

interested in the question. Only a few, which, entering the river late in the season, do not have time to progress far inland before compelled to extrude their spawn, and are thus in condition to return to salt water to recuperate, are exceptions to this general rule. The latter are thus enabled to attain a larger growth before they again enter the river, and it is they who furnish the sixty to ninety-pounders occasionally caught by the fishermen.

In his journey toward the spawning grounds the salmon brooks no obstacle. With his head constantly turned up stream, he presses forward, leaping cascades and falls, and rushing through rapids, with a strength and dexterity surpassing that of any other fish. Such falls as those of the Willamette, at Oregon City, are, of course, insurmountable, as, also, the Salmon falls, on Snake river. The former has been rendered passable by an iron fish ladder constructed by the state.

Mr. Livingston Stone, the gentleman who has been in charge of the United States fish commissioner's operations on the Pacific coast for many years, thus gives a history of this period of the salmon's life. His observations were made at the government fishery on McCloud river, in California, but the facts gathered are as true on the Columbia as there.

"From the moment the salmon enters the river, which it is sure to seek once in one or two years, its progress is one of interest. It first proceeds at its leisure to the head of tide water. Here it stops awhile and seems to play about between the fresh and salt water. Whether it shrinks from encountering the sudden change from salt water to fresh, which is probably the cause of its dallying, or for other causes, it usually spends two weeks or more hovering about the border line between sea water and river water. When it has overcome its apparent repugnance to making the change to fresh water, it makes a rapid charge up the river for the clear, gravelly streams which its instinct, or sixth sense, tells it to seek. Now, paradoxical or unreasonable as it may seem, it stops eating. If it is caught a short distance above the head of the tide, the undigested remains of what it ate in the salt sea water are sometimes found in its stomach, but after that, nothing, absolutely nothing, is ever found inside of the California salmon to show

that it has eaten a particle of food in fresh water. As a proof of this statement, I may mention that out of many thousand specimens that have been examined, no food has been found in the stomachs of any. After the salmon cross over the line into the fresh water above them, they begin a strange and almost inexplicable journey. In the case, at least, of the salmon that go up the McCloud river, they begin a journey which is a long fast and ends only in death. If they could be credited with a knowledge of what lies before them, none of the martyrs of Christendom could claim greater merit than these devoted salmon, that march unflinchingly to inevitable death. From the time the salmon leave the borderland, so to speak, of

tide water, they pursue their upward course towards the source of the river with an inflexible pertinacity. Nothing can now check their career, except an obstacle positively insurmountable, and nothing whatever can induce them to turn back. They steadily pursue their way through the deeper and stiller water of the lower portions of the river. They dash furiously up the rapids, halting awhile usually before they enter them to recruit their strength, and continue to rush on and on through the swiftest, shallowest and roughest waters until they reach suitable places for depositing their spawn. The earliest runs, that is, those that enter the rivers first, usually go farthest up the stream. Those that come next seem to take their places below them, and so on down the river, so that there is a series of sets of spawning fishes, extending from the head of the river down as far as suitable spawning grounds are to be found. If the



FEMALE SALMON WITH YOUNG MALE.

salmon, on their way up the river meet with anything that frightens them, like a bridge, for instance, they usually stop and cautiously examine it until they are satisfied that they can risk the venture, and then all together, as if by a given signal, they make a swift rush past it. When they come to a fall they show more perseverance than Robert Bruce's famous spider, for they try innumerable times to jump it, and never give it up until they have found it to be a hopeless case and are completely worn out with the exertion.

"I said nothing can turn them back; when thoroughly frightened and panicked, however, they act like stampeded cattle and can be driven down the riv-