

competition may therefore determine some of its minor features, but to these I gave no attention,

The turf reaches its climax in the open swales like those shown by *fig. 10*. In the woods it disappears, as will be noted under the next section; but towards the lower levels, especially towards the pools of standing water, it gives way gradually, by definite steps, to an assemblage of true swamp plants. The very first of these to appear in the lower places in the swales is always the common blue flag, *Iris versicolor*, and characteristic scattered clumps of this plant may be seen in the foreground in *fig. 11*, in the distance



FIG. 12.—Marshy swale, looking south; in the center a permanent pool with margin trodden by cattle; behind it are cat-tails and rushes, and back of them a thicket of poplar; on both right and left is sweet gale, and in the foreground is the blue flag.

on the swale in *fig. 8*, and on the left margin of the swale in *fig. 10*. Next follows always the sweet gale, *Myrica Gale*, and after that low bushes of the balsam poplar, *Populus balsamifera*, a plant which forms very dense thickets and grows larger as the situation is more sheltered. Finally the pools of standing water are reached, and on their margin occur cat-tails, rushes, and mare's tail, *Hippuris vulgaris*, with some other forms which I have not attempted especially to study. The plants may be variously combined according to local circumstances, but a very typical arrangement is shown in *fig. 12*. It is plain that we are dealing here simply with an ordinary