

But chemistry has done much to advance agriculture besides the help it has given in increasing the productiveness of the soil and the light it has thrown on the proper methods of preserving and feeding the crops of the farm. The application of the principles of chemical technology to the working up of raw agricultural products has added a new value to the fruits of the farm, opened up new avenues of prosperity, and developed new crops. The principal agricultural chemical industries are starch and glucose manufacture, sugar manufacture, wine making, brewing, distilling, tanning and fertilizer manufacture. In all these industries chemistry holds an important position.

On this continent practically all the starch is made from corn. The presence of nitrogenous matter in starch is considerable. By chemical processes, joined with mechanical ingenuity, the separation of the nitrogenous matter is effected in such a state that it is suitable for animal food. The germs of the corn are composed chiefly of oil and protein matter. These are separated in the process of manufacture, the protein making an extremely valuable substance either for food or for a fertilizer. The oil is largely used for the manufacture of a material resembling rubber. Thus by the application of chemical technology to the manufacture of starch a purer article is obtained and valuable by-products secured which more than pay for the making of the starch. This fact enables the producers to put the starch upon the market at a price far below what would be possible if chemistry had not come to the aid of the industry.

By means of chemical studies the sugar beet has been developed from the common garden beet, containing 5 to 6 per cent of sugar, to its present condition of a root containing from 12 to 16 per cent. This great improvement has been secured solely by the aid of chemical science working together with the highest skill in practical agriculture. In the process of manufacture, however, chemical science has been even more successful. Thus through the exertions of chemistry an industry has been established which is fast assuming very large proportions in the country to the south of us, and which may in the near future become an important one here in Ontario. The culture of sugar beets implies the application of those principles of agricultural chemistry which secure an increase of soil fertility, and,