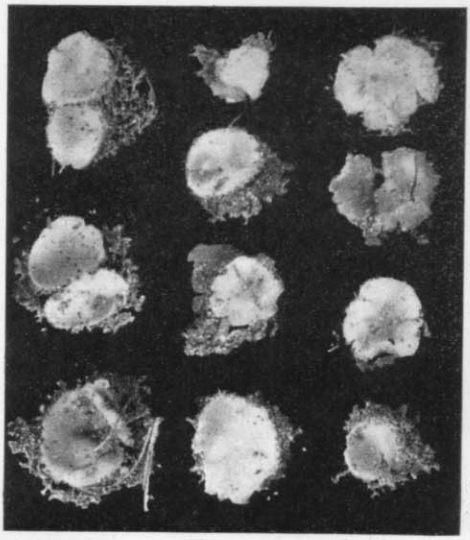


Lachnea setosa var. nigrohirtula *Svrček.*
Bohemia: Turnov, in valle „Ve struhách", 6. VI. 1948, leg. J. Herink. Photo J. Herink.

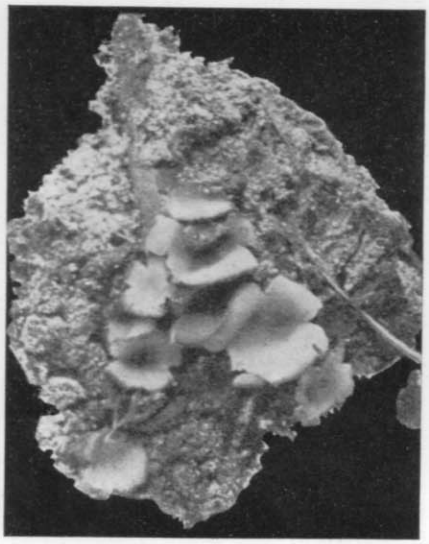


Lachnea vitellina *(Pers.) Phillips.*
Bohemia: Humpolec, 13. VI. 1942, leg. J. Herink. Photo J. Herink.

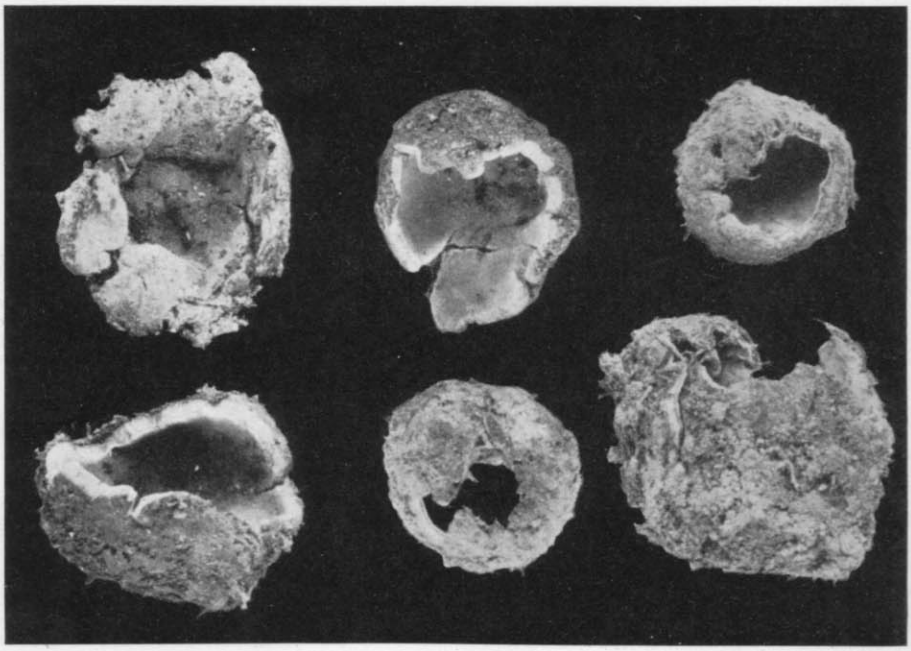
Lachnea gilva *(Boudier) Sacc.*
Bohemia: Praha-Vyšehrad, ad terram nudam pro parte cinere permixtam, 4. VI. 1946, leg. M. Svrček. Photo A. Pilát.



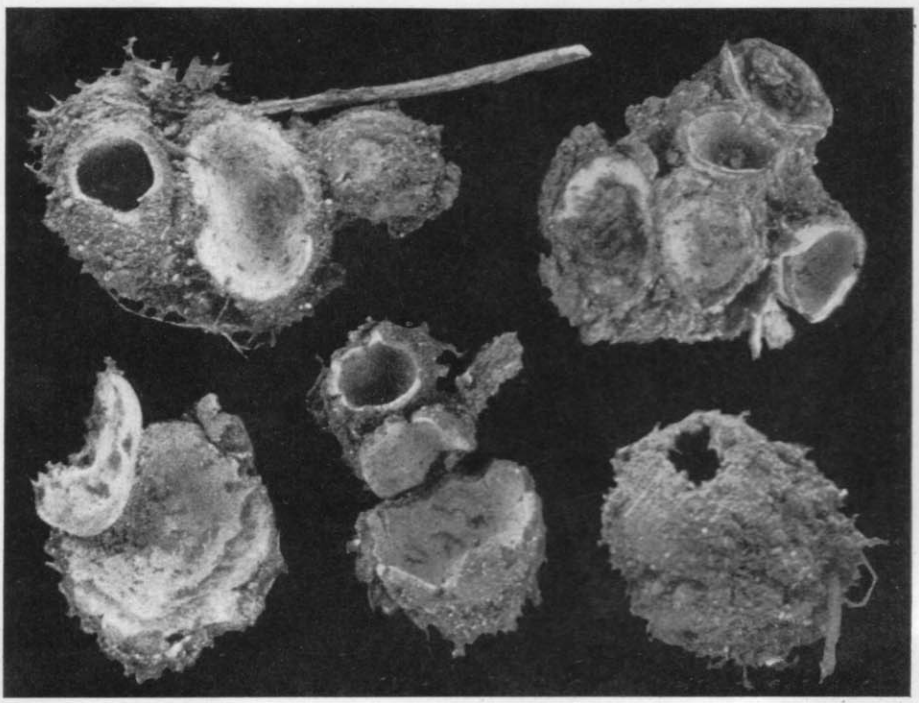
Sepultaria Herinkii *Svrček.*
Bohemia: Praha XIX, in horto publico „Král. obora", 25. IX. 1943, leg. J. Herink et M. Svrček. Photo J. Herink.



Lachnea hemisphaerioides *Mouton.*
Bohemia: Karlštejn, in carbonario, 6. VI. 1943, leg. I. Charvát.
Photo J. Herink.



Sepultaria arenosa *(Fuckel) Rehm.*
Bohemia: Kožová hora prope Kladno, 21. VI. 1942, leg. J. Herink. Photo J. Herink.



Sepultaria arenosa *(Fuckel) Rehm.*
Bohemia: Praha XVIII.-Dolní Liboc, 10. X. 1943, leg. J. Herink. Photo J. Herink.