

being laid in the solution for 3 days, when they are taken out and dried. Generally the tanning is repeated twice; and there are therefore in all 3 tannings. The old bark in the vat is stirred each time and new bark is added until the solution regains its original strength. Occasionally fine lime (1 part to 100 parts water) is used for fixing the solution. In this solution, which should be prepared the day beforehand, the nets should be dipped. The color will show as soon as the net is put into salt water. After every fishing the tanning should be repeated once; and care should be taken, first to clean the net, and especially to remove all fatty substances. As regards the treatment of the nets during the fisheries, the same rules apply as are given above.

METHODS USED IN FAGERHEIM'S NET FACTORY, BERGEN, NORWAY.

Tanning nets.—For every 132 pounds of nets 14½ pounds of catechu are dissolved in 38 quarts of boiling water. The solution is poured over the nets, and they remain in it until it has grown cold. The tanning is repeated three times, the nets being dried after each tanning, and a fresh solution is used every time. An experiment has been made in using fine lime with birch bark. It gives the net a purplish color.

Galvanizing nets.—A solution of ¾ pound of copper vitriol and 120 quarts of cold water is used, in which the nets are laid for 24 hours. To make the solution requires 24 hours. For 36 pounds of nets 1 pound of the vitriol is used.

35.—SALMON FISHERIES OF HALLAND, SWEDEN, ESPECIALLY IN THE RIVER VISKAN.*

By **FILIP TRYBOM.**

From various sources I have obtained data relative to the salmon fisheries in the river Viskan during thirty-seven years ending with 1884. From these data it appears that the smallest average weight of the salmon per month was found most frequently (in eighteen years) in August, and in eight years each in September and July, twice in October, and once in April. It should be noted that in more than one-half of the years when the smallest monthly average weight was found in August, the fisheries came to an end in that month. This applies not only to the Viskan, but to all the rivers of Halland. The salmon had the largest average weight in July in eighteen years, in May in nine years, in April in five, in March in three, and in February and August in one year each. In the rivers Nissan and Lagan the average weight in 1884 was largest in June; while in the river Rhine the largest salmon are caught during the period from December to April.

* "*Laxfisket i åarne, särskilt det i Viskan.*" From "*Om Fiskerierna i Halland 1884*," Lund, Sweden, 1885. Translated from the Swedish by HERMAN JACOBSON.

The largest number of salmon, and frequently, also the heaviest weight was obtained in August and July, but the number of salmon was in many years nearly as large in May and April. This is of great economical importance, for it is well known that salmon fetches a much higher price in spring and early summer than later in the season, when the fish are smaller and leaner; the earlier the great hauls are made, the better it will be. During the last years of the above period, especially from 1879, these large hauls have as a rule been made in August and July. The smallest hauls, both as regards number and weight, have generally been made in March and September; but from the year 1853 this circumstance is of no importance, as from some cause or other the fisheries from that year on did not come to a close in August; fish were still caught during the early part of September. The number of fish caught has been smallest in six, or (if September after the year 1852 is not taken into account) in eight, years during the month of June, and in four years during July. The smallest weight, however, in June was only in three years.

It would be exceedingly interesting if we had the condition of the water, wind, and temperature during all of the thirty-seven years considered; it is well known that the changes in the quantity of water in small streams exercise a considerable influence on the salmon fisheries. When there are strong spring floods the spring fisheries are generally good. If there are no strong floods till later in summer, the largest fisheries take place at the same time as these floods. As with few exceptions the strongest floods and the highest water come in autumn, and as the weirs in the river Viskan cannot be passed by the salmon till that time, it is very important that nothing should hinder their ascent in autumn.

The minimum annual number of fish caught during the above period was 207, weighing 3,241 pounds, and the maximum annual number was 768, weighing 9,348 pounds. During the thirteen years 1843-1856 the average number of salmon caught per annum was 529, weighing 5,902 pounds; during the thirteen years 1856-1869 the average per annum was 410 salmon, weighing 3,929 pounds; and during the period 1874-1884 the average number of salmon was 389, and the average weight 3,976 pounds. In August, 1874, the water of the Viskan was polluted by refuse from a factory at Rydal, and the circumstance that in spite of this the salmon fisheries did not decline to any considerable extent after that year, must be ascribed to the hatching of salmon, which after 1874 was carried on for a number of years. The facts that very few salmon were caught in 1878, and that the average weight of the salmon was greater that year than in any of the thirty-seven years in question, and that in 1878 but few small salmon were caught, while they again occurred in large numbers after 1878, are owing to another pollution of the water which took place in that year.