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**CHARLES H. PECK**

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University of the State of New York

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BULLETIN

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BOLETI OF THE UNITED STATES

By CHARLES H. PECK

STATE BOTANIST

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## BOLETI OF THE UNITED STATES

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Boleti are such fleshy and perishable fungi and in the dried state generally lose so much of their natural color and character that their study is attended with some difficulty. This difficulty has in some cases been increased by imperfect and incomplete descriptions and unsatisfactory classification. Professor Fries, than whom probably no one has had a better knowledge of them, says "no genus has given me more trouble than that of the Boleti." The following pages are the result of a desire on the part of the writer to facilitate the study of the United States species by bringing together the descriptions of them, and arranging them in their respective tribes or groups. In the *Hymenomycetes Europæi* one hundred species are recorded, in the following pages one hundred and ten. Doubtless this number will gradually be increased with the advance of our knowledge of this part of our flora, for many parts of our country yet remain to be mycologically explored. Thirty-six of the species here described occur also in Europe. The large number remaining indicates a rich and a peculiar boletous flora. It has been necessary to institute two tribes, not represented in Europe, for the reception of species for which no place is found among the Friesian tribes. A few species have been left unclassified in consequence of the imperfect character of their descriptions. A few unpublished species

represented by scanty material in an unsatisfactory condition have been omitted.

The genera *Boletinus* and *Strobilomyces* are not very sharply distinguished from the genus *Boletus*, and Professor Fries did not attribute generic value to them. But one character ascribed to both of them in *Sylloge Fungorum* conflicts to such an extent with the Friesian description of the genus *Boletus* that it may be well to recognize them as distinct. This distinctive character is expressed in the following

*Synopsis of the Genera*

Tubes easily separable from the hymenophore and from each other .....	Boletus.
Tubes not easily separable from the hymenophore .....	1
1. Hymenium with a perceptible radiating structure...	Boletinus.
1. Hymenium without a perceptible radiating structure.	Strobilomyces.

BOLETINUS KALCHB.

Hymenophore not even (as in *Boletus*) but extended in mucros descending like a trama among the tubes. Tubes not easily separable from the hymenophore and from each other. Stem annulate, hollow, spores pale yellowish. *Sylloge* Vol. VI, p. 51.

This genus was founded by Kalchbrenner on *Boletus cavipes* Opat., the only European representative of it. His diagnosis differs slightly from the one quoted in saying that the tubes are not separable from the hymenophore nor from each other, and that the stem is central and the fungus fleshy and putrescent. Fries, who apparently had not seen this fungus, says, with characteristic sagacity, that from the character given, it constitutes a peculiar genus whose whole appearance is that of *Boletus* and whose limits are not yet defined.

In the United States there are several species which evidently should be referred to this genus. By a study of them it becomes clear that Fries was right in his assertion and that a very important generic character has been overlooked. This is the radiating structure of the hymenium which is



composed of several broader radiating lamellæ abundantly connected by more narrow transverse and anastomosing branches or partitions which thus form large angular pores whose dissepiments are more or less uneven or dentate on the edge. The radiating lamellæ are more distinct toward the stem, and gradually lose themselves toward the margin. In some species they are more clearly seen in the young plant than in the adult. The hymenium is to some extent separable from the hymenophore, though not easily, but in the young plant, at least of one species, I found it inseparable. The projecting mucros or points, appearing not unlike pale scattered hairs, are not, in my opinion, a good generic character, for I have observed them in many species whose tubes easily separate from the hymenophore and from each other and which therefore are genuine Boleti. The characters ascribed to the stem are also not of generic value and should be omitted if we accept the evidence of our American species. In one species, *Paxillus porosus* Berk., the stem is lateral or eccentric, and by this character and by the peculiar radiating structure of the hymenium this genus is shown to be intermediate between *Paxillus* and *Boletus*. It affords a resting place for the species just mentioned, for it seemed before to be at home neither with the *Paxilli* nor with the *Boleti*. The generic diagnosis should in my opinion be emended as follows:

Hymenium lamellis latioribus radiantibus transversè connexis ramis angustioribus numerosissimis anastomosantibus formatum. Tubuli subtenaces, ægre ab hymenophoro et a se invicem sesedentes, magni, angulati, adnati vel subdecurrentes, lutescentes.

*Hymenium composed of broader radiating lamellæ connected by very numerous more narrow anastomosing branches or partitions and forming large angular pores. Tubes somewhat tenacious, not easily separable from the hymenophore and from each other, adnate or subdecurrent, yellowish.*

Stem hollow.....	B. cavipes
Stem solid.....	1
1 Stem lateral or eccentric.....	B. porosus
1 Stem central.....	2
2 Pileus pale yellow, silky.....	B. decipiens
2 Pileus red or adorned with red scales.....	3
3 Pileus red.....	B. paluster
3 Pileus soon red-squamose.....	B. pictus

### **Boletinus cavipes** KALOHÉ.

#### HOLLOW-STEMMED BOLETINUS

Icon. Sel. Hym. Hung. p. 52, tab. 31. *Boletus cavipes* Opat. Comm. p. 11  
*Boletus subtomentosus* Report 23, p. 131. *Boletus ampliflorus* Rep. 26, p. 67

Pileus broadly convex, rather tough, flexible, soft, sub-umbonate, fibrillose-squamulose, tawny-brown, sometimes tinged with reddish or purplish, flesh yellowish; tubes slightly decurrent, at first pale yellow, then darker and tinged with green, becoming dingy-ochraceous with age; stem equal or slightly tapering upward, somewhat fibrillose or floccose, slightly annulate, *hollow*, tawny-brown or yellowish-brown, yellowish at the top and marked by the decurrent dissepiments of the tubes, white within; veil whitish, partly adhering to the margin of the pileus, soon disappearing; spores .0003 to .0004 inch long, .00016 broad.

Pileus 1.5 to 4 inches broad; stem 1.5 to 3 in. long, 3 to 6 lines thick. Swamps and damp mossy ground under or near tamarack trees. New York, *Peck*. New England, *Frost*.

The pileus is clothed with a fibrillose tomentum which becomes more or less united into floccose tufts or scales. The umbo is not always present and is generally small. The young stem may sometimes be stuffed, but if so, it soon becomes hollow, though the cavity is irregular. The freshly shed spores have a greenish-yellow or olivaceous hue, but in time they assume a pale or yellowish-ochraceous hue. This species is apparently northern in its range. It loves cold sphagnous swamps in mountainous regions.

**Boletinus pictus** PK.

## PAINTED BOLETINUS

*Boletus pictus* Rep. 23, p. 128. *Boletus Spraguei* B. & C., Grevillea, Vol. I, p. 35

Pileus convex or nearly plane, at first covered with a *red fibrillose tomentum which soon divides into small scales revealing the yellow color of the pileus beneath*, flesh yellow, often slowly changing to dull pinkish or reddish tints where wounded; tubes tenacious, at first pale-yellow, becoming darker or dingy ochraceous with age, sometimes changing to pinkish-brown where bruised, concealed in the young plant by the copious whitish webby veil; stem equal or nearly so, *solid*, slightly and somewhat evanescently annulate, clothed and colored like or a little paler than the pileus, yellowish at the top; spores ochraceous, .00035 to .00045 in. long, .00016 to .0002 broad.

Pileus 2 to 4 in. broad; stem 1.5 to 3 in. long, 3 to 6 lines thick.

Woods and mossy swamps. New York, *Peck*. New England, *Sprague, Frost*. North Carolina, *C. J. Curtis*.

This species is easily recognized by the beautiful red scales of the pileus which are more distinct by contrast with the yellowish background. The colors are not well retained by the dried specimens. The flesh is yellow, but on exposure to the air it sometimes slowly assumes pinkish reddish or garnet tints. In *B. Spraguei*, it is said to vary from yellow to purplish. As I can detect no other marked difference in the description of that species, it does not seem to me to be specifically distinct, and especially so because this character is clearly a variable one in *B. pictus*. The more prominent radiating lamellæ are less distinct in this species than in the others, but they are generally perceptible in the young hymenium. The plant is common in New York and grows especially in pine woods.