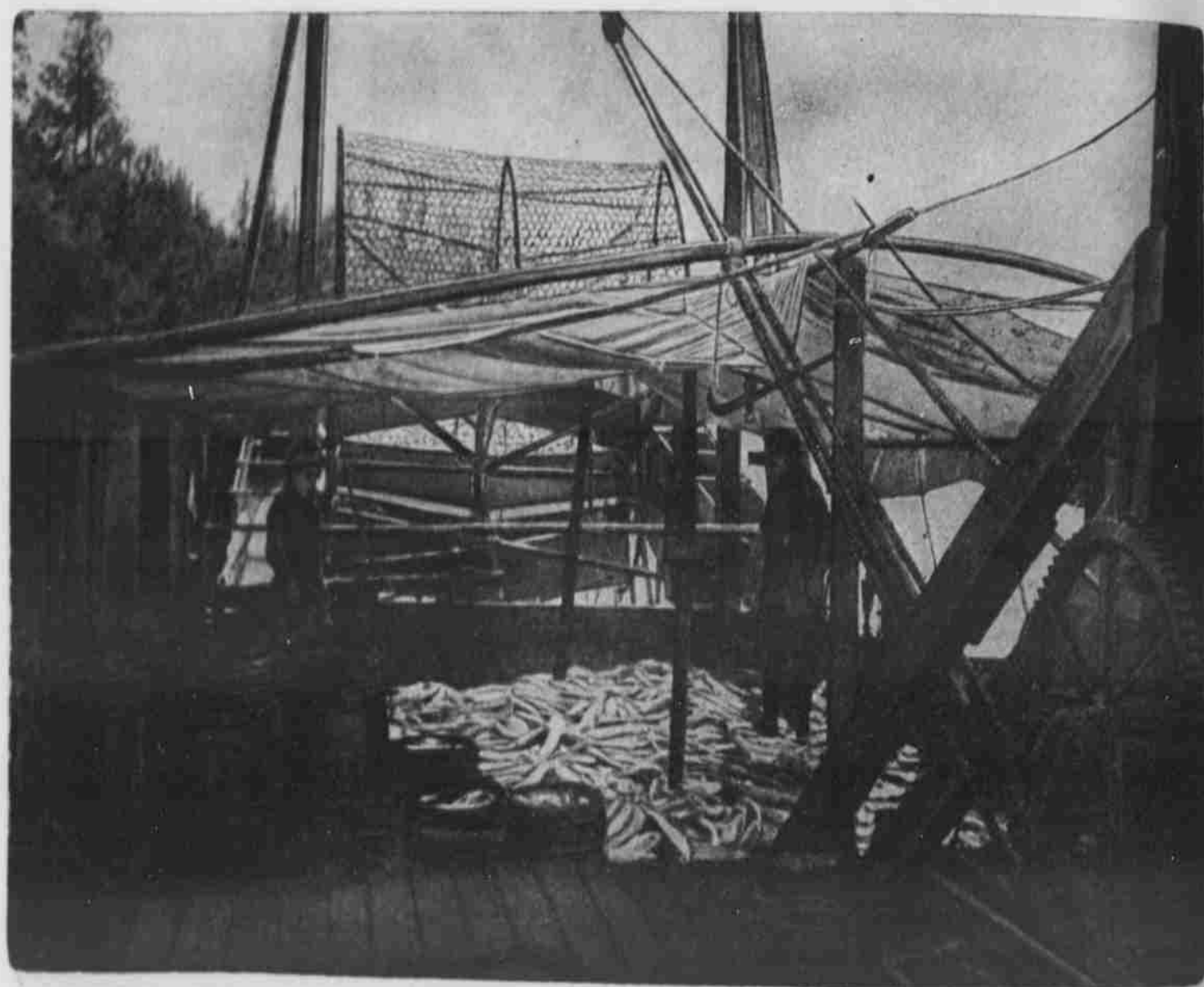


ries, the Snake river just above and below Bruno rapids being their favorite place. They gather in deep holes below rapid places in a stream, and go on the bar of the rapid place only in the night, for the first few days, for the purpose of digging holes for their nests, which they do with their tails and ventral fins, always throwing the gravel down stream, causing a little mound, to keep the eggs from being carried away by the current. After the first few days they all go to the bar in pairs, and remain day and night, unless frightened away by an enemy. The female takes her position above the nest, and with a wrig-

grows weaker, until, unable longer to stem the current, it drifts away and soon dies.

"In water of the same temperature as the Snake river, the eggs hatch in about seventy days, those spawned the middle of August being hatched by the last week of October or first of November. By the last of the following January the little samlet has grown to the length of two or three inches, and by the last of March, when it disappears from the Upper Snake, it has reached the length of four or five inches, and takes bait as voraciously as the trout, which it has sometimes been mistaken for on account of some



DECK OF A FISH WHEEL — SEE PAGE 529.

gling motion moves up stream, striking the ground and at the same time extruding a number of eggs. The mate immediately follows with exactly the same motions and deposits the milt, a portion of which fertilizes each egg, which then sinks into the gravel. This process is repeated until the female has deposited from six thousand to seven thousand eggs. The parent then carefully covers them, apparently knowing that within a few days they will be deprived of their natural protectors; for, after spawning, the Chinook salmon gradually turns to almost a black color, then becomes blind, then covered with white spots, its flesh turns white, its teeth grow long, and it gradually

resemblances. The shoals descend the stream, drifting close to shore, a little more slowly than the current, with heads always up stream, stopping often for days in one place. By calculating their rate of movement, it is concluded that they pass the cascades on their way down stream about one year after their parents pass up, and are from six to seven inches long, and that they enter the salt water in less than one year after they are spawned, not to return to fresh water until they are full grown. I have never caught a female Chinook of less than fifteen pounds weight."

What is the history of the salmon from the time it enters the sea until it returns as a full grown fish,