leg disease, where the cutting off of supplies is rather sudden. All these symptoms are the logical results of the absence of the abundant feeding roots. Roots are present in all growing plants, otherwise the plants would have died; small and fine roots are less in evidence in affected plants while a generous supply exists in healthy strong plants.

Deductions—however logical they may be—still are hypotheses and hypotheses are not facts, but the accompanying plate will provide some foundation for the observations recorded and may stimulate wider researches on this point than have been made so far. I am satisfied from the observations made, that the destruction—often very gradual—but very persistent all the same, of all or many of the feeding roots of the potato plant accounts for every one of the symptoms associated with this disease. The lesions which have so often been recorded are evidently not of serious consequence, as indicated by their general superficiality and frequent entire absence. In some instances indeed these lesions are not due to Rhizoctonia at all, but to *Actinomyces scabies* Güssow, which I hope to show in another paper, when they afford easy resting places in the unprotected superficial cells for the mycelial masses of Rhizoctonia shown in Mr. Drayton's photo-micrographs, as well as for the permeation of the hyphae into the interior, which, as must have been noticed, is not accompanied by any prominent injurious action upon the cells invaded. A study of Mr. Drayton's slides clearly confirms this observation as well as the photographs made from them which are accessible to our readers.

The pathogenic action is as follows: We are aware of the very profuse growth of mycelium of Rhizoctonia, particularly in the dark, as also of the production of enormous quantities of pseudo-sclerotia on roots and tubers. Whether the sclerotia are left over in the soil from preceding potato crops or other host plants, or whether they have been introduced by untreated infected seed potatoes—(and what "farmers' run" potatoes are not infected?)—does not matter much. The tips of the fresh rootlets soon fall a victim to the invading mycelium, the root cap being undoubtedly the most vulnerable point and soon the short roots have been destroyed, the mycelium meanwhile reaches older rootlets, which it much more rarely destroys, though that has occurred, but where the mycelium frequently produces resting mycelial masses from which invading hyphae issue almost simultaneously with new rootlets which are produced by the plant in its effort to reestablish its resources. This process goes on gradually and slowly or more rapidly depending naturally upon the vigor of the plant. Finally the persistent efforts of the fungus result in decreasing yields, in frustrating the growth of the tubers, because of lack of food supplies from the roots, and eventually in the production of aerial tubers. Meanwhile harvest-time has arrived, what tubers are there, are harvested.