CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

Bulletin 37.—Feb. 14, 1880.

FRESH WATER SEDIMENTS.

	314 East Wilton.	322 Essex.	334 Woodstock.
Moisture	34.44	5.75	4.77
*Organic and Volatile matters	2.78	8.11*	7.31*
Oxides of Iron and Alumina	3.58	5.69	3.10
Lime		.67	trace
Magnesia		.88	trace
Potash		.18	none
Soda		.06	.05
Phosphoric acid		.16	trace
Sulphuric acid		.46	.06
Sand, Silica, etc., insoluble in acid	59.20	78.04	84.71
	100.00	100.00	100.00
*Containing Nitrogen		0.29	0.15

314 was sent by D. H. Van Hoosear, Secretary East Wilton Farmers' Club, in August last, described as "deposit from the bottom of a pond hole." The partial analysis showed such large proportions of water and insoluble matters as to lead to the conclusion that the deposit would have little more value as a fertilizer than a good soil.

The sample **322** whose analysis is next given was sent, labeled dried mud, by Mr. J. I. Stevens, of Essex, who states that "its effect as a top dressing for lawns and also on mowing land has proved greater for good than anything I have ever seen. On many crops it has given me better results than $45 crop foods I have purchased. This mud is under water the year round."

The analysis agrees remarkably with that of pond mud from North Woodstock, mentioned in the Station Report for 1877. It contains, however, a little more phosphates and sulphates. In reply to Mr. Steven's inquiries, was written as follows:

"The dried mud contains every element of plant food in about the proportions that are usually present in stable manure, or in good composts. Like the fertilizers just named it contains but about 3 per cent. of immediately available plant food; the other 97 per cent. being water, sand, or clay, vegetable matters, oxides of iron and alumina, not differing in character or fertilizing value so far as is known from the same substances as they make up the bulk of ordinary soils. Unlike stable manure and ordinary composts the mud contains a considerable amount of sulphuric acid in the form of sulphate of lime. The mud contains 0.46 per cent. sulphuric acid, while stable manure has 0.10 per cent. or less. It is quite likely that this fact may have made the mud so useful in your experience."

Doubtless a pretty liberal application of the mud would be required to produce the striking results Mr. Stevens observed.

In a recent note Mr. Stevens states that the mud sent by him was from a cove or pocket from the Connecticut River; the sediment is brought down in the spring freshets by the Connecticut, the cove being connected with the river by a narrow channel. There is no current in it and suspended matters are deposited at such a rate as to have reduced the depth of the water three feet since the remembrance of elderly people. There is but little matter washed in from the surrounding hills. The river at this point contains salt from the setting back of the tide during only from 4 to 6 weeks annually. Some entire years there is no salt at all in the river at this point. The quality of the sample sent was not up to the average. It should have been taken from the middle of the cove.

Mr. Stevens also remarks: "Our mill ponds a few miles back from the river, contain a rich, black mud, quite deep and with a very strong smell. It has been tried on various crops but kills everything. After being hauled and dried it turns from black to white, and puckers the mouth like alum."

The astringency here referred to is due to soluble salts of iron or alumina. Composting with a small proportion of slacked lime will decompose these salts and render the black mud a safe and serviceable application.

Sample **334** received from S. Palmer, Woodstock, consists almost entirely of sand and silica with the merest traces of fertilizing elements. Much of the silica exists in the form of the skeletons or shields of microscopic infusorial plants which are common in the water of swamps and bogs. From its light gray color it might be mistaken for shell marl but on mixing with acids, like vinegar, it effervesces very slightly, containing but a trace of carbonate of lime.

PEAT OR SWAMP MUCK.

Three samples sent by G. M. Dennison, Esq., of New London, are from the town of Old Saybrook.

335 and **341** from the farm of Mr. Dennison, **342** is traversed by the Connecticut Valley Railroad, near Mr. Dennison's land.

	335	341	342
Moisture	85.25	81.40	87.22
*Organic and volatile matter	12.52	12.49	10.42
Ash	2.23	6.11	2.36
	100.00	100.00	100.00
*Containing nitrogen	.43	.42	.27

Reckoned in the dry state the composition is as follows:

	335	341	342
Organic and volatile	84.87	67.08	81.53
Ash	15.13	32.92	18.47
	100.00	100.00	100.00
Nitrogen	2.91	2.24	2.11

The dry swamp muck is thus seen to contain 2 to 3 per cent, of nitrogen which under the action of an alkali like lime, or ammonia may become available as plant food. The organic matter itself under favorable conditions serves to liberate lime, potash, etc., from the mineral matters of the soil.

There can be no doubt that the application of this swamp muck, especially to poor, light soils, would be very serviceable. Evidently, however, the large proportion of water which the fresh muck contains makes it a nice point to decide how much can be spent upon its handling without consuming the profit of its application. The proper mode of using swamp muck is to throw it out where it will drain and dry for some months, during frosty weather, and to employ the weathered muck as an absorbent in the stables or barn yard, or to compost it with lime, fish or animal matters yielding ammonia by their decomposition.

S. W. JOHNSON, *Director.*