

With reference to the quantity packed in the maritime provinces annually, I have ascertained that the product of 1884 will, in New Brunswick, exceed that of the previous year by 1,000,000 cans, that of Nova Scotia by 500,000, and Prince Edward Island by 500,000. Cases in which the lobsters are packed are made uniform to contain 48 cans. In New Brunswick five lobsters are *now* required to fill a pound can. From these facts there is only one reasonable conclusion to be drawn—that unless the lobster fishing is prosecuted under certain necessary restrictions—in our own province, at least—this valuable crustacean must soon be exterminated.

NATURAL HISTORY SOCIETY,

St. John, N. B., January, 1885.

22.—REPORT ON THE POLLUTION OF THE POTOMAC RIVER BY THE DISCHARGE OF WASTE PRODUCTS FROM GAS MANUFACTURE.

By MARSHALL McDONALD.

In compliance with instructions, based upon the request of Commissioner Edmonds, I proceeded on Saturday to make an examination of the river along the Georgetown front, with the view of determining:

1. The amount and nature of the waste products discharged into the river from the factories of the Washington Gas Company, and the establishments employed in converting their residual products into ammonia, &c.

2. The probable influence of such discharges in affecting unfavorably the conditions of life in the water.

I beg, respectfully, to report as follows:

(A) The waste products from the Georgetown gas works are all discharged, I am informed, into Rock Creek; no arrangements having been made by this company for the further conversion of any into useful matter.

(B) The establishment engaged in the conversion of the coal tar product from the Washington gas works discharges also a certain amount of waste into Rock Creek near its mouth. This discharge consists of water carrying in suspension a dark oily substance, which passes into Rock Creek either floating or in suspension; but seems to sink below the surface a short distance from the point of discharge. The amount of discharge from this source is probably 30 or 40 gallons a minute.

(C) I was unable to get information in regard to the nature and amount of product discharged from the ammonia works, the pipe leading into the river being carried down below low water mark.

(D) The main discharge into the river is, however, from the regenerators employed in the establishment for the manufacture of gas from oil; this gas being employed as an enricher of the gas derived from

coal. None of the waste products in this establishment are utilized, all being discharged into the river by a sewer at the foot of G street. The amount discharged is not less than 100 gallons per minute, and carries with it a considerable portion of the same oily residuum that has been already mentioned as coming from the establishment for the utilization of the coal tar products.

The characteristics of this substance are such that in the ordinary ebb and flow of the tides it must be very widely disseminated over the bottom of the river. As it comes from the sewer it seems to be lighter than the water, and floats off in a dark stream along down the shore. Agitated for a while by the rippling of the water, it sinks; this result being due either to the fact that the cohesion of the layer is broken, or more probably that becoming incorporated with the mud and sediment, its specific gravity is increased to such a slight extent as to be hardly appreciably heavier than the water in which it is floating. These peculiar characteristics must necessarily determine its general distribution over the bed of the river in front of Georgetown, and in a lessening quantity as far down as the limits of the District extend.

We are confronted, therefore, with the fact that this substance, so generally distributed over the bottom of the river, may and doubtless does influence unfavorably the conditions of life for all those minute forms which have their nidus on the bottom, and which furnish the substratum or basement upon which the existence of higher forms of life in the river necessarily depends. The abundant organic life which flourishes in the ooze upon the bottom furnishes the food of the minute forms which float or swim in the water above, and which, in their turn, furnish the food for the young of fish such as the shad, herring, rock, perch, &c.

It is evident, therefore, that even if the discharge of waste products, such as have been above enumerated, into the river should seem to have no injurious effect in driving the larger fish from the river, yet indirectly, by modifying unfavorably the conditions of the bottom, it may, by destroying their food, make impossible the development and growth of the embryo fish, which must be nurtured in this area in quantities sufficient to keep up the annual supply for the fisheries.

It is, in my opinion, absolutely necessary, in connection with the legislation now contemplated in reference to the fisheries in the District of Columbia, to prohibit absolutely, and under severe penalties, the discharge of gas tar or other waste chemical products into the Potomac. It is useless to protect the spawning of the shad and herring in District waters if we at the same time permit the conditions which determine a sufficient supply of food for them in the waters to be unfavorably influenced by the pollution of the stream by these products.

WASHINGTON, D. C., *May 19, 1884.*