

digging the ditch true to grade, etc., are demonstrated. The map is examined, difficulties discussed, and details of construction dealt with, and, in fact, drainage in all its aspects is fully considered. Fig. 14 shows a typical scene at a demonstration, with an average attendance.

These demonstrations are beneficial in many ways. Besides giving much information about drainage, they are practically a public pledge of the owner to "do something," to put in some of the drains, and usually he does so at an early date; secondly, they lead the public to watch results, and the effect is sometimes remarkable. An instance was given in Bulletin 174, where within one year's time nine neighbours began under-draining as the result of one drainage demonstration. Where the movement has now reached its third and fourth years, practically whole communities are draining, e.g., in the vicinity of the Horticultural Experiment Station at Jordan Harbour, Lincoln County. The station farm was drained in 1907 with eleven miles of tile, and this year there have been enough drains put in there, within a radius of five miles, to keep a traction ditcher busy all summer.

WHAT SIZE OF TILE TO USE.

In every drainage problem we are confronted with the question, "What size of tile shall we use?" a question that cannot be answered offhand. As a matter of fact, it is the last thing decided in our drainage surveys. We cannot decide it from the acreage alone, we must know the grade of the ditch, for the steeper the grade the more water will run through a tile of given diameter. For example, if we double the grade of a tile the velocity of the water is increased approximately 40 per cent., and consequently the same tile will carry 40 per cent. more water on the new grade, and consequently it is capable of draining 40 per cent. more land. Thus we see that to decide the size of tile to use in a given case we must know the acreage to be drained through the tile and also the grade. As a result of extensive scientific experiments a rule has been formed by which the size of tile can be determined when the acreage, the grade and the maximum amount of rainfall in twenty-four hours are known, but the rule and its application are too complicated and mathematical to be dealt with here. Suffice it to know that there is such a rule and that some one has been kind enough to apply it to all practicable grades and sizes of tile and tell us what acreage can be drained through each size on each grade. This information is contained in McConnell's table, which is given herewith.