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SHORT NOTES.

TOLYPELLA INTRICATA Leonh. On May 25th (1917) I found this plant growing in an old disused strontium digging in the neighbourhood of Yate, W. Gos. A specimen was submitted to Mr. James Groves, who says that *Tolypella intricata* was first recorded for W. Gos. by St. Brody in the Newent Canal.—CECIL SANDWICH.

CAREX PSEUDO-PARADOXA S. Gibs. (p. 139). From his letter to me I anticipated Mr. Salmon's suggestion that this plant might possibly be the inferior specimen of *C. paniculata* alluded to by me as growing with *C. teretiuscula* at Seaman's Moss Pits; and for this reason I was wishful to see Hunt's herbarium, where I know some specimens of *C. paniculata* from this locality were preserved (Fl. Cheshire, p. 322). I have been unsuccessful in discovering Hunt's herbarium, but Mr. Charles Bailey found, in his collection, specimens of *C. paniculata* gathered at Seaman's Moss by Mr. John Hardy in 1852—only eight years after the controversy; these Mr. Salmon has seen and determines to be *C. paniculata*—they confirm my recollection in being inferior to those frequently found in Cheshire meres. If *C. pseudo-paradoxa* grew, as Gibson says, plentifully by the sides of Malham Tarn and was also found at Seaman's Moss Pits, it appears strange that no specimen seems to be in existence from either locality. It might even now be desirable to search for it at Malham, but Seaman's Moss Pits were filled up and the locality destroyed many years ago.—SPENCER H. BICKHAM.

CHENOTHECA MELANOPHEA (Ach.) Zwackh., var. nov. *FLAVO-CITRINA*. The lichen for which the above name is proposed, was recently collected in a wood near St. Alban's, Herts. Its characters are microscopic, but the deep yellow colour of parts of the thallus makes it quite easy to detect after once being seen. It may be diagnosed as: "Thallus granulatus, effusus, subcrassus, primum endophlæodes, colore variabilis e cinereo flavescens. Apothecia numerosa iis plantæ typicæ similia." The whole colouring suggests the variety *ferruginea*, but the apothecia are not sessile and there is a difference of habitat.

This variety occurs in great abundance on the bark of oak and ash—the latter scarce in the wood—and also on the still adhering stems of dead ivy. The oak and ash trees are not of great age; the stems of ivy, on which the lichen was found, averaged 4 mm. in diameter. In the case of the ivy, the greater part of the lichen thallus is immediately under the epidermis, which extends over it as a bright yellow film. After a time the epidermis breaks up and the granular thallus is then seen to spread over the outer surface and to be freely exposed, but before this takes place some of the apothecia break through and appear to be growing from the yellow film. On the oak the thallus sometimes creeps under the edge of the old phellogen layers of the bark, and here also the apothecia occasionally force themselves through, before the overlying phellogen has been broken into fragments by the pressure of the growing lichen from beneath.

The reaction of the thallus with potassium hydrate is, as in the species, a purplish red colour due to the presence of salazinic acid (Lettau in *Hedwigia*, lv. 25, 1914). On applying the reagent to the lichen, before the relation to the substratum is disturbed, a rapidly developed purplish red colour becomes evident; but if a small portion of the thallus on the under side of the epidermis of the ivy is scraped off neither the hyphæ nor the algal cells show the deep stain; they are practically not changed at all. It is the periderm cells, through which the hyphæ have ramified, that become so markedly coloured and show so readily through the thallus above. The same may be said of the dead phellogen layers of the oak bark, it is the contents of these cells that exhibit the dark purple reaction with potassium hydrate. As to the thickish granular thallus, so abundantly developed on the exposed surface of the outer bark, the hyphæ do not stain with the reagent and many of the algal cells are unaffected, but in some, where the green colouring matter has become yellow or colourless, the contents show a pink reaction tinge. The algal cells are the normal Protococcus green shells which are sometimes stained yellow. The hyphæ are remarkably wide, being from 2 to 3 in. in diameter.—ROBERT PAULSON.

REVIEWS.

Science and the Nation: Essays by Cambridge Graduates with an Introduction by the Right Hon. LORD MOULTON, K.C.B., F.R.S. Edited by A. C. SEWARD, F.R.S., Master of Downing College. Cambridge University Press, 1917. Pp. xxii+328. Price 5s. net.

LORD MOULTON prefaces this valuable volume of essays with a weighty indictment of our national notion of education. "It has been fashionable," he says, "for the well-to-do to choose for their children an education devoid of Science and indeed devoid of continuous intellectual effort . . . it was considered no shame that a man should leave his University not only ignorant of Modern Languages and Science but also unprovided with any economical or commercial training that could be of value to him in practical life. This example has been followed by other classes of the community who have naturally accepted the standards of education adopted by the wealthier classes as being the best, and thus much of the best human material that England produces has been set to its work in life without any special preparation for the task before it." As Sir Arthur Evans put the matter in his address to the British Association at Newcastle, English opinion is not so much indifferent as actually hostile to education; and the thirteen Cambridge Professors whose essays are here marshalled by Professor Seward have set out to demonstrate to a nation of philistines the practical value of pure science. It is, perhaps, appropriate that such a volume should appear under the ægis of the representative of so purely scientific a study as palæo-botany; but, whether the writer be chemist, metallurgist, mathematician, forester, geologist, agriculturist or physician, the main thesis is the same throughout, viz. that much of the supposed distinction between