

## Some Noteworthy Discomycetous Fungi on Coniferous Hosts.

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With one text-figure.

During the year 1952, the following fungi occurring on coniferous hosts passed through my hands. The first of them seems to be a new species of the genus *Phragmonaevia* Rehm; it is described as *P. gigaspora* Gremmen n. sp., because of its characteristic large ascospores. The second species was first described in Swiss literature and afterwards also found in the Netherlands. The third one is a most interesting fungus and there is much nomenclatorial confusion with *Crumenula pinicola* (Fr.) Karst.

### 1. *Phragmonaevia gigaspora* Gremmen n. sp.

During a visit to the Austrian Mycological Meeting in August 1952 to Fritzens-Wattens in Tyrol (Austria), one of the leaders, Dr. M. Moser, from the Botanical Institute at Innsbruck, pointed out that for the last few years, browning of the needles of *Pinus Cembra* L. had been observed in the mountainous districts. On one of the excursions to the „Urgestein“ side near Tulfes, at an altitude of about 1800 meters, a strong discoloration of the needles of these trees was noted. Numerous needles were quite yellow and bore spermogonia of the fungus *Lophodermium pinastri* (Schrad.) Chév. It is thought that under certain climatic conditions this fungus seems to cause severe injury of the needles of different species of *Pinus*. Boyce (1951), however, could not give any proof of its parasitism on southern pines and his conclusions throw quite a new light on the existing opinions concerning damage by this fungus. Dr. Moser, however, maintained that he had often found a discomycetous fungus on the infested needles. Unfortunately, we were not able to find such a fungus at that time. Through his kindness further branches of *P. Cembra* L. with brown needles collected near the Neuberg-Alpe in Pitztal near St. Leonhard were received in October 1952. On these branches immature apothecia were found of a *Dasyscypha* species which probably were *D. flavorubens* Rehm. Besides these fructifications numerous small apothecia of another fungus were observed on the dead needles. They developed upon all sides of these needles when placed in a humid petri-dish.

**Description of the fungus (Gremmen 562).** When young the fructifications can be observed under the low power of the microscope as small darkish discolorations, the young apothecia being initiated beneath the epidermis of the needles. Gradually, as they ripen and increase in size, they press against this epidermis, until it is ruptured into 4 or 5 fragments. The roundish, orange — red hymenium of the apothecium, about  $300\ \mu$  in diameter, can now be seen. The asci measure  $90\text{--}100 \div 11\ \mu$ , containing 1, 2 or 4 ascospores. There is no reaction with iodine. Ascospores are very large, at first 1-celled, later becoming 2-, 3-, 4- or sometimes 5-celled. A number of 1-celled ascospores measured  $26.5\text{--}34.0 \div 7.5\text{--}9.5\ \mu$ ; a number of 2-celled spores:  $38.0\text{--}42.0 \div 9.5\ \mu$ ; many 3-celled:  $34.0\text{--}38.0 \div 9.5\ \mu$  and some 4-celled:  $44.0\text{--}46.0 \div 11.5\ \mu$  (Fig. 1). The ascospores are colourless, torpedo-shaped and irregularly septate. Paraphyses are filiforme,  $3\text{--}4\ \mu$  thick, with knotty excrescences. Follow-

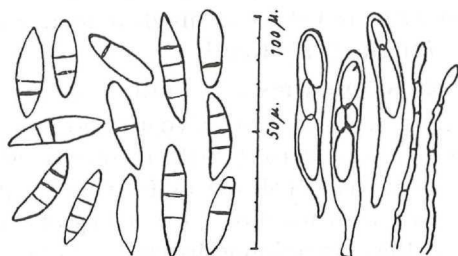


Fig. 1. *Phragmonaevia gigaspora* Gremmen Asci, ascospores and paraphyses.

ing Rehm's classification this fungus is a characteristic member of the *Stictidaceae*, subfamily *Eustictieae* and belongs to the genus *Phragmonaevia* Rehm subgenus *Naeviella* Rehm. Rehm (1896) does not describe any species on coniferous hosts and it is interesting to learn that many species described by him were found on monocotyledonous plants. One species mentioned by him, viz. *Phragmonaevia macrospora* Karst. seems to be related to this present fungus, but there are, however, some differences in the size of the asci and the ascospores and in the reaction of the asci with iodine. Since it has not been possible to identify this fungus, a new name, viz. *Phragmonaevia gigaspora* Gremmen n. sp., is proposed for it. No attempts have been made to study a possible parasitism by this organism.

**Latin diagnosis.** Apotheciis angiocarpis, minutis, primum subepidermalibus, demum erumpentibus, numerosis. Hymenio aurantiaco-rubro, rotundato,  $300\ \mu$  diam. Asci  $90\text{--}100 \div 11\ \mu$ , clavato-cylindricei, 1-, 2-, 4-spori. Poro iodo ope non coerulescente. Sporae



oblongae, 1—5-septatae,  $27-47.5 \Rightarrow 7.5-11 \mu$ ; longitudine media  $34 \mu$ , latitudine media  $9.5 \mu$ .

In foliis *Pini Cembrae*, Neuberg-Alpe in Pitztal prope St. Leonhard, Austria, medio Septembris 1952, leg. M. Moser. The Type (Gremmen 562) of this fungus is in the authors private herbarium and part of the original material has been deposited in the Leiden Herbarium.

2. *Chloroscypha cryptomeriae* Terrier, Bull. Soc. Bot. Suisse 62: p. 419—428, 1952.

In February 1952, a remarkable discomycetous fungus was found by the author in the environs of Wageningen (Oranje Nassau's Oord), in great numbers on the dead leaves of *Cryptomeria japonica* Don.

Description of the fungus (Gremmen 516). Apothecia black when dry, but after putting them in a humid atmosphere the colour changed from darkbrown to lightbrown. They showed a definite stipe and measured  $300-400 \mu$  in diameter, with a soft consistency. When crushed for studying the ascospores, a green to dark-green liquid was observed under the microscope. Asci:  $133-152 \Rightarrow 19-27 \mu$ , without a reaction to iodine. Ascospores:  $27.0-30.0 \Rightarrow 7.5-11.5 \mu$ , colourless, 1-celled, with fine granulations, ellipsoidal, sometimes with one big guttula, biseriate.

Identification with the help of Seaver's monograph (1951) indicated that this fungus belonged to the genus *Chloroscypha* Seaver (confr. Mycologia 23: 1931). The species of this genus all grow on conifers, though *Cryptomeria japonica* Don. is not mentioned. My fungus seemed very closely related, however, to *Chl. Seaveri* (Rehm) Seaver (Mycologia 23: p. 249, 1931) on *Thuja plicata*. Only the width of the ascospores was different from that species and the erection of a new species might be justified. A few months after the collection of this fungus, a paper by Terrier (1952) was received in which the description of an identical fungus appeared. Through the courtesy of Dr. Terrier from Lausanne, some material of the fungus he described was obtained. (coll: Canton de Vaud. Le mont s/Lausanne, Bois des Gésiaux, 30—IV—1951). After studying the material it appeared to be quite the same as the dutch collection. It is a remarkable fact, that this fungus was found about the same time both in Switzerland and the Netherlands.

3. *Pseudographis pinicola* (Nyl.) Rehm, Rabenh. Krypt. Fl. Abt. III, p. 99. 1896. syn. *Hysterium pinicola* Nyl., Pez. Fenn. p. 77: 1869.

Mr. H. Heybroek kindly gave me this fungus which he had found in the Villinger Stadtwald (Schwarzwald) in Germany. Many apothecia were occurring on the bark of *Abies* spec.

Description of the fungus (Gremmen 502). Apothecia black, about 500  $\mu$  in diameter. Hymenium sulphur-yellow to brown-yellow. Asci 235—247  $\Rightarrow$  11.5—15  $\mu$ . With a solution of iodine the ascospores turn deepblue. Ascospores: 23.0—38.0  $\Rightarrow$  7.5—9.5  $\mu$ , 4- to 8-celled, colourless, ellipsoidal. Cultures prepared from ascospores by means of natural ejaculation showed slowly developing mycelia of a cream to yellow cream colour. Fructifications did not develop in these cultures.

The name *Peziza pinicola* Rebent. has been used for more than one fungus. According to Nylander (1869), *Peziza pinicola* Rebent. (Prodromus Florae Neomarchicae, 1804) is *Hysterium pinicola* Nyl. Rehm (1896), afterwards, transferred this fungus to the genus *Pseudographis* Nyl. In a recent paper on the genus *Crumenula* de Not. (van Vloten and Gremmen), Fries' description (Syst. Myc. II. p. 113) of *Peziza pinicola* was cited and concluded that this species might perhaps be the same as *Crumenula pinicola* in the sense of Karsten (1869). This is supported by the characteristic figure and description of Fries' fungus by Nylander (1869). Karsten (1869), however, considered his *Crumenula pinicola* identical with *Peziza pinicola* Rebent, which is wrong. His fungus on the contrary is synonymous with *Peziza pinicola* Fries, and placed in the genus *Crumenula* de Not. must be named *Crumenula pinicola* (Fr.) Karst. *Peziza pinicola* Rebent. and *Peziza pinicola* Fries are thus quite different fungi. They both occur on coniferous hosts and are difficult to separate without the aid of the microscope. Nylander (1869) based his conclusions on the study of the Fries' exsiccatum, Scl. Suec. 162 and has moreover given an excellent figure of the typical ascospores. Since then it seems that the exsiccatum, Scl. Suec. 162 has been completely destroyed for no apothecia can be found on it. Dr. L. Holm of the Botanical Institute at Uppsala kindly gave me this information.

During a visit to the Herbarium in Kew, I found, however, part of the Fries' exsiccatum, Scl. Suec. 162. Unfortunately, there was only one apothecium left on the substratum, which consisted of a piece of *Pinus*' bark. Macroscopically this apothecium was strongly resembling *Crumenula pinicola*. Through the kindness of Dr. R. W. G. Dennis, a slide of this apothecium was received for study, which only showed part of the apothecium, whereas hymenium with asci and ascospores were fully lacking. Though, I think the apothecium belongs to the species *Crumenula pinicola*, based on the remaining part of the apothecium, it was not possible for me to prove it with certainty, so that there may still some doubt on the right interpretation of this exsiccatum.



Nylander's description and figures are thus all things we now yet know with certainty of *Peziza pinicola* Fries. Therefore, it is proposed here to use this description as the starting-point for the nomenclature of this fungus. The right citation of this fungus must be *Crumenula pinicola* (Fr.) Karst., while the combination *Crumenula pinicola* (Rebent.) Karst. is wrong.

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Artikel/Article: [Some Noteworthy Discomycetous Fungi on Coniferous Hosts. 141-145](#)