LII. Analyses of the ashes of rough brown sugar and molasses

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LII. *Analyses of the Ashes of Rough Brown Sugar and Molasses.* By THOMAS RICHARDSON*.

DURING some inquiries which I had occasion to make in the manufacture of an artificial manure for the sugarcane, it was necessary to know the composition of the ash of coarse brown sugar and molasses as imported into this country. The results may be interesting to some of the readers of your Journal.

I. *Rough Brown Sugar.*

206·48 grs. in its ordinary state left 2·74 grs. ash = 1·33 per cent. 143·05 grs. of ash furnished 18·16 grs. silica, and 4·75 grs. carbonic acid.

28·61 grs. of ash furnished 8·43 grs. SO_3 BaO = 2·89 grs. sulphuric acid.

28·61 grs. of ash furnished 0·19 gr. oxide of copper.

28·61 grs. of ash furnished 1·95 gr. peroxide of iron.

28·61 grs. of ash furnished 7·00 grs. CO_2 CaO = 3·92 grs. lime.

28·61 grs. of ash furnished 7·81 grs. PO_5 2MgO = 2·86 grs. magnesia.

16·12 grs. of ash furnished 7·36 grs. Cl_2 Ag = 1·96 gr. chlorine.

28·61 grs. of ash furnished 28·61 grs. chlorides of alkalies, and this yielded 33·88 grs. of the double chloride of platinum and potassium = 10·34 grs. chloride of potassium = 6·53 grs. potash, leaving 4·16 grs. chloride of sodium = 2·20 grs. soda. The ash also contained a trace of oxide of manganese.

The result of the analysis is therefore—

Potash	22·84
Soda	7·69
Lime	13·69
Magnesia	10·00
Peroxide of iron	6·11
Oxide of copper	·66
Oxide of manganese . . .	trace
Sulphuric acid	10·12
Silica	12·68
Carbonic acid	2·32
Chlorine	12·20
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	98·31

* Communicated by the Author.

Omitting the carbonic acid and combining the chlorine with the sodium and potassium, we obtain the following composition in 100 parts:—

Potash	19·42
Lime	14·67
Magnesia	10·72
Peroxide of iron	6·55
Oxide of copper	·71
Oxide of manganese	trace
Chloride of potassium	8·03
Chloride of sodium	15·46
Sulphuric acid	10·85
Silica	13·59
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	100·00

II. Molasses.

Great difficulty was experienced in incinerating the bulky charcoal mass left by boiling down the molasses. Part of the oxide of iron and sulphuric acid were decomposed; and this accounts for the excess in the analysis, as these substances were obviously in part twice estimated. 477·77 grs. left 17·21 grs. ash = 3·60 per cent.

64·27 grs. of ash furnished 6·46 grs. carbonic acid.

64·27 grs. of ash furnished 8·65 grs. charcoal, containing ·55 gr. peroxide of iron and ·26 gr. lime.

64·27 grs. of ash furnished 1·02 gr. silica.

21·423 grs. of ash furnished ·28 gr. peroxide of iron.

21·423 grs. of ash furnished 3·83 grs. CO_2 $\text{CaO} = 2·14$ grs. lime.

21·423 grs. of ash furnished 5·34 grs. PO_5 $2\text{MgO} = 1·95$ gr. magnesia.

21·423 grs. of ash furnished chlorides of alkalis 14·91 grs., and this gave chlorides of platinum and potassium 32·88 grs. $= \text{Cl}_2 \text{K}$ 10·34 grs., leaving $\text{Cl}_2 \text{Na}$ 4·57 grs., = potash 6·53 and soda 2·42 grs.

12·62 grs. of ash furnished 2·38 grs. SO_3 $\text{BaO} = ·818$ gr. sulphuric acid.

18·405 grs. of ash furnished 9·92 grs. $\text{Cl}_2 \text{Ag} = 2·453$ grs. chlorine.

The ash also contained traces of oxides of copper and manganese.

Collecting these results we obtain the following composition:
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Potash	30.50
Soda	11.30
Lime	10.42
Magnesia	9.13
Peroxide of iron	2.15
Oxide of copper	trace
Oxide of manganese	trace
Sulphuric acid	6.48
Chlorine	13.33
Carbonic acid	10.04
Silica	1.58
Charcoal	11.78
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	106.71

Omitting the charcoal and carbonic acid, and combining the chlorine as before, we have as follows:—

Potash	36.23
Lime	12.72
Magnesia	11.14
Peroxide of iron	2.62
Oxide of copper	trace
Oxide of manganese	trace
Chloride of potassium	1.58
Chloride of sodium	25.87
Sulphuric acid	7.91
Silica	1.93
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	100.00

The molasses and sugar came from the same manufactory, and were made from the same sugar-cane.

LIII. *Letter from Professor LOOMIS of the New York University to Lieut.-Colonel SABINE, Foreign Secretary of the Royal Society, on the determination of differences of Longitude made in the United States by means of the Electric Telegraph, and on projected observations for investigating the Laws of the great North American Storms.*

DEAR SIR,

New York University, Aug. 2, 1847.

I HAVE been for some time engaged upon a work in which you may perhaps feel some interest,—it is the exact determination of the difference of longitude between New York, Philadelphia and Washington, by means of the magnetic