of plant-food (1,790 lb. to the ton), is credited to the Fixed Nitrogen and Research Laboratory of the United States Bureau of Soils, and from all accounts success has attended its employment in field trials with potatoes in Maine. The guaranteed constituents are: Nitrogen, 5·4 per cent.; available phosphoric acid, 56·0 per cent.; potash, 17·0 per cent.

### Some further Recent Developments.

Present indications seem to point to the adoption of dicalcium phosphate as a component of certain high-analysis "complete" fertilizers in place of ammonium phosphate, which heretofore has been the most popular. The introduction of the former, which has the important nutritional element calcium as an ingredient, is considered more advantageous for special soil-types.

A recent issue of the *American Fertilizer Journal* states that a new product of somewhat lower concentration, Kalkammon Phosphat, consisting, as the name suggests, of lime, phosphate, and ammonia, is now on the market. Two grades are sold: (1) 7 per cent. nitrogen and 17 per cent. phosphoric acid. (2) 12 per cent. nitrogen and 12 per cent. phosphoric acid. Yet another addition to the concentrated group on the market is an ammonium magnesium phosphate, produced by a French company, with a guarantee of 22 per cent. phosphoric acid, 5 per cent. of nitrogen, and 13 per cent. of magnesia.

Ammoniation of superphosphate: A process showing considerable promise of expansion is one in which nitrogen in the form of ammonia is sprayed into superphosphate or a mixture of superphosphate with other fertilizing agents, whereupon the ammonia is fixed by chemical reaction with the superphosphate. Numerous reports confirm the idea that such a method is neither expensive nor complicated in operation, the finished product, which can be manufactured to almost any desired formula, being prepared from the cheapest plant-food materials.

### An Overseas Opinion based on Field Tests.

In discussing results obtained from large-scale field tests, controlled by the United States Department of Agriculture, with various concentrated and ordinary strength fertilizers, Maine Experiment Station Bulletin No. 350 puts forward clearly some of the advantages and possible disadvantages of the new concentrated class of fertilizer chemicals as a whole. From the following extract it would almost seem that there is no class of fertilizer being produced to-day which offers as interesting a future as do the concentrated fertilizers.

*Economic Advantages.*—The economic advantages of concentrated fertilizers deserve serious consideration. Less handling, hauling, and storage are required at the factory or mixing-plant for concentrated fertilizers. Fewer bags are required. A marked reduction in freight is made possible. After the fertilizer reaches the farm, less handling, hauling, and storage are involved. At planting-time fewer trips are required to haul the fertilizer to the field, and the bags can be set from two to three times farther apart.

Taking the entire range of costs involved in manufacturing, shipping, and application of the tonnage of concentrated fertilizer referred to as