

The vegetation of the flax plant resembles in this respect the growth of the sugar cane, from the culture of which we extract a material consisting entirely of atmospheric constituents. The inorganic substances taken up by the plant are only instruments used in its production, which should be as carefully preserved as tools in a manufactory, and will then do further duty in promoting the elaboration of future crops."

Messrs. Mayer and Brazier then directed their attention to the soils upon which the different specimens of flax had been grown, samples, of which through the kindness of Mr. Marshall, had likewise been forwarded to Dr. Hoffman. These soils all gave a brownish colour to boiling water, owing to a portion of the organic matter being soluble in that menstruum.

From their various analyses, Messrs. Mayer and Brazier obtain, by calculation, the following amounts of constituents of 100 parts in the soil:—

	Lievländ.	Courland.	Lithuania.	Estland.
Potash	0.5011	0.3241	0.5466	0.3726
Soda		0.1320	0.0452	0.0480
Lime	0.3751	0.7816	0.4980	0.7953
Magnesia	0.2006	0.1304	0.1805	0.3619
Alumina	1.1919	1.8731	2.1418	2.0102
Sesquioxide of Iron	1.8076	2.3767	3.1900	2.0206
Manganese	Trace.	Trace.	Trace.	Trace.
Chloride of Sodium	0.0455	0.0247	0.0421	0.0790
Sulphuric Acid	0.1539	0.0880	0.1206	0.1618
Phosphoric Acid	0.1399	0.0638	0.0805	0.1597
Organic matter	4.7176	4.0300	4.3442	4.8630
Insoluble residue, after deducting } organic matter..... }	91.0634	88.4872	88.4724	88.2364
	100.1966	99.3016	99.6619	99.1087

The insoluble residue constituting the greater portion of the soil, was fused with carbonate of potash. Upon calculation, they yielded the following results per cent. :—

	Lievländ.	Courland.	Lithuania.	Estland.
Lime	Traces.	1.8727	0.8778	2.0120
Alumina	11.6270	6.1145	2.2452	5.7549
Sesquioxide of Iron	Traces.	Traces.	Traces.	Traces.
Phosphoric Acid	Traces.	Traces.	None.	Traces.
Silicic Acid	79.3424	81.5000	85.0938	80.5676
	99.9694	92.6224	88.2168	88.3345

In all the four soils they found, comparatively speaking, considerable quantities of a kali, especially potash, and also of phosphoric acid. They closely resemble the Belgian soils analysed by Sir Robert Kane, as may be seen from the tables which they borrow from Sir Robert's paper.