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## OBSERVATIONS ON SEEDLINGS OF NORTH AMERICAN PHÆNOGAMOUS PLANTS.

By THEO. HOLM, Brookland, D.C.

(With three plates, drawn from nature by the author.)

There was a time when botanists were deeply interested in the study of seedlings and the subsequent development of the plant-individual from a morphological point of view. This was during the first half of the nineteenth century when Bernhardt, De Candolle, Mirbel, Richard, Tittmann and some others published their fundamental works on the germination, soon followed by Buchenau, Caspary, Irmisch, Warming, and Winkler, while Klebs and Sachs, but several years later, extended these morphological researches to the equally important and very interesting physiological. However, the literature on this subject may be followed still further back, and Malpighi was actually the first author who contributed to the knowledge of the germination of phænogamous plants; this may be seen from his works: *Anatome plantarum* (1675), *Opera omnia* (1687), and *Opera posthuma* (1697). To Ray we are indebted for dividing the plants into *Monocotyledones* and *Dicotyledones*, names invented by him, and described in his *Methodus plantarum* (1703). But, as stated above, it was not until the beginning of the nineteenth century that the study of seedlings became undertaken more generally and by some of the ablest writers on botany. In recent years, or let us say the last decennia, very few botanists have paid much attention to this particular question, and it is extremely little that has been brought to light by American writers. This is the more surprising since the American plants are exceedingly interesting from this point of view; moreover, it appears to the writer that the mere systematic treatment of the American flora is not sufficient so long as the younger stages of our plants remain ignored; the sad consequence is that the study of the organs of vegetative reproduction has been neglected to the same extent. It is only, at least in a number