

This Nest of Dangers: Building the South Jetty

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For the Observer

Jun 19, 2018
Updated Dec 20,
2018

Building a four and a half mile-long spine of rocks out into the ocean, so as to direct the River's outflow and keep sand from piling up in the Columbia Bar, thereby messing up the shipping channel, was a staggering project. Just understanding the hydrology and designing the work was daunting. It would prove to be a long job.

The expensive Civil War had left the federal government feeling poor and the U.S. Army Corps of Engineers wasn't sure how to approach such a costly and complex project as controlling the River's mouth. They took their time. Political pressure from Oregon's business and congressional communities — two national railroads (Northern Pacific and Union Pacific) were building out this way from the Midwest — plus the fact that the Columbia River was busy undermining Fort Stevens on Point Adams, overcame the inertia.

This was a learn-as-you-go operation: how to build a miles-long jetty out into the ocean with its constantly changing tides and currents, not to mention storms, and a river constantly adding gazillions of gallons of water to the mix?

The March 7, 1885, issue of the Morning Astorian breathlessly announced, "The work of improving the

Mount St. Helens glowed in the warm light of the low winter sun viewed from Fort Stevens State Park. In the foreground are the remains of the railroad trestle constructed to build the South Jetty with the Columbia River and the Astoria Bridge in the background.

HUGH MCKENNA/For EO Media Group



Columbia bar virtually begins this morning. Holt Bros. begin to drive piles to-day for the framework of the foundation of the trestle of the wharf of the approach to the railroad for the stone for the jetty to be built from the spit to narrow the mouth to scour the channel to let deep draught ships in to load wheat at Astoria for the nations across the sea to get cheap bread and salmon to eat to fight El Mahdi and whip the Turk on the shores of the Red sea." (Apparently the Middle East was troubled back then, too.)

Out at Fort Stevens on the south shore of the Columbia, the Corps hired crews, started building shops and engineering offices and a wharf out into the river. They called for bids on timbers and the toughest rock around. The plan was to gradually build a narrow-gauge double-rail trestle out into the ocean and augment the foundation of that trestle with bundles of brush gathered into forty-foot long "mattresses," dump rubble rock on top of them, and finally onto that foundation offload the Columbia River Basalt boulders weighing many tons, thereby forming a "rubble-mound type jetty."

The pilings for the railroad were driven by a tall pile-driving machine which sank the long timbers into the sand at angles which came together at the top, above the water, and were anchored together with cross-beams and timbers to supports the tracks. Fascines, an ancient military device, are

brushwood bound and tied with wire, gathered into ever-larger groups called mattresses, and submerged into the ocean. The anaerobic nature of the sandy, wet bottom prevents the brush from decomposing. Small stones dumped in a thick enough layer on the mattresses keep the huge boulders from sinking into the sand. The boulders help hold the trestle in place so the whole construction contraption can move farther out into the ocean, and build more. Men working out on the developing jetty wore raincoats to protect themselves from sea-borne and sky-borne water. They sometimes had to brace themselves against wind and waves trying to shove them off into the water.

The fine-grained hard Columbia River basalt boulders were quarried up the Columbia above Vancouver at Fishers' Landing quarry and barged downriver, offloaded at the Ft. Stevens wharf onto the flatbed dump cars pulled by diminutive — some even say "cute" — locomotives with life rings on their sides. The boulders, measuring between five and 20 cubic yards each, were trundled out on the spindly-seeming rail trestle, the flatbed cars were tipped up and the boulders slid off into the water at the base of the trestle. As they piled up, they formed the jetty and, eventually, deflected the river's outflow.

This was a slow process, one which could not be done

Waves washed around the rail lines leading out to where Oregon's South Jetty was being constructed. That jetty was completed in 1895 and additional work on 2.4-mile-long extension wrapped up in 1913.

Courtesy of the Clatsop County Historical Society



during winter's wild weather, and it was one which that winter uproar would "unravel," bashing boulders around, weakening the structure. Summer's work began with repairs to last fall's work.

Corps' engineer R.E. Hickson, in the 1930s, explained, "construction of the south jetty was begun in 1885 but proceeded so slowly that it did not affect the condition of the bar channel until 1889. Rapid construction commenced in 1889 and its effect on the bar was immediately noticeable."

The Clatsop County Historical Society's periodical, *Cumtux*, in the issue for Fall of 2002, has a fine explication by Dawn Malcolm of the building of the South Jetty, in which she concludes, "When I visit the jetty now and see the rocks, and the remnants of piling that still rise out of the beach, I am reminded of the Chinese workers at the rock quarries, the barge [captain], locomotive [engineers] and construction workers, the men who risked their lives amid the wind and the waves; they all deserve respect for successfully completing a project that made ocean commerce on the Columbia River far safer and more economically feasible than before."

Stories about the men who did the work of building the South Jetty are elusive, but *Cumtux* reprinted from a newspaper, probably the *Astorian*, a piece of carefully-wrought home-spun doggerel that gives us the flavor of

effort:

"Columbia River Jetty"

By Harvey Fry

Kind friends if you will listen, I'll sing to you a song,

It may not interest you, I'll not detain you long,

It's one I've hastily composed about this jolly gang,

I hope you'll take no offense while I relate the slang.

Chorus: Stoneman is our foreman, and Russell runs the dock

Mark he runs the brush gang, while Green he dumps the
rock,

Getty's the pile-driver, he drove them good and deep,

And while this work's progressing Mr. Hegardt's not asleep.

Now when we struck Fort Stevens, we were all down I'm
sure,

This enterprise of Uncle Sam's has greatly helped the poor;

Your attention for a moment, I'll endeavor now to speak,

That while you're at Fort Stevens they will keep you on your



A large pile driver trundled along, extending the railroad trestles that were eventually closed in with piles of rocks and became South Jetty.

Courtesy of the Clatsop County Historical Society

feet.

We've Irishmen, we've Dutchmen, we've Yankees, here but few,

We've Swedes and Scandinavians, all nations are in view,

'Twas a great and glorious thing when they first made this survey,

When Uncle Sam laid out this plan down on old Clatsop Bay.

Mr. Philebaum keeps our time, he keeps it good and straight,

Here at seven in the morning, to see that no one's late.

At twelve o'clock the whistle blows, for the mess-house we all strike,

It's filled with good substantial grub, the workingman's delight.

Our bunk-house is a palace; to you I'll not relate,

We've Counsel for a watchman, to keep thing good and straight,

At ten o'clock we got to bed, we're feeling all worn out,

The watchman he'll be here on time, to see that lights are out.

We've blacksmiths and machinists, we've carpenters as well,

They've been busy building dump cars, for Coos Bay and
Coquille,

We've brushmen and bargemen, our rockmen here are 'fly,'

The man the boys depend upon, is Peter at the guy.

Our locomotive engineers, I'm sure you know them all,

There's Trautner and Lamkin, there's Billy, Mudd and Hall,

Ed. Newell runs the "Wallacut," she's a Jonah they all know,

It's 'clear the track, take in the slack,' and then you'll see her
go.

Bob Young runs a hoister, and Snyder Number 2,

Anderson is Number 3, they make a jolly crew;

There is little 'Billy' tends the books, and Joe the sly old fox,

With Bob and 'Scap' upon the dock, to land the little box.

When this jetty work was first begun, the people would
relate,

It is another Government scheme, a few men for to stake,



Crews dumped rocks off rail cars and into the water below during the construction of South Jetty.
Courtesy of the Clatsop County Historical Society

Empire Rock Co.

It is as fine a piece of work, as stands beneath the sun,

There was eighteen feet of water where now here's thirty-one.

This jetty work is nearly done, its intentions are complete,

The water on the bar right now is over thirty feet,

Our word for this you need not take, for records show its right,

For ships sail in drawing twenty-one feet, at ten o'clock at night.

Now when we leave Fort Stevens, I'm sure we leave a home,

And this we'll all acknowledge when we go forth to roam,

When we first struck this busy place, we were flat upon our luck,

But when we leave it boys, hurrah! You bet we'll have a sack.

"Yesterday afternoon," the Morning Astorian was pleased to report in mid-September of 1890, "the Telephone brought a number of government officers and leading citizens of Portland ... to ... [visit] the jetty. The government steamer George H. Mendell, Capt. John W. Brown, met the Telephone at her dock and took from her the following passengers:

John Tweedale, chief clerk of the War Department, Washington, D.C. and his wife; Major Lydecker, U.S. Engineers, Vancouver, Wash.; Capt. T.W. Symonds, U.S. Engineers and Mrs. Symonds; Major and Mrs. H.H. Northup; Col. John McCracken; Mrs. James R. McCracken; P.W. Gillette and wife; Mr. and Mrs. R.B. Knapp; Mr. and Mrs. F.K. Arnold; and James E. Bangs, dramatic and society editor Oregonian, Portland. They were joined here by Major T.H. Handbury, U.S. Engineers; Mrs. Handbury; Miss Virginia Lewis; H.B. Hegardt, assistant engineer; Mayor M.C. Crosby; Capt. Geo. Flavel; Samuel Elmore; H.M. Thatcher; Alex. Campbell; Capt. Thos. Crang of the Telephone; Geo. Hibbert of the Town Talk [and founder of the Chinook Observer]; and a representative of The Astorian.

"The Mendell was only thirty-five minutes in making the run to the pier at Fort Stevens, where J.W. Stoneman, overseer of the work, had an engine and two cars in readiness for the party, who were soon seated on the open cars.

"On we go across the wharf, passing several wharves now many rods inland but which were once standing in deep water, as the sand has gradually accumulated and formed solid land encroaching on the river. Turning to the right, the trestle work leaves the shore and heads out toward the ocean, over which the train rolls rapidly, and the party begin to fully realize the novelty of their position, apparently



A man guided a jetty stone down onto a rail car.
Courtesy of the Clatsop County Historical Society

crossing the ocean on a train of cars instead of a vessel.

"Below and around us are the rolling waves of the ocean, tossing and heaving with their ceaseless, tireless motion, yet we feel it not for we roll onward as steadily as if upon the solid land. Bent after bent of the trestle work is passed, each sixteen feet apart and numbered plainly so that the distance traversed is always indicated, until we pass one number 20,000 and we realized that the train is a that number of feet from the mainland, or nearly four miles out on the bosom of the broad Pacific ocean.

"Beyond us for nearly two thousand feet, or four and one-sixth miles, the road extends, but time is limited and we go no farther. A few minutes on this most western railroad of the United States we tarry, and the delighted visitors enjoy the novel situation, watching the foam-crested billows as they break far inland, while around us the long rolling swell is coming in from the land of Confucius and we discern nothing save the blending of the ocean and the sky where the horizon terminates our vision.

"The air is hazy and the view is comparatively limited. Up the coast is Cape Hancock [now Cape Disappointment], with the high bluff surmounted by the lighthouse ... Southward stretches the beautiful Clatsop beach with Point Adams Light in the foreground and Tillamook head in the distance. The air is not clear enough to show the lonely Tillamook rock

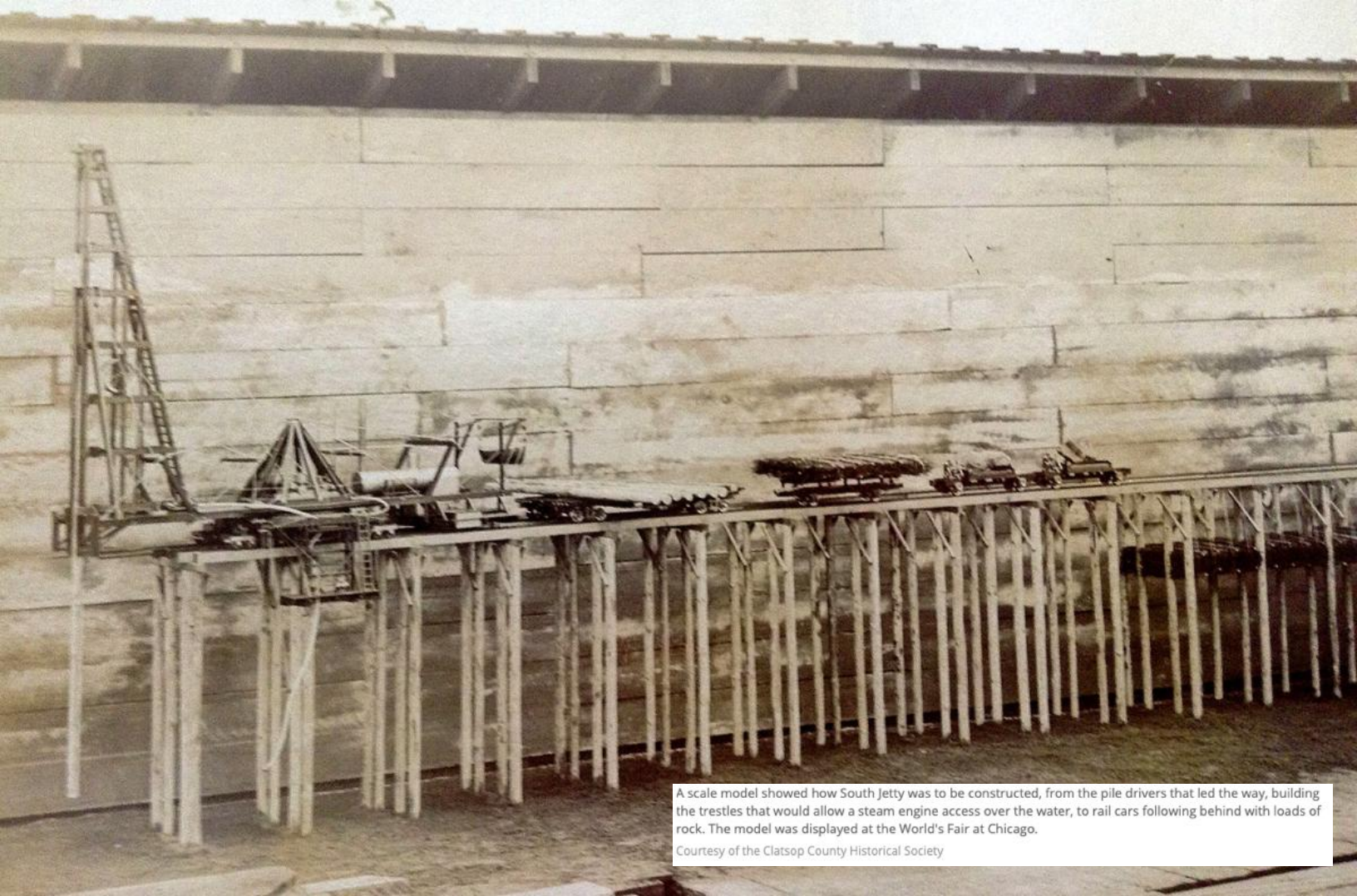
and tower. Up the river on plain and hill Astoria is seen ... The return trip is made, the ocean and its restless waves are left behind, we turn our backs on China and Japan and in twenty minutes are once again in Oregon."

In March 1893, The Morning Astorian ran a gratifying bit of news: "A dozen cases on the Union Pacific dock were addressed to the World's Fair at Chicago. They contained an elaborate model of the Columbia river jetty, including the pile driver and all the machinery. The models are on a large scale and will amply illustrate the improvements made at the mouth of the river. All the models were made in the jetty machine shops."

At the time of its completion, the South Jetty was the longest jetty in the world.

As the complex project of controlling the mouth of the Columbia River continued, it would consume over 50 years and involve building the North Jetty, a series of pile dikes off Sand Island, Jetty "A" out from the Cape Disappointment Coast Guard station, and lengthening the South Jetty.

And now, as we drive to the post office to pick up our mail, we may pass big flatbed semis hauling more enormous boulders out to the North Jetty to replace what the ocean has dismantled.



A scale model showed how South Jetty was to be constructed, from the pile drivers that led the way, building the trestles that would allow a steam engine access over the water, to rail cars following behind with loads of rock. The model was displayed at the World's Fair at Chicago.

Courtesy of the Clatsop County Historical Society

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