

tenay lake (British Columbia) and I should like to make a few additional remarks on this topic, though I am afraid they will prove of a less satisfactory nature than might be wished. My time during my stay on Kootenay lake last year having been taken up with more urgent concerns connected with some lands and mining matter, I had not much leisure to devote to the further investigation of this ichthyological curiosity.

Towards the end of September and the beginning of October, we found that all the salmon of this species we caught showed signs of emaciation, while their sides and backs became discolored and stained. They also would not bite so freely, and as we were to a great extent dependent upon our rifles and rods for the ladder, we devoted ourselves in October more to salmon trout and trout. The former, I may incidentally mention, grow in Kootenay lake to about the same size as the salmon, *i. e.*, 25 lbs., while the latter averaging about 2 lbs., inhabit the creeks and the outlet of the lake, and give wonderfully good sport, a small and gaudy salmon fly proving the deadliest among untutored fish. The Kootenay salmon appear to have retained their anadromous instinct, though there are but two creeks emptying in Kootenay lake sufficiently free of high falls to allow salmon to ascend them. One, the largest of all the tributary creeks, called the Lardo, flowing into the lake at the most northerly point, is said to be a favorite spawning ground. Indians reporting this stream to be almost a solid mass of fish in August. The fact that they scoop them out with short-handled and most primitive landing nets—each family I was told taking in one day their whole winter's provision—would seem to bear out the reported abundance.

The Kootenay river, down which at some time or other the progenitors of these salmon must have come and which is more than 700 miles long, does not seem to be liked by them—at least, we did not catch a single salmon in it. In the lake they seem to prey on small salmon trout and trout, more than half the fish we caught having small ones in them, some as much as 10oz. and 12oz. in weight.

The Kootenay salmon are, so far as I could judge, identically the same as the species which, among five or six other varieties, chiefly frequents the Columbia river. It is popularly known as the spring silver salmon.

It is to be hoped that the Dominion Government, under whose supervision the fisheries also in British Columbia are placed, will take prompt measures to prevent a possible extermination of these fine fish in Kootenay lake, for almost impossible as it seems, I have no doubt, were similar vandalism to be perpetrated in this lake as has almost annihilated the fish in Lake Pend d'Oreille, in Idaho Territory, about a hundred miles to the south of it, even Kootenay lake would suffer materially, though, being much deeper than the latter lake, the work of destruction would take somewhat longer. I am referring here to the general use of giant powder (dynamite), which worked such ruin on Pend d'Oreille, covering acres of surface with fine salmon trout, which but three years ago were there in untold numbers.

For two and a half years—*i. e.*, during the con-

struction of the Northern Pacific railroad, which runs along the shores of Pend d'Oreille Lake for thirty or forty miles—some four thousand or five thousand navvies were employed on its banks, giant powder being a commodity not only much used by the contractors, but also much stolen by the hands. A barbaric warfare was soon inaugurated by whites, Indians, and Chinamen, who were largely employed on this railway work, and soon made the most adept "giant powderers," finding that they could make very much better wages going out into the middle of the lake and sinking a dynamite cartridge and selling wagonloads full of their victims at the rate of 10 cents (fivepence) for a 10 lb. or 15lb. salmon trout, than shovelling earth.

On stormy days the shores of this lake, but a few months before buried in the densest and most solitary forest region in the United States, would be simply heaped for miles with carcasses of these fish that had not been secured by the slaughterers, and drifted ashore. The superintendent of the Pend d'Oreille division of this line informed me last summer that, in two and a half years, no fewer than nineteen of his navvies were either killed or lost limbs while giant powdering salmon trout in this lake—a fact which shows to what excess it was used, and that by men who were conversant with the proper handling of this dangerous explosive. The hope, therefore, that Kootenay lake may be preserved from a similar fate when the construction of the proposed railway down the outlet of the lake will commence, is, in view of what I have related, at least a legitimate one.

While writing, an American fishery commission report reaches me containing a not uninteresting account of the take of salmon during the last eighteen years by the boats employed by the salmon "canneries" (or packing houses) established on the Lower Columbia near the mouth of the gigantic river. It shows not only how quickly this industry has assumed almost gigantic proportions, illustrating the fiercely energetic western man's aptitude for developing a new business, but also what vast quantities of salmon ascend the Columbia. In my last letter I stated that the annual take of salmon varied between 15,000,000 and 35,000,000 pounds, the figures of the report indicate that the canneries alone accounted last year for some 45,000,000 pounds (including the waste) leaving unrecorded the vast consumption by the thousands of Indians living along the Columbia and its tributaries, and who are almost entirely dependent upon salmon for their food. Local evidence collected by me during my last year's visit to the Columbia shows another and a fatal feature, *i. e.*, that at the present rate there will, in a very few years, be not a salmon, so to speak, left in the Columbia. As usual the frontiersman is discounting the future at a startling rate. What has happened with the forests and the buffalo is now being repeated with the salmon.

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In consequence of removal of our establishment, we have been delayed a few days in the publication of this issue of the *Resources*. Having more room and increased facilities at command, we can be more prompt hereafter.