XIII.—On two new Species of *Lentinus*, one of them growing on a large *Sclerotium*. By
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(Plate XXXII.)

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THERE is a description accompanied by an illustration in Rumphius's 'Herbarium Amboinense' (sixth part, lib. xi. cap. xvii. p. 120, tab. 57) of a large sclerotoid body which he terms *Tuber regium*: "pluvia calida et sole splendente vel tonitruoso cœlo ex ipso Boletus excrescit aliquando simplex, aliquando duplex, aliquando plures simul, quorum tamen semper unus maximus est." The figure and description given by Rumphius of the so-called "Boletus" enabled Fries to determine it (Syst. Mycol. vol. i. p. 174) as *Agaricus Tuber-regium*, and subsequently to place it in his genus *Lentinus* in the 'Epicrisis' (p. 392). The *Tuber regium* itself Fries took to be a *Pachyma*, which he terms *Pachyma Tuber-regium* (Syst. Mycol. vol. ii. p. 243). Rumphius gives an interesting account of the appearance of both fungi and of their reputed properties. Speaking of the pileus he says that when young it is "coctioni aptus." At another place he goes further than this somewhat cautious phrase, and states that besides being fit for cooking it is possible to eat it, "sed cibus hic durus est." The "radix," however, was good as a remedy for diarrhœa, fevers, and "dolentes fauces," &c. Fries tells us he had not seen specimens, and indeed no mycologist appears to have done so from the time of Rumphius till now. Considerable interest therefore is attached to a specimen of a *Lentinus* growing on what appeared to be a *Pachyma* collected by the Rev. Mr. Whitmee in Samoa, and presented by him to the Department of Botany, British Museum. It was not only possibly the long-lost *Lentinus Tuber-regium*, but appearances suggested the origin of the *Lentinus* from the sclerotium, and hence an explanation of the obscure nature of *Pachyma*. Both of these seductive suggestions, however, were broken down by investigation. First of all, though strongly resembling *L. Tuber-regium*, Fr., Mr. Whitmee's specimen differs from it in the pileus and stalk being densely covered with fine short hairs instead of being glabrous, in the colour, &c.; and since it does not agree with the description of any other species of *Lentinus* known to me, I propose to describe it as follows:—

LENTINUS SCLEROTICOLA, n. sp.; pileo profunde infundibuliformi, coriaceo, cervino, scabriusculo; stipite ochraceo, scabriusculo, solido, longo, versus basin attenuato; lamellis decurrentibus cervino-brunneis.

Rumphius describes the pileus as becoming lacinated with age; and though Mr. Whitmee's specimen is cracked, &c., at the edge of the pileus, the fractures are manifestly the result of injury during transport, and not due to any process of development.

I have therefore ventured to restore the margin of the pileus in the accompanying figure of it.

I was next disappointed in failing to identify the sclerotium with *Pachyma*. The tissue is, as the figure shows, that of a true sclerotium, a plexus of hyphæ densely interwoven, and, while varying in the diameter of the filaments, yet fairly uniform. *Pachyma* on the other hand (see Trans. Linn. Soc. vol. xxiii. tab. ix. figs. 7 and 8) appears to consist of masses of pectine traversed by fungal hyphæ, and to deserve the name of a sclerotoid body rather than of a sclerotium. The Rev. Mr. Berkeley, in referring (Introduction to Cryptogamic Botany, p. 288) to the Tuckahoe or Indian Bread of North America (*Pachyma Cocos*, Fr.), says that "it is not a true fungus, but a state of certain unknown roots in which their structure is converted into pectic acid." The Tuckahoe or Indian Bread has been recently reported on by Prof. J. Howard Gore at p. 687 of the Annual Report of the Board of Regents of the Smithsonian Institution for the year 1881 (Washington, 1883). Prof. Gore made "a critical inspection of its structure, and an examination of many specimens at different stages of development;" and as a result of this he found among other things that "at some season of the year spores are given off and transmitted by insects, water, or other natural means, and are attached to the roots of other trees suitable for its production." Undoubtedly the investigation of so obscure a question as the nature of *Pachyma* requires a suitable state not only in the development of the material, but in that of the observer as well; and judging by the evidence of Prof. Gore's report, I venture to think he has not brought us much nearer an explanation of this matter. Mr. Berkeley in a paper on *Pachyma* from China (Linn. Soc. Journ. of Proc. vol. iii. Bot. p. 107) says, "No fungus has ever been found on the American or Chinese tubers, and, unfortunately, *Pachyma Tuber-regium*, which gives rise to a species of *Lentinus*, as figured by Rumphius, is quite unknown. It is probably, however, of the same nature with the Pietra funghaja or fungus-stone of Italy (a mere mass of earth and mycelium)." Whether Fries was right in interpreting Rumphius's *Tuber regium* to be a *Pachyma* or Mr. Berkeley in thinking it resembled the Pietra funghaja, there is no means of determining absolutely from Rumphius's description or figure, though "a mere mass of earth and mycelium" would hardly be likely to possess the properties as a food &c. ascribed by Rumphius to his *Tuber regium*. In this absence of evidence it would be wholly unwarrantable to set up a claim for the true sclerotium collected by Mr. Whitmee to be the *Tuber regium* of Rumphius, though a description of it will show a striking correspondence. Its tissues are traversed in all directions by rhizoids of *Lentinus* varying in diameter, and not only by rhizoids of the *Lentinus* actually growing upon it, but by others, one of which I have carefully traced to one of the three or four external pits where doubtless previous individuals had grown forth (see fig. 1, a). The explanation inevitably suggested by the course of these strings of hyphæ is that originally a *Lentinus* spore or spores had germinated upon the surface of the sclerotium, had pushed out rhizoids into the mass, and that the mycelium thus attaining the interior had become perennial there, producing from time to time crops of *Lentinus* from the surface under favourable circumstances, such as those described by Rumphius for his *Tuber regium*. Though it is impossible to reach

certainty in a matter of this kind, yet it may be urged from this evidence that Fries was probably nearer the truth than Mr. Berkeley, and that there is at all events a strong presumption in favour of regarding Rumphius's *Tuber regium* as a sclerotium like to, if not identical with, the one I have described here. Though the *Lentinus* is of a different species (at least I should not be justified in regarding it as the same from the description) this brings no direct evidence against the opinion.

Dr. H. B. Guppy, who spent some time in the Solomon Islands, having seen this Samoan specimen, has kindly furnished me with a note on the occurrence of similar bodies in the Solomon Islands. He says:—

“My attention was first directed to these singular bodies in 1882 by the traders living on the island of Santa Anna at the eastern end of the group, and I at once set about learning more about them. In external appearance they somewhat resemble a Yam, and are usually about two pounds in weight, and others attain even a greater size. They lie *unattached on the soil*, scattered about among fragments of coral-limestone, and did not come under my notice in islands other than of calcareous formation. At first I thought they might have dropped from the branches of trees, but the position of many of them negated this idea. In the opinion of the natives of Santa Anna, who have named them in their own tongue ‘devil’s testicles,’ they are poisonous. Inside they are white, sometimes with a waxy look, and the larger ones when cut across look like compressed flour. Mr. Stephens, a trader at Ugi, an adjacent island, on learning that I was curious about them, procured some, and subsequently informed me that from one of them sprung *mushroom-like growths* which fell away in a few weeks. I had no opportunity of seeing these mushroom-like growths myself, nor had they come under the notice of previous residents in the group. These tuberous masses, however, were new to them as well as to me, and might easily escape observation on account of their dark colour matching that of the soil as well as the hue of the weathered surface of the coral-limestone fragments. As far as I can judge now, they appear identical with the specimen from Samoa in your collection.”

Dr. Guppy recommended one of the traders to cook one of these bodies, “but only a tasteless fibrous substance resulted.” He has kindly offered to write to one of the traders to make observations and send home specimens, and the result cannot fail to be of interest. It is particularly to be hoped that the origin of the large sclerotium may be discovered.

Since the above was written, Mr. Broome has with very great kindness shown me a specimen of *Lentinus cyathus*, Berk. & Broome, growing on a large sclerotium, from Brisbane. The sclerotium is of almost identical appearance with mine, and I had already noted the fact that my *Lentinus scleroticola* stands very near to *L. cyathus*, Berk. & Broome. An examination of Mr. Broome’s excellent specimen confirms me in this opinion, and in fact I would place the species side by side. *L. scleroticola* differs from *L. cyathus* in the gills being much finer and far more numerous, in the pileus being thinner and more deeply infundibuliform, and in the tapering downwards of the stem &c. The rhizoids of *L. cyathus* penetrate the sclerotium in precisely the same fashion, and I notice besides on the outside of its sclerotium several pits where former plants of

Lentinus grew forth, as in the case of *L. scleroticola*. We have here then just such another case of a *Lentinus*, the mycelium of which is a perennial inhabitant of a large sclerotium.

The other *Lentinus* referred to in the heading of this paper was collected by the Rev. W. E. Taylor in the Rabai Hills, Mombaz, East Africa, during the autumn of last year. He has already sent home to the British Museum a very interesting and extensive series of plants from that region, and he is now, in spite of difficulty and danger, engaged in collecting both the flora and fauna of this region. I have much pleasure in associating his name with this new *Lentinus*.

LENTINUS TAYLORII, n. sp.; pileo crateriformi, coriaceo, umbrino squamis subconcentricis ad basin ornato, margine revoluto, integro; stipite longo, solido, fulvo, fusco-maculato, versus basin squamuloso, cavo; lamellis decurrentibus, fuscis.

The lower extremity of the stem was broken off an inch or so below the surface of the ground.

DESCRIPTION OF PLATE XXXII.

Fig. 1. *Lentinus scleroticola*, G. Murr. (nat. size), on sclerotium.

Fig. 2. Section through sclerotium showing *Lentinus* rhizoids. Nat. size.

Fig. 3. Another section through sclerotium following direction of rhizoids terminating externally at *a*, fig. 1, and seen in section fig. 2 at *b*. Nat. size.

Fig. 4. Section of portion of sclerotium: *a*, *Lentinus* rhizoids; *b*, sclerotium tissue. $\times 450$.

Fig. 5. *Lentinus Taylorii*, G. Murr. Nat. size.

Fig. 6. View of pileus from above. Nat. size.

1-4 LENTINUS SCLEROTICOLA n.sp. 5-6 L. TAYLORII n.sp.