

tries pretending to civilization; even the Heathen Chinese is supposed to have made use of it long ago. You cannot take up a newspaper without paragraphs meeting your eye of ova or fry planted or transplanted in every quarter; fish of all kinds, even to the old John codfish, crustaceans, oysters, lobsters, sponges, and I don't know what. I have seen in a report of C. F. Powell to the Secretary of war, U. S., 1887, on Columbia River Salmon Fisheries, where Mr. Smiley says the planting of 500,000 fry increased the catch by 1,000,000 lbs., and, in 1883, the annual increase from $2\frac{1}{2}$ millions of fry increased it to $4\frac{1}{2}$ million lbs.; and the fishery commissioners for California declared that if the state would appropriate sufficient means, they would fill the river so full of salmon that a steamer could not plow her way through them. Why don't they try their hand on the Penobscot or Kennebec rivers, if they would guarantee anything like that quantity money would be no object? It has been contended by close observers that not over 5% of the natural laid ova ever comes to be fishes, or pass the parr stage. The principal theatre of those observations has been the salmon rivers of Great Britain, which are quite different from ours—not closed by ice for six months, or subject to spring or autumn freshets as ours are. Consequently, both eggs and fry are much more liable to destruction on this side of the Atlantic. The egg in their rivers only takes 60 days to hatch out; ours from six to seven months. Consequently, their fry are grown to parr before ours are hatched. The fish seem to run into their rivers from Feb. until Sept. In the Rhine they run all the year round. Our fish run in three weeks—never over six. I have heard of salmon running into our rivers under the ice, but do not credit it. Very often, on the exit of the ice in April or May, dead salmon will be found along the river, but they are uniformly kelts or spent fish from the previous fall. The average number of eggs in our salmon is from 10,000 to 12,000, being as large as peas. The herring and cod have them in millions; the produce is therefore as 100 to 1, or one herring giving as much spawn as 100 salmon. This is however not so much a factor as the susceptibility of the salmon egg to injury. In 1880 one of the keepers of the River Tweed told me that whenever he saw over ten or a dozen fish on one bar or bed spawning, he seined them off, driving them to other places. Several reasons are given for this. After the exudation of the egg from the female, if in water it will not remain susceptible to impregnation over a minute; by that time the orifice in the egg which should receive the milt having absorbed its fill of water, closes, and if many fish are together, the large males are continually chasing the smaller and a large proportion of the eggs go without impregnation. Again, the eggs which may be impregnated and covered up are liable to be again uncovered by another fish, swept away by the current, or eaten up by the trout and other fish watching for them. If they escape all this the movement and the