The purpose of this paper is to show the effect of certain methods of farm practice on the process of nitrification. The results were selected from a large number obtained in connection with certain rotation and fertilizer experiments, and are believed to more correctly represent the relation of actual field condition to nitrification than do experiments performed under artificial laboratory conditions. The method consisted in determining nitrates in samples taken from the field plats at intervals during the summer season. The sample in each case consisted of a mixture of several borings made with the ordinary soil auger. The composite sample thus obtained was placed in a pint jar, taken to the laboratory and analyzed immediately for nitrates and moisture. Nitrates were determined according to the method described in Bulletin 31, Bureau of Soils, U. S. Department of Agriculture.

Effect of Crops and Cultivation.

The results given below were obtained in an experiment which was begun in the fall of 1903, the object of the experiment being to determine the effect of fertilizers on certain crops grown in a five-year rotation. The rotation consisted of timothy three years, corn one year, and oats one year. The first application of fertilizers was made in the fall of 1908, and in the spring of 1904 timothy and oats were sown. The plats remained in timothy during the seasons of 1905, 1906, and 1907, applications of fertilizers being made in the spring of each of these three years. Stable manure was not added every year, as were the commercial fertilizers, the first application of the former being made in the fall of 1903 and the second October, 1906. The plats were plowed in the fall of 1907, the timothy sod being turned under to a depth of seven or eight inches. In the spring of 1908 the soil was prepared for corn with the disc and spring-tooth harrows. The plats were planted to corn, and cultivation given June 8th, June 23d, July 7th, and July 20th. A wind storm on August 3d blew the corn down badly and prevented further cultivation. In the spring of 1909 the plats were harrowed with a spring-tooth harrow and drilled to oats.