the crocks until it began to run out of the drainage tube. When percolation had just ceased, they were weighed again, and it was found that to saturate the soil, which was nine inches deep, it required two and one-half inches of water. That is, in time of drouth, when your crops begin to wilt, it would require a rain of two and a half inches to saturate the soil nine inches deep. That explains why it takes so much rain to "break the drouth." In all our records here, we have no such rain in 24 hours. Only two or three times have we had as much as two inches. A rain of one and one-quarter inches would *saturate* the soil four and one-half inches deep, but gravity and capillarity would carry part of the water farther down, so that such a rain, which would still be a heavy one, would *moisten* the soil probably eight or ten inches. Since the soil is seldom so dry as to be at the wilting point, but generally contains from 15 to 20 per cent. of water and sometimes more, a rain of about one inch is often sufficient to cause percolation. A saturated loam contains about 30 to 35 per cent. water, by weight.

The season of 1906 was a very wet one during the growing time, and the same test resulted as follows:—

Table showing Rainfall and Depth of Water used by Crops during a Wet Season.

Crop.	Depth of rain while crop was growing.	Depth lost by drainage.	Depth of water added.	Net depth of water used by crops.	Total depth compared with rainfall.
Wheat ...	12.62	1.00	5.00	17.32	1.38
Peas	12.62	1.00	6.00	18.32	1.45
Barley ...	12.62	1.00	6.50	18.82	1.49
Oats.....	12.62	1.00	6.25	18.47	1.47

Thus we see that during a wet season the crops do not use as much water as during a dry one, only about 18 or 19 inches in 1906, as compared with 23 or 24 inches in 1905, although the supply was much more abundant. Still they used about one-half more than the rainfall; but any soil, whatever its condition, retains enough of the spring and winter precipitation to supply this deficiency. The table also shows that part of the rain was carried away in drainage. In actual field conditions the amount to be thus removed would be much greater. Moreover, it is a matter of common observation that excessive water standing in the soil for 48 hours or more is very injurious to plant life. Hence, during a wet season it is our chief concern to remove the surplus water befo. its presence becomes dangerous to the crops.

Now it is a curious coincidence, or shall I say a provision of nature, that in most soils the conditions which, in a dry season, make for the retention of great stores of the winter and spring precipitation, and the subsequent conservation thereof, are the very conditions that in a wet season rid the soil most quickly of the surplus water. It behooves us, then, to inquire what these conditions are. First and foremost a proper