

BROOKLYN WATER WORKS. Mastodon Remains.

Having heard of the recent discovery of some bones of the Mastodon in the excavations made for the Brooklyn Water Works at Baisley's Pond two miles beyond the Village of Jamaica, we availed ourselves of a favorable opportunity to visit the locality, curious to witness the disinterment of the remains of so interesting a monster, or if this might not be, at least to be the conditions under which they were deposited. The Brooklyn and Williamsburgh Aqueduct is to be supplied from a series of short watercourses, whose source is near the southern base of the range of Highlands which passes along through the central portion of Long island, two to three miles back from it.

The strip of country is exceedingly well watered, and the streams gushing out from the sand are pure and never failing. They have long been used to supply the power for the saw and gristmills of the region, and, when choked in their course by dams, or natural obstructions, they have spread out into ponds, which, when cleared of their vegetable accumulation, are made convenient reservoirs, with cleans natural bottoms of sand.

Baisley's pond is the nearest of these sources of supply, and a covered conduit is constructed to lead from it into the open canal, which receives the water of more distant sources. At the juncture of this conduit with the canal, the latter gives place to the main conduit, through which the waters are conveyed five miles to the pumping engines, which are to be stationed below the great reservoirs on Edgewood Hill. Before the pond was drained for cleaning, it was a long, shoal collection of water, covering some thirty-five acres, overgrown with water lilies, and its banks wiry with peat muck. A living stream of water runs through it, which for generations past had turned a mill at its outlet. Another mill is still running higher upon the same stream. The water being removed, the bottom was found to be a deposit of peat - its upper portion matted together with the roots of the water lilies. These, as large as a man's arm, were intertwined with one another in a coarse network,

difficult to break into with the mattock and the pick. By their great number, by their surface covered with tubercles or knobs, from which spring the rootlets and the stems of the plant, and by their occurring in the midst of so dense a carbonaceous deposit, one could not but be reminded of those similarly shaped fossil stems so abundant in the stratum of clay which underlies almost every bed of mineral coat – fossils now called *stigmariae* which though converted into sandstone or fire clay, prove, by their being traced in several instances to their junction with erect head trunks, to have been the roots of plants which furnished a considerable portion of the ancient coal beds. Under the lily root, the peat, half or wholly converted into muck, formed a rich black deposit, reaching in many places to four feet in thickness. All this is in progress of being broken up and carted beyond the limits of the pond. The amount thus removed is estimated at about 200,000 cubic yards at this pond alone. It is spread upon the adjacent sandy fields as waste, the farmers near by not appreciating its value. An efflorescence of sulphate of iron or coppers forms upon some portions of the heap, and the smell of sulphuric acid is plainly perceived in passing over them.

Around some of the springs a ferruginous deposit is observed from the decomposition of the sulphuret of iron dispensed through the sand. Except with these substances nothing of interest has been met with in clearing out the pond until the discovery of the mastodon bones. These were found in the upper portion of the pond more or less imbedded in the top of the sand and beneath three and a half or four feet of the partially decomposed peat. The workmen had shoveled up and carted away a quantity of decayed bony matters before the discovery of several huge molar teeth, well preserved by the protection afforded by their hard enamel, caused attention to be directed to the spot and search to be made in the heaps removed for other portions of the skeleton. Pieces of bone were found, but in too imperfect and decayed fragments to be preserved. But the teeth were sufficient to identify the animal. These were four in number the largest about nine inches on the crown, divided into six traverse ridges, the length of the tooth from the crown to the extremity of the root length from six to seven inches. They are probably the teeth of the same species of mastodon, the

Giganteus, which has been found under almost precisely similar circumstances in several localities in this State, in New Jersey and Connecticut, and several of the Southern and Western States. The most famous specimen for its size and state of preservation was found in 1845 near Newburgh. The skeleton measured twenty-five feet in length and twelve feet in height. The same year no less than six skeletons of the same animal were found in Warren County, New Jersey, six feet below the surface also beneath a rich mud which filled a pond. The most of the bones crumbled to pieces on exposure to the air. Within the ribs of the best preserved specimen was found, together with the clay, a quantity of vegetable remains – some seven bushels of what Lyell supposed had served for the food of the animal

Specimens of it, examined for him by the microscope in London, proved to be twigs of a coniferous tree, probably the white cedar, which is still a common product of such swampy places as the animal frequented. Discoveries of these remains have rarely been made east of the Hudson River. 'They are more common at the brackish springs in Ohio and Kentucky, which are still the resort of the deer, as they were in former times of the Buffalo and other large wild animals. The bones of those and of the mammoth found with them have given to one of the localities in Kentucky the name of Big-Bone Lick. The Mastodon bones are almost as abundant as are those of living species; and they are by so means the only specimens of these which are extinct. For with them are found strange species or the elephant, horse, &c. The extreme eastern haunts of these huge creatures appear to have been near the Connecticut River. A bone was found some years ago in Sharon, Conn., a tooth at Chesire, and a vertebral bone at Berlin, twelve miles southwest of Hartford. The new locality on Long Island is thus upon the eastern margin of their range. It would be interesting to determine, if possible, whether these animals have been contemporaneous with man; but there is nothing in the mode of occurrence of their remains to decide the question either way. There are no data for fixing the period required for the growth of the vegetable deposit which commonly covers their bones. The Indians of the North West, it is stated by Prof. Mather, have a tradition of the

existence of such animals; that they fed on the boughs of trees; that they did not lie down, but leaned against a tree to sleep Their name for them meant tree-eaters. Their teeth, which are all molars, indicate that such was the nature of their food.

But these speculative questions upon the nature of their deposits and their fossils are not the only subjects of interest that attract the attention of a visitor to this locality. He finds himself in a farming district, comparatively thrifty, and remarkably convenient to the greatest markets. The soil, naturally poor and sandy, is made productive by manure; much of it carted back as return loads by the wagons, which convey the produce of the farm to Brooklyn and New York. But that which the farm itself should return to the soil is sadly neglected. The richness of the barnyard manure evaporates in the sand, is washed out by the rain, while the dry refuse is returned to the field. Compost making appears to be an unknown art, and the immense resources on hand in the piles of decomposing peat are quite disregarded. That the value of their stock of animal manure may be trebled by judicious mixing of the muck is not in the experience of these farmers. Rumors, it is true, have reached them that there is value in the article; but they regard it as it lies spread out around their farms, with a shy aspect, as fish look upon a tempting bait placed in their way – something very good if they knew how to take it, but which may catch them if they take hold of it the wrong way – so they judiciously wait to see the result of an experiment made by one bolder than the rest, who has covered a field of several acres, eighteen inches deep, with pure muck, upon which he intends to plant potatoes. The result of this experiment, with nothing even to neutralise the acidity of the sulphate of iron, is not likely to add to the estimation of the unappreciated muck. What an opportunity is there afforded for a skillful agriculturist to secure these 200,000 cubic yards of fertilizing material, and with it enrich the sandy fields for which it may be made so excellent a nutriment. What excellent opportunities for the cultivation of the cranberry, a crop but little known in this region, though well suited to it, and probably made with ease more remunerative than any now cultivated.

Another subject that came to our notice in this excursion upon the line of the Brooklyn Water Works is the furnishing of the vast amount of iron pipes required for the conveyance of the water from the pumping engines to the reservoirs, and thence to the city and throughout the streets of Brooklyn and Williamsburgh. The quantities required are nearly as follows: 5 miles of pipe 3 feet in diameter, and the same length of 30-inch pipe; 4 miles of 20 inch pipe; 12 of 12 inch; 36 miles of 8 inch; and 64 miles of 6 inch diameter. With all resources of iron ores, skill and capital, a considerable proportion of this pipe is imported from Glasgow, Scotland. Not merely do we fail to furnish the rails for our roads, but even the cruder castings, the manufacture of which involves less heavy capital, and would seem to demand less costly skill, cannot be furnished by our own works to the extent required, and in the production of the pipe made in this country there is doubtless consumed a large amount of Scotch pig iron.

Such facts reflect grievously upon the policy adopted by our Government of refusing for a proper time the protection required to establish our iron works upon an independent basis; and they cannot fail to make themselves felt and appreciated by those farming communities in the vicinity of the numerous furnaces, bloomeries, forger and rolling-mills, which, it appears from the late report of the Iron Association of Philadelphia, are now lying idle, many of them altogether abandoned, throughout the Middle and Western States. The harvests of foreign fields are in demand to sustain the labor involved in the production of the iron consumed around these communities; while the value of their own farms depreciates with those of the iron mines and works, which should insure to them the market for their products.

In the use of iron pipes for conveying water, an oxidation of their inner surface takes place, causing a waste of the metal, and injuriously affecting the purity of the water. A process has been adopted in Manchester of coating the pipes with coal tar, from which, by partial distillation, the naphtha and other highly volatile products are first expelled. The pipes thus protected have, after a trial of several years, successfully withstood the action of water; and

the process is regarded as so satisfactory, that it is now introduced to some extent upon the pipes furnished to the Brooklyn Water Works. The application of the coal tar is made at the foundries, after the pipes have been well cleaned from the moulding sand. They are heated to about 300 ° F., when the coal tar is laid on. It spreads evenly over the iron, and as this cools, firmly adheres to its surface. The laying of the pipes is rapidly extending throughout the principal streets. The 30-inch mains are already covered on the southern extremity of Clinton Street, in South Brooklyn; and before another Winter our neighbors across the East River will be as liberally supplied with the pure element as we are on this side are with the Croton. –

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