

XVII.—IS SAWDUST AS SERIOUS AN OBSTACLE TO THE ASCENT OF SALMON IN OUR RIVERS AS IS GENERALLY MAINTAINED ?

By Prof. H. RASCH.*

[Translated by Tarleton H. Bean.]

That the rivers on which there is considerable cutting of timber gradually become more and more destitute of salmon is an undeniable fact; but while it is asserted that the sawdust introduced into the river from the saw-mills causes the salmon coming from the sea either to forsake its foster stream because of meeting the sawdust, to seek another river not polluted, or else, when the fish attempts to pass through the areas quite filled with sawdust, then this, by fixing itself in the gill-openings or between the gills, causes its death, yet later experience seems to entitle us to the assumption that sawdust neither causes the salmon to forsake its native stream nor produces any great mortality among the ascending fishes. The hurtfulness of the sawdust to the reproduction of the salmon is not so direct, but is exceedingly great in this, that it partly limits and partly destroys the spawning-grounds of the river.

The river Drammen, below Hellefos, has for many years been greatly polluted by sawdust, and the abundance of salmon decreased constantly until the fishermen at Hellefos adopted the so-called artificial method of hatching, whereby they supplied the river each year with a considerable number of fry, which, after wandering to sea, returned to the cataract, although the quantity of sawdust is the same as heretofore; and one cannot see that the ascending fish is in any marked degree affected thereby. The case is different when it reaches a cataract where many saw-mills are situated, and there meets an insurmountable obstacle to its further advancement. Its desperate leap is in vain, and as it is driven down exhausted in the water filled up with sawdust, it will undeniably be liable to get some of it so tightly wedged in the gills that it cannot get rid of it, and death will then sooner or later be the result. To this danger the male salmon will be especially exposed near and at the spawning time, since the increased length of the so-called notches of the lower jaw prevent it from completely closing its mouth. The salmon which are not seldom found dead after the spawning time are nearly always males. That, at the same time, most of the deaths result from violent struggles

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between rivals is probable. If one could secure for the ascending fishes an easy passage over the intercepting cataracts and dams, then certainly very few fish would die from getting sawdust in their gills.

That young salmon bred from a race of salmon which has its own river, when they are set free in a strange river and one which is in an unusual degree polluted by sawdust, will not be prevented by this circumstance from returning to this last-named stream after their wandering in the sea, one had a convincing illustration in the great experiment instituted last year by Director A. Hansen. In olden times the salmon-shoal which had its spawning-place in Soli River could ascend to it through the then passable Soli cataract, but when they, for the sake of the increased mill-business, erected above the cataract a dam so high that the salmon could not ascend to their spawning-grounds, this salmon shoal gradually died out entirely. With the consent of the mill-owners Mr. Hansen in 1868 constructed a hatching-apparatus, which in November of the same year was supplied with impregnated salmon-eggs transported from the fishery at Hellefos. On St. John's Night, 1869, the young arising therefrom were liberated from the apparatus into the river, partly above and partly below the dam. Last summer a portion of the planting returned as young salmon, and according to experience gained elsewhere we should wait for the great body of them until the coming summer; because the greatest portion appear to pass the first two years of their lives in the rivers and two years in the sea.

In case one could aid the advance of the salmon around the Sarp cataract or Soli cataract—and perhaps in this way a few less important water-falls—and in connection therewith furnish the Glommen with artificially hatched young, one may now be fully assured that the abundance of sawdust which incumbers both branches of the Glommen, which again unite between Sarpsborg and Fredrikstad, will not prevent the salmon from going up to the falls, where they will then probably soon find access to a rightly constructed salmon-ladder, which would help them up to a portion of the great river freer from sawdust. The result of Mr. Hansen's experiment should therefore be a good support for the watchful action of the management of our association, which will in due time be communicated to the members.