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To Correspondents.

All communications should be addressed to the Editor—Box 3838, P. O., New York—with name and address of writer, not necessarily for publication without consent.

Scientific papers and correspondence intended for publication, should be written *legibly* on one side only of the paper. Articles thus received will be returned when found unsuitable for the Journal.

Those engaged in Scientific Research are invited to make this Journal the medium of recording their work, and facilities will be extended to those desirous of publishing original communications possessing merit.

Proceedings of Scientific Societies will be recorded, but the abstracts furnished must be signed by the Secretaries.

Both questions and answers in "Notes and Queries" should be made as brief as possible; an answer appearing to demand an elaborate reply, may be written in the form of an article.

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DEPARTMENT OF AGRICULTURE.

At a time when the English Government appears to be awakening to the necessity of systematically bringing the light of science to bear on the various important agricultural problems which are continually forced upon public notice, it is an agreeable task to examine the reports of the Department of Agriculture at Washington, and to note the practical usefulness of the work there taken in hand, and the thoroughness with which it is performed.

The recent reports refer to one of the most important successes of this Department, that of obtaining crystalizable sugar from maize plants, which may be grown in most sections of the United States. Congress at once appreciated the value of this discovery and directed the Commissioner of Agriculture to furnish a report giving all the information in his power in regard to the manufacture of sugar from sorghum, its cost, the character and expense of the machinery necessary, together with statistics of the consumption and production of sugar in the United States and all matters bearing on the subject.

In the reply, which was made *seriatim*, we learn that the Department has thirty-two varieties of sugar producing sorghums and millet plants, all more or less valuable, according to the varying soils, climate, cultivation, seasons and process of manufacture. From these they have selected four, which in their opinion are best adapted to the ends in view. The most useful of these is the Minnesota Early Amber, the juice of which is said to granulate more readily than other varieties. It ripens early, yields bountifully an excellent quality of syrup, and the farmers who have raised this variety of cane record their experiences as showing it to be better than any other variety. The Department of Agriculture commends it for use in the Northern part of the United States in latitudes above Chicago.

Below this latitude the White Liberian Cane may be planted as auxiliary to the Early Amber, while in the latitudes of St. Louis and the region south of it, Honduras Cane should be added to the other two varieties, thus extending the season for working the cane many weeks beyond the period that could be utilized, if but one variety were planted. The Chinese Sorgo Cane ripens about two weeks after the Early Amber.

As the methods employed in making sugar from these plants have been already described, we need only add that experiments by the chemist of the Department during the last two years have demonstrated that there is practically little if any difference in the juice of the several varieties; that they all produce sugar which can be easily granulated, if the cane be taken at the proper season of growth, and that the only important question yet to be determined is as to the variety that will yield the largest amount in a given soil and climate.

We understand that only "*a fair measure of success*" has attended the manufacture of sugar, in the manner now under description, by farmers on a small scale, and we cannot too strongly endorse the sensible advice which has been tendered, that farmers should merely convert the juice of the stalks into a syrup, and that large central mills be established where the syrup may be converted by proper vacuum pans and centrifugals.

These central mills would have the same relation to this industry that the grist mills of a neighborhood bear to wheat and corn.

The making of sugar entails a process requiring considerable practice and experience, and we are not surprised to find that farmers find many difficulties in the way of success, and it will certainly pay them better to sell the syrup, to be converted under the direction of experts. We understand that in the Western States a gallon of dense syrup weighing, say 13 pounds, can be produced for 16⅔ cents (possibly less). This, if properly managed, should yield 6 to 8 pounds of sugar, and, if handled by the centrifugal, may be separated at a fraction of one cent per pound.

If this method of co-operation is carried out, we see no reason why the 2,000,000,000 pounds of sugar annually used in the United States should not be grown and manufactured within its boundaries and by native industry.