

ARE WE EATING ENOUGH FISH?

Seasonable Articles

on Sockeye Salmon

WHERE the mother salmon spawns, there, will the young return in four years' time, overcoming all obstacles, or dying in the attempt. In this the human investigator is faced with one of the many, many mysteries of the world of life. And the salmon is one of the mysteries that has most interested men, because the salmon is valuable.

Every year, beginning in April and on into August, from out of the open and unknown reaches of the Pacific, come swarming millions of salmon of half a dozen varieties. Guided by some powerful force they head for the fresh water rivers disemboguing into the Pacific over a stretch a thousand miles long from Alaska down the Coast to below Vancouver. And those that win through the cordon of nets, fish traps, and reach the fresh waters of the rivers inland, no sooner lay their eggs than they give up their lives. The whole plan of this great fishes' life seems wrapped around increasing its species, though in the very action life becomes extinct in the parent fish.

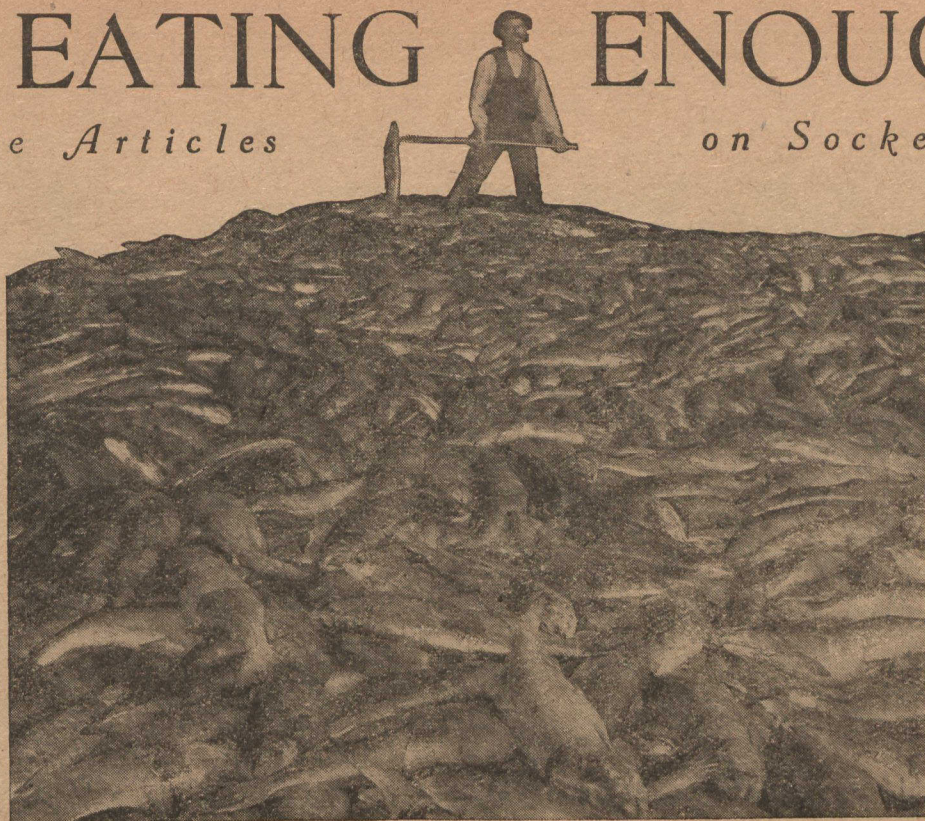
Salmon Run is Now On

By Francis J. Dickie

Just now upon the Pacific Coast the salmon run is in full swing. Along the Skeena River, the Nass, and about Queen Charlotte Islands and on the reaches of the Fraser, the fishing fleets are busy gleaming this yearly harvest of the sea. It is a wonderful sight watching the salmon fleets put out. Coming over the great transcontinental railway of the Grand Trunk Pacific as the train nears the northern seaport city of Prince Rupert, cannery after cannery is passed. Mostly, though, it is not a regular stop, the long overland train comes to a stop, for these canneries house many hundreds of employees. And then there swarms out to gaze in curious wonder at the travellers a host of brown and yellow girls and boys, and old women and a few men. Coastal Indians of half a dozen tribes, Chinese, Japs, and now and then a Hindoo make up the crowds. For four months at least all these people work at high speed in various parts of the industry, though of late years modern machinery has taken the place of many workmen. The principal one of these is known as "The Iron Chinaman." It is a machine that does everything but think. To it are thrown the salmon fresh from the nets. It cuts off head and tail, cleans them and cuts them up in size for canning and passes them on the way to the waiting cans.

But vast and apparently inexhaustible as the salmon was thought to be, there has been in recent years a falling off in their numbers. Man has killed and killed and killed, and without very careful legislation the salmon may go the way of the great auk and the buffalo. This is particularly true of the American waters, where the fishing was of such a nature that the salmon were allowed little chance to spawn by reason of the fish traps. This form of taking prevented any of the anxious parents from reaching the fresh water beds, where they lay their eggs. As a result, the salmon run has largely fallen off. In Canada, however, more care has been taken. The salmon are allowed one day a week in which no fishing is done. In addition to this many escape the nets.

To deal with this fish conservation problem on the Pacific Coast, a Federal fish commission began to work in Vancouver on July 10th. The board was made up of Mr. Sanford Evans, of Winnipeg, chairman; Fred T. James, of Toronto, expert in fishing matters, and Henry B. Thompson, of British Columbia. Before them came fishermen from the various



WHETHER we like fish or not, the Food Controller says we must eat it. One of his recent fish facts is that Manitoba lakes, in 1915-16, produced 48,000,000 pounds of fish. 9,000,000 lbs. of it was whitefish, sold by the fisherman at 5 cents a pound. He does not say how much the fishermen paid for their licenses to get this amount of whitefish worth at the nets or f.o.b. Winnipeg \$450,000, and at the fish stores nearly \$1,500,000. Nature gave Canada more fish according to population than any other country. We have two oceans and four great lakes—counting Great Bear—several lesser lakes, such as Winnipeg, Nipigon and Nipissing, and hundreds of small lakes along with scores upon scores of rivers. All at one time or another, and many of them still, swarming with fish. Most of the great lakes are pretty well fished out. The bulk of our population live where the fish are fewest. Hence, the problem, to get Canadian fish to the consumer at fair prices. The cost is all in the catch, the cure, the haulage—including refrigeration—and the marketing. Next year some of the lakes in the Nipigon class will be commercialized. But we must have more salt-water fish inland, says the Controller. The average distance of mid-Canada consumers, including Montreal, Toronto and Winnipeg, from Canadian Atlantic fish, is about 1,300 miles. But there is unlimited fish closer by several hundred miles—American fish. The distance is offset by the duty. If Canadians are to eat Canadian salt-water fish they must pay long-haul prices; if American fish—the duty. It seems we must nationalize our fish, while we internationalize our coal and our water-powers. Why?

stations, cannery men and all interested in the salmon and other fish industries. And an earnest endeavour is being made through their findings to better conditions in the fishing industries, so that not only will Canada be assured of this marvellous source of food for all time, but that the cannerymen, the fishermen and all others engaged upon this, one of the greatest of the Dominion's industries, may work in harmony and to the best results.

BUT there is romance as well as fact about the salmon. The Commissioner of Fisheries' report is a pretty dry document, but it contains one big salmon romance. It is the story of the fight against blindly aggressive civilization, against Indians and against nature herself, waged on behalf of the sockeye salmon by the Fisheries Department of B.C. J. McHugh, resident engineer, Fisheries Branch, is the narrator of the romance. Here it is:

In the winter of 1912-13 the Canadian Northern Railway blasted out a road-bed along the left side of the Fraser River Canyon, dumping into the river huge quantities of rock. Where the river was wide this did not materially affect the velocity or character of the flow, but at points at which the bed was already narrow it brought about serious changes.

Particularly at Hell's Gate, where huge vertical walls of rock jut out into the stream, leaving a very narrow passage.

Narrowing the Hell's Gate channel increased the velocity and changed the direction of the current. Result—the sockeye salmon could not make their way through Hell's Gate, and up to their spawning beds. To the B. C. fisheries this was serious.

The Fraser is the most important salmon river in Canada. The sockeye salmon spawn in the lakes, or in the tributaries of lakes, which form the head-waters of rivers flowing to the sea. The young fish descend to the sea, spend three, four or five—the very great majority four—years in the sea, and then as mature fish they descend the rivers to spawn. After spawning they die.

Now, a point of the very greatest moment, conclusively proven, is that

these fish return to the same river down which they ran to the sea. If their passage is barred they will not descend and try some other stream; they will remain massed below the obstruction until they die.

So it follows that if no salmon run up a certain stream to spawn during a certain year, then there will be no salmon run in that river four years hence, nor in any succeeding fourth year. And to make matters worse, 1913 was the year of the "big run" in the Fraser, it being a peculiarity of the Fraser that in the year following leap-year the run is always far larger than in the preceding three years.

As soon as it became apparent that the fish were being held back, the Department of Fisheries took immediate action and by extensive blasting operations, succeeded in removing enough of the rock debris to modify the current sufficiently to allow many of the fish to ascend. But it was determined that further work under the direction of Mr. McHugh should be undertaken during the period of low water in the Fraser—that is, in February and March. Mr. McHugh made a preliminary survey of the field of operations in December, with which he deals in the first part of his report, after which he goes on to say:

The Fight On The Fraser

By A. B. Klugh

"On February 23rd, however, conditions at Hell's Gate were very seriously changed by a rock-slide which occurred about 10 p.m. Residents of Camp 16 on the C. P. R. at Hell's Gate had observed during the day a continual rain of small rock from the shattered cliffs immediately above the C. N. R. track on the opposite side of the river. The day had been very mild, with a slight rain falling, and it was assumed that possibly a few groups of disintegrated rock had detached themselves from the main cliff after being frozen there during the winter. Later on in the evening, however, the fall of rock became greater, and at about 10 p.m. a tremendous rumbling roar was heard as a huge portion of the cliffs detached itself and fell towards the river. The following morning I received a communication from the C. P. R. timekeeper at Camp 16 informing me that a slide had occurred at Hell's Gate, that the Fraser River looked like a creek, that the C. N. R. tunnel was completely blocked and probably fifty feet of it carried away."

He then tells of the conference of engineers called to consider the problem, of the decision to use both explosives and derricks in removing the rocks, of the arrival of the outfit to be used in the work and of the great difficulty and danger of the work which was much increased by the fact that similar work was being done on the C. N. R. track immediately above, and continues:

"Meanwhile a change was beginning to take place in the river. The weather at this period was very warm and in consequence the river began slowly advancing, sometimes as much as a foot per day. The river was steadily rising as the work proceeded, and the men were in many instances worked overtime and at top speed in

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