NOTES.

A REPLY TO PROF. JEFFREY'S ARTICLE ON YEZONIA AND CRYPTOMERIOPSIS.—Prof. Jeffrey's article in the last number of the 'Annals of Botany', pp. 767-73, would have created a different impression in the minds of some readers if he had stated that 'the large memoir' by himself and Dr. Hollick 'so often quoted' in that article had not appeared till the paper by Prof. Fujii and me had been read at the Royal Society. We put a note regretting that fact, and that we had not had the advantage of comparison with his work, at the end of our bibliography.

At a future date I am intending to treat the subject at greater length, but the publication of Prof. Jeffrey's paper calls for some immediate recognition. I have only seen a few sections of *Brachyphyllum*, kindly lent me by Prof. Oliver of London and Prof. Seward of Cambridge, and they certainly show considerable similarity to the plant described by us as *Yezonia*. All the data necessary, and in particular the fructifications, are not available however.

The cone figured and described by Jeffrey and Hollick ('Studies of Cretaceous Coniferous Remains from Kreischerville, New York,' 1909, p. 37), so far as it goes, does not coincide at all with the petrified seeds and scales described by Stopes and Fujii (Phil. Trans., London, 1909, p. 33), our fructification showing many points of structural similarity to *Yezonia*, which make its connexion with that genus almost certain. Other cones more or less indefinitely associated with *Brachyphyllum* do not help to bring the plants together.

The further information as regards vegetative structure given by Prof. Jeffrey in his recent paper in the Annals certainly tends to support the view that *Yezonia* belongs to the genus *Brachyphyllum*. The fructifications, however, can alone determine this conclusively.

As regards *Cryptomeriopsis* Prof. Jeffrey's conclusions seem less sound. We have no evidence of fructifications. The points which he mentions as like *Geinitzia* in the vegetative parts of our plant are not sufficient to unite it to that genus. *Geinitzia* (*Sequoia*) *Reichenbachii* is put among the plants with Araucariaceous affinity by Jeffrey and Hollick, and when the Japanese fossil is swept into that all-embracing group, I must protest. Except for the lack of stone cells in the phloem, *Cryptomeriopsis* shows no feature that would justify more than specific distinction from the living monotypic genus *Cryptomeria* now endemic in Japan. Prof. Jeffrey's objection to *Geinitzia* being put with the genus *Sequoia* is justified, and I agree with him, but it is beside the point in the present argument. We have never suggested that *our* genus

has affinities with *Sequoia*, but I maintain, from detailed comparison with the living material of *Cryptomeria*, that our fossil is exceedingly like this living genus.

The general conclusion reached by Prof. Jeffrey is that 'it is clear that regions so widely separated geographically as Southern New England and Northern Japan were characterized during the Cretaceous period by a similar and characteristic Coniferous flora'. The pairs of genera above considered are from different horizons in different continents, and the fructifications are unknown. Palaeobotanists have been too much given in the past to generalizations from data of this sort. Prof. Jeffrey adds, 'The validity of this conclusion is much strengthened by the nature of the Abietineous remains recently described by Miss Stopes from the same deposits, since these correspond closely, so far as they go, with remains . . . from . . . Kreischerville.' Now, one of the two Abietineous leaves I then described from my Japanese material is notable in being exactly like the leaf of a modern *Pinus*, transfusion tissue, endodermis, infolded mesophyll and all (see Stopes and Kershaw, Ann. Bot., xxiv, p. 399 et seq.). The facts in this paper go directly against the previous conclusions of Prof. Jeffrey, who (Ann. Bot., 1908) had said for the study of the American leaves, 'One feature which, in general, serves to distinguish all of the Cretaceous Pines thus far examined . . . is the very wide zone of transfusion tissue surrounding the leaf-bundles', and other features of endodermis, mesophyll, &c., unlike modern pines.

It must be obvious that the time is not yet ripe for 'general conclusions' about the flora of the Cretaceous epoch.

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A NEW PARASITIC FUNGUS FOUND IN THE ROOTS OF GRASSES.—PRELIMINARY NOTICE.—I have found tubercles or swellings on the roots of *Poa annua* and other grasses. These tubercles, and to a greater extent the roots themselves, when microscopically examined, revealed the presence of a fungoid parasite allied to *Sorosphaera Junci*. This fungus, which is, I believe, new to botanical science, I propose to call *Sorosphaera Graminis*. There are several interesting points of difference between these two parasites, the amoebae of the latter of which, for instance, send out protoplasmic threads which penetrate through the cell-wall from one cell into its neighbour. One means by which infection is effected is by the entrance of an amoeba into a root-hair.

I hope shortly to publish a detailed account of the life-history of *S. Graminis*, including its cytology, which in most respects agrees with that of other members of the Plasmodiophoraceae.

E. J. SCHWARTZ.

Stopes, Marie Carmichael. 1911. "A reply to Prof. Jeffrey's article on Yezonia and Crtotineriosis." *Annals of botany* 25, 269–270.

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