

two, the waxberry and the *Hudsonia*, are characteristic of just this situation, in and to which they have apparently been adaptively developed. Towards the inner dune beaches another low shrub comes in on the slopes, though dwarfed and not abundant, the common blueberry, *Vaccinium pennsylvanicum*; it is evidently not here at home, but its somewhat xerophytic habit permits it to exist. As these various plants grow older and extend their patches, they run together more or less, sometimes two, sometimes three, and even all four. Later others are added to them, initiating the juniper mats and the woods carpet, later to be considered.

The contrast between the vegetation of the outer and the sheltered slopes of the dune beaches comes out with striking clearness a few hundred yards north of Eel Brook, where it happens the entire plain is very narrow, and slopes in both directions from a central higher crest. Outside of this can be seen only the beach grass and its accompanying forms as listed above, while inside the various xerophytic shrubs show to great perfection.

#### THE SWALES.

Between the open grass plain and the woods occurs a transition zone marked not only by an intermediate vegetation but also by distinctive physical features as well. First of all it is characterized by the presence of several great turf-carpeted and tree-bordered swales, morphologically hollows between the dune beaches which here spread much farther apart than usual. They are well shown in *figs. 8, 10, 11*. They are best developed in the widest part of the plain, hardly occurring towards its southern or northern ends, and outside of them runs a line of higher dune beaches, which indeed can be traced through most or all the length of the plain (*fig. 2*). The swales are narrow southward, but broaden northward, deepening as they go, until in some cases they dip beneath the water-table (thus exhibiting pools), after which they rapidly narrow and rise to disappear northward. Again, the trees of this zone, occurring always along the slopes of the dune beaches, do not exhibit a transition of size and age to those of the sandy woods, but are always so much smaller and younger as to be sharply marked off from them, the case shown in *fig. 10* being very exceptional, and that of *fig. 8*