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VIII.—NOTES ON CUPRO-MANGANESE.

BY A. RAHT, A. M.

Received March 6th, 1879.

Several French chemists have pointed out as early as 1869 that an admixture of manganese to copper, bronze and brass, tends to increase their hardness, elasticity and toughness. Since then, it appears that some parties in France have manufactured a compound styled "cupro-manganese," as a convenient form for alloying.

Some cupro-manganese was imported from France into this country about a year ago. Experiments have been made with it by large brass and bronze manufacturers; all these gave, however, negative results; the metal proving more apt to tear and crack under the rolls and punching-machines after an addition of this cupro-manganese.

No matter how much the inferior European copper may be improved by an admixture of manganese, one could hardly expect the same action on the superior quality of Lake Superior copper. However this may be, it is evident that even inferior copper could not be improved by the addition of a metal with such impurities, as shown by the following analysis of the imported French cupro-manganese.

It contains besides copper :

Manganese.....	16.86 %
Iron.....	0.91
Tungsten.....	0.20
Arsenic.....	0.19
Zinc.....	0.18
Lead.....	0.04
Nickel and Cobalt.....	0.05
Bismuth.....	Trace.
Antimony.....	Trace.
Phosphorus.....	Trace.

IX.—EXAMINATION OF THE MINNESOTA EARLY AMBER CANE.

BY PROF. C. A. GOESSMANN.

Received February 28, 1879.

The recent recommendation of the cultivation of the Minnesota early amber cane, an acclimated variety of the Chinese Sorghum, for the production of syrup and sugar for general home consumption, caused the investigation which I propose to describe shortly within the few subsequent pages. The entire management of the experiment, as far as the agricultural and industrial questions involved were concerned, was confined to the application of such modes of operation as any intelligent farmer could carry on with moderate means. The same apparatus were employed for the crushing and pressing of the cane, and the general treatment of the juice, which are quite extensively used for that purpose in Minnesota and other western states, *i. e.*, a Victor mill and a Cook's evaporator, with an additional sheet-iron pan for defecation.

Somewhat more than twenty acres, located on at least as many farms, in the vicinity of Amherst, were planted with genuine seed; upon the college grounds one acre was cultivated, which furnished mainly the material for my tests. As a correct appreciation of the circumstances which control the character of the final practical results, required a definite knowledge regarding the most favorable stage of the canes for sugar manufacture, a series of examinations were instituted with a view to ascertain that particular point. My thanks are due to Mr. E. B. Bragg for kind assistance in the earlier stage of the investigation.

The examination of the cane was carried out in the following manner: On the date specified, the stalks were cut off six inches above the ground, and two feet in length of the tops and the entire leaf