

than herbaceous, and their appearance is quite different from that of any true Algæ.

The type of *Psilophyton* is my *P. princeps*, of which the whole of the parts and structures are well known, the entire plant being furnished in abundance and *in situ* in the rich plant-beds of Gaspé. A second species, *P. robustius*, has also afforded well-characterised fructification. *P. elegans*, whose fruit appears as "oval scales," no doubt bore sac-like spore-cases resembling those of the other species, but in a different position, and perfectly flattened in the specimens procured. The only other Canadian species, *P. glabrum*, being somewhat different in appearance from the others, and not having afforded any fructification, must be regarded as uncertain.

The generic characters of the first three species may be stated as follows :

Stems dichotomous, with rudimentary subulate leaves, sometimes obsolete in terminal branchlets and fertile branches; and in decorticated specimens represented only by punctiform scars. Young branches circinate. Rhizomata cylindrical, with circular root-areoles. Internal structure of stem, an axis of scalariform vessels enclosed in a sheath of imperfect woody tissue and covered with a cellular bark more dense externally. Fruit, naked sac-like spore-cases, in pairs or clusters, terminal or lateral.

The Scottish specimens conform to these characters in so far as they are known, but not having as yet afforded fruit or internal structure, they cannot be specifically determined with certainty. More complete specimens should be carefully searched for, and will no doubt be found.

In Belgium, M. Crepin has described a new species from the Upper Devonian of Condruz under the name *P. Condrusianum* (1875). It wants, however, some of the more important characters of the genus, and differs in having a pinnate ramification, giving it the aspect of a fern. In a later paper (1876) the author considers this species distinct from *Psilophyton*, and proposes for it a new generic name *Rhacophyton*.

The characters given by Mr. Carruthers, in his paper of 1873, for the species *P. Dechenianum*, are very few and general: "Lower branches short and frequently branching, giving the plant an oblong circumscription." Yet even these characters do not apply, so far as known, to Miller's fucoids or Salter's rootlets or Goeppert's *Haliserites*. They merely express the peculiar mode of branching already referred to in Salter's *Lepidodendron nothum*. The identification of the former plants with the *Lepidodendron* and *Lycopodites*, indeed,