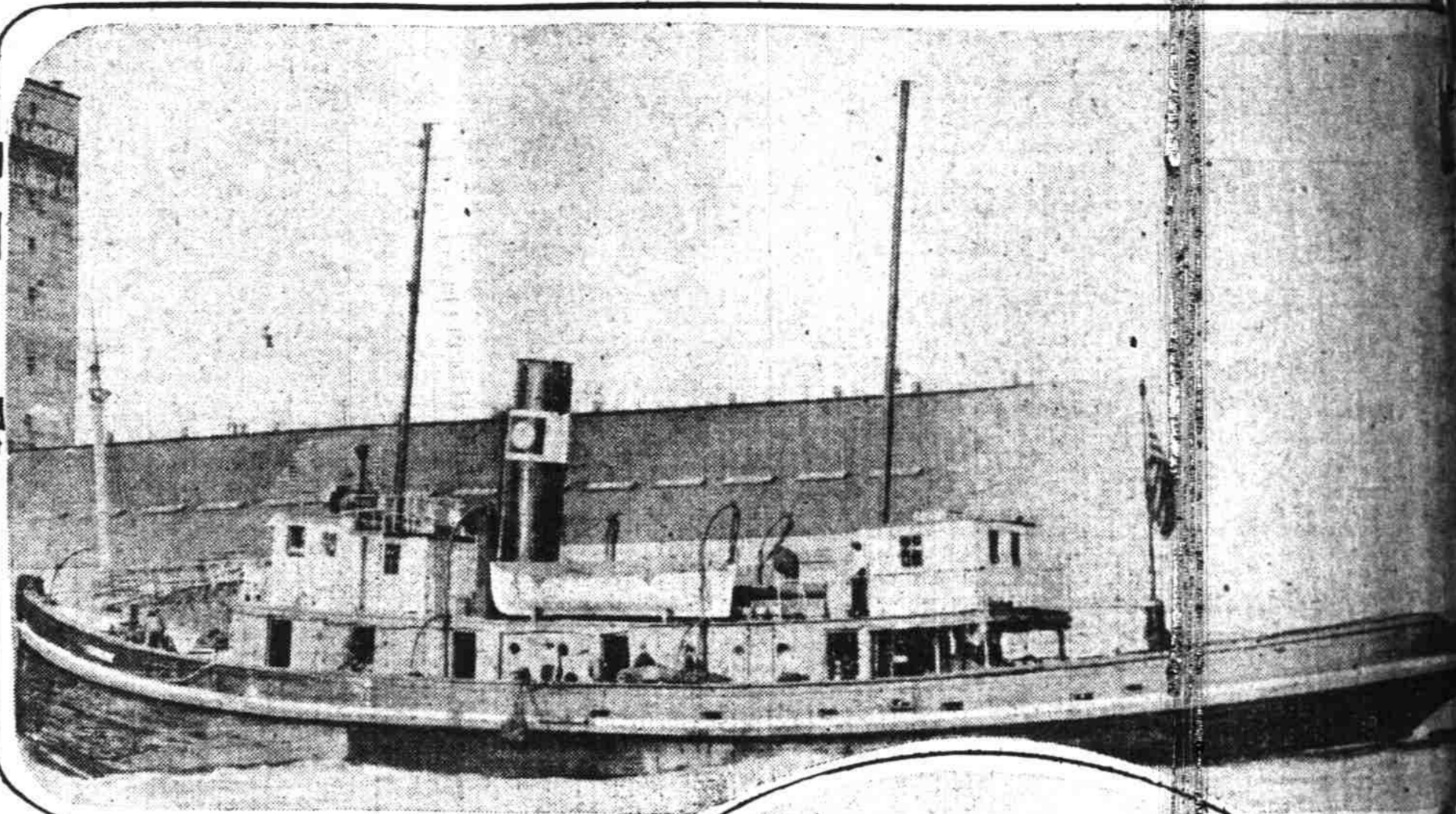
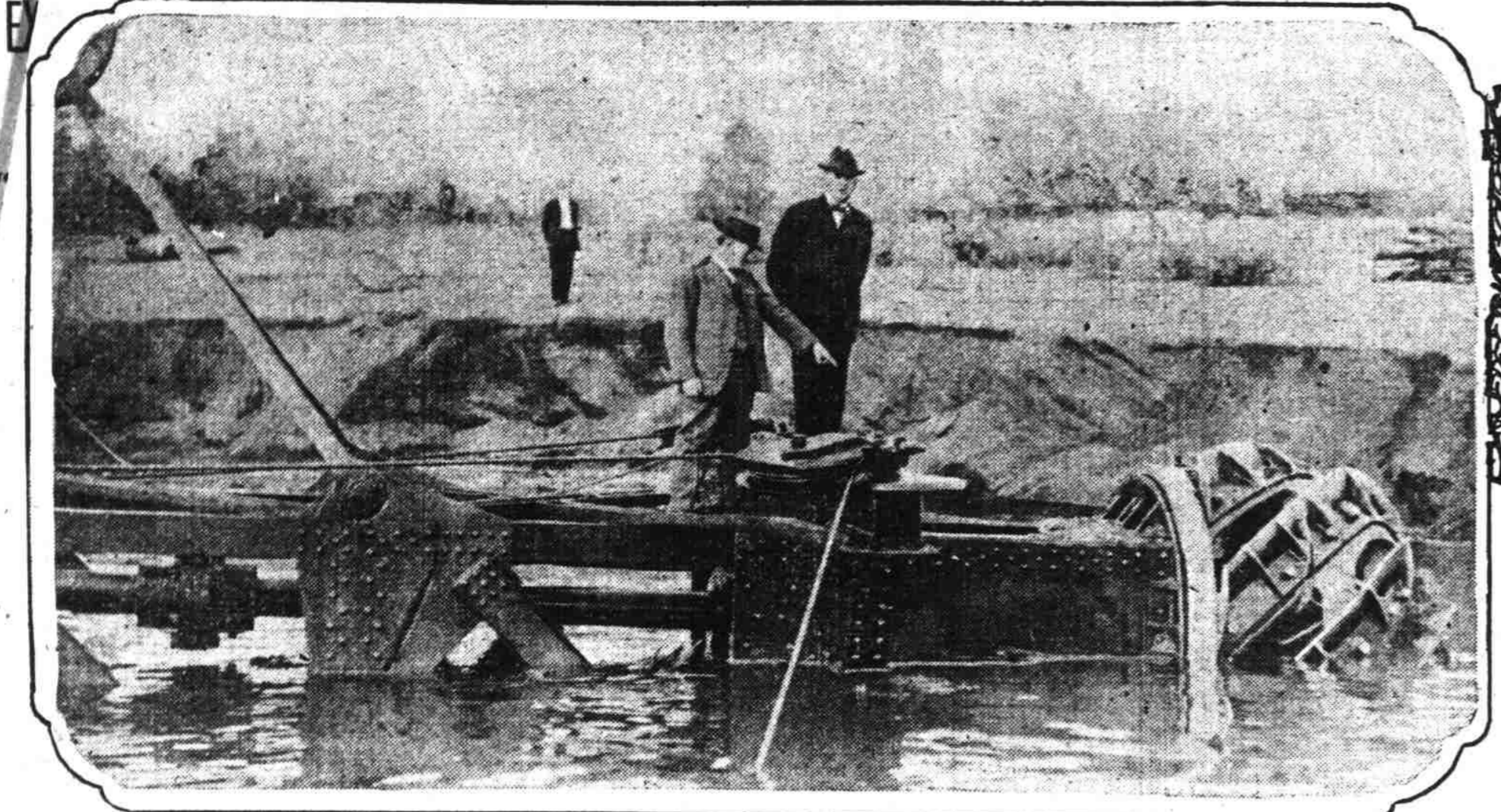


A 30-FOOT CHANNEL FROM PORTLAND TO THE SEA NOW REALIZABLE



PORT OF PORTLAND AND U. S. ENGINEERS COOPERATE

Dredging Operations Have Deepened River Channels of Willamette and Columbia All the Way to the Pacific—Jetty Work Proceeds.

PASSAGE OVER THE COLUMBIA BAR IS NOW 31 FEET

A Gratifying Announcement.

A few days ago, S. M. Mears, chairman of the Port of Portland Commission, announced that there is now between Portland and the sea a channel of thirty, and thirty-one feet over the bar, due to the work of the commission and the engineering department of the United States government.

This has been Portland's ambition for years. It is now realized. It means everything to the commercial future of this port especially in connection with preparation for increased business induced by the Panama canal. The charts show what has been done; the article is intended to indicate how the work was accomplished.

By Marshall N. Dana.

"Say," remarked Captain Groves to an invisibility above him, "how that ladder, will you?"

Apparently "Say" was instantly obedient. A little bell tinkled in the engine room. Cables heaved and blocks rattled and up out of the Willamette, all dripping, rose the "ladder."

And such a ladder! Certainly it could claim no kinship with the fruit tree variety nor yet the useful auxiliary of the fire department. To the dredger it bore the relation of a huge beak. At the extremity of its steel trussed bulk was a wide and bending device with bright, curved blades.

Clinging to the hood of the cutter were various blackish objects. "There," explained Manager Talbot of the Port of Portland commission, "are part of the deckload of the Cricket—some of the asphaltum she lost when the dock to which she was taken some months ago took fire and when, to save the vessel, she was cut loose and left to drift. We have drawn tons of it up from the river."

The two climbed as hastily off the "ladder" as they could with respect to its slippery surfaces. Down it went into the water again. The black propeller shaft resumed its swift revolutions. With restless circular sweep the blades cut into the river bed. The 30-inch tube caught up the material loosened by the powerful action and carried it backward.

"Here's what provides the 'pull,'" said Captain Groves pointing to the suction drum in the center.

"Here's our bright little sewing machine," said Manager Talbot, taking up the duty of showman and indicating the highly polished engine which drives the work of the dredge Willamette with the power of 1500 horses.

"When the war interrupted lumber shipments we ran out of our usual

fuel and had to burn oil," continued Mr. Talbot as the furnace room was reached. "Now that the mills have started up again we have regular fuel." He called attention to a barge-load of dump mill refuse that was being loaded aboard the dredge—a material that would be entirely wasted if it were not for the device that feeds it to the furnace, transforming it into steam and energy.

We tread the rounded back of the tube that led shoreward. It vibrated beneath our feet with the current of mud and pebbles it was conducting, and which it was discharging on low ground in a great spluttering current that in a few days had built up the general level to a height of 20 feet over a wide area.

"This dredge Willamette in her task of deepening the channel or along the shore where deep water is needed for docks has taken out of the bottom of the stream her 30,000 cubic yards a day," said Mr. Talbot, with evident pride in the accomplishment. "That is what makes it possible to announce in this important year of 1914 that we have a 30-foot channel to the sea."

"Yes," Captain Groves took up the conversational thread reminiscently. "I can well remember the first little stumbling efforts at dredging. Twenty-five years ago we had a channel of 16 feet between Portland and the sea. Little towboats of the R. R. Thompson type required between two and three days to get a vessel from here to the mouth of the river. Following the vessel we had to send a barge loaded with 500 to 1000 tons additional cargo which the vessel couldn't carry on her way down river because of the shallow channels. A dipper dredge just above where the dredge Willamette was stationed was plucking away at the skeleton of

"Honeyman's Hobby." But it did very good work.

The present system of suction dredging was the best step in this dredging evolution and is the present method. The Portland and Columbia were put to work, and, in 1912, the Willamette, the most powerful of the three.

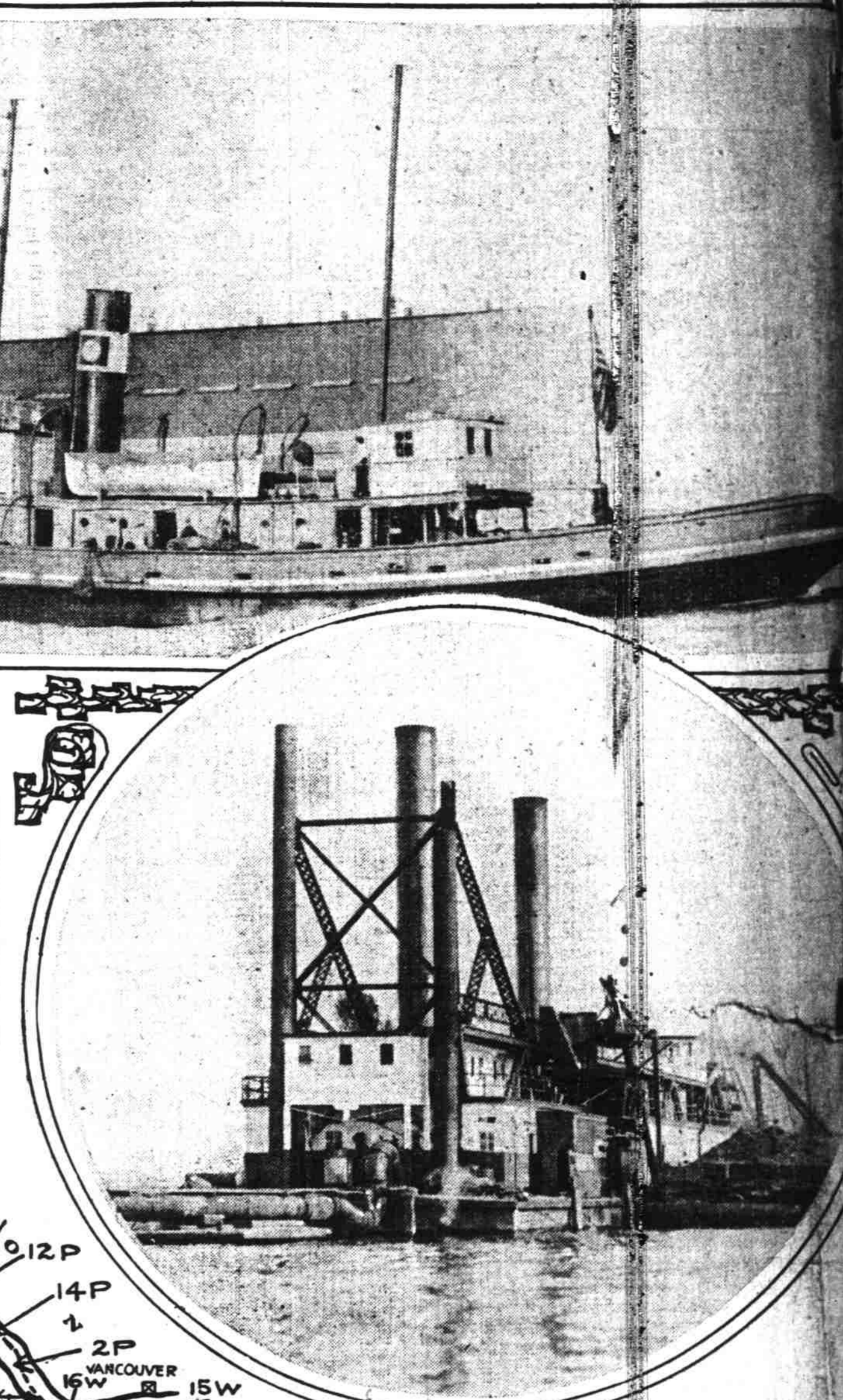
The port commission has found that its work grows proportionately greater as it deepens the channel. It can be readily understood that to take off the peak of a hill would require a shorter cut than to cut across a section lower down. The same principle applies to the reduction of the bars and shallows. When a 25-foot channel was maintained for instance, the total length of the cuts was approximately six miles; with a 28-foot channel the total length of the cuts was 14 miles, and with a 30-foot channel the total of the cuts is 23 miles. Figure the quantity of material that had to be removed from bars and shallows for 23 miles, and think of the work of maintenance that is required, and then

feel compensated for the comparatively small tax burden that the Port of Portland district carries in order to open Portland as a port to the commerce of the world.

U. S. Government Cooperates.

All of the work, of course, between Portland and the sea has not been done by the Port of Portland. The United States government is cooperating and will do progressively more. The government's service in deepening the bar channel has been highly important. By means of the south jetty and dredging the bar channel has been deepened and made safer. There is now a channel of 31 feet across the bar. Work has been resumed on the north jetty following appropriation made by congress.

As we proceeded down river to take a look at the dredge Willamette, the tug Samson, one of the fleet used in conveying rock from the quarries above Vancouver to the north jetty, pulled out from her moorings and steamed out of the harbor, dashing the



Top, left to right—The tug Samson, which hauls rock-laden barges from the quarries above Vancouver to the mouth of the Columbia river; the tug Samson, which hauls rock-laden barges from the quarries above Vancouver to the mouth of the Columbia river; and the dredge Willamette, which is used in deepening the channel.

ADDITIONAL NORMAL SCHOOLS URGED AS ESSENTIAL TO EDUCATIONAL NEEDS

By Clark Wood.

Weston, Or., Oct. 17.—The Eastern Oregon State Normal school was established by an act of the legislature approved February 26, 1888, and graduated its first class in 1890.

The school has since maintained a singularly checked and varied existence—always flourishing, however, when permitted to do so. Its administrative officials never knew from session to session of the legislature whether it would survive or perish, and the school was a constant target of such uncertainty. It was as though the state were an inexperienced gardener who occasionally trampled upon a strange new plant in his fear that it would grow into a noxious weed rather than into a fragrant and beautiful flower.

The growth of the normal school idea, fostered and nourished by Horace Mann in Massachusetts more than 70 years ago, was slow in Oregon. The normal schools were looked upon with distrust and jealousy, and were opposed by a large number of people unfamiliar with their work.

In early years the Eastern Oregon Normal failed of an appropriation, but its work was carried forward by contributions until the legislature again decided to recognize it. Its doors were later closed in 1905, by reason of the "hold-up session," when the legislature became so obsessed by a senatorial fight that it let the general appropriations bill go by the general assembly, and in 1906-7 the school was revived under very favorable auspices. Its growth from a new plant was really remarkable under the energetic direction of its president,

Robert C. French, now educational director of the Portland Y. M. C. A. In 1907-8 the enrollment in the normal school reached a maximum of 275, and including the training department the school housed a total of 345 pupils.

When the plant was thus blossoming, the legislative grubbing hoe struck at its roots. In the session of 1909 the school's supporters in the lower house numbered approximately two to one, but the senate was two to one against it. It was abandoned in the middle of the school year, no provision being made to carry out the state's contracts with the teachers or to graduate its senior class. This duty was performed by means of private subscriptions, and the subscribers were reimbursed at the recent session, when the present millage tax bills for both the Eastern and Southern Oregon Normals were referred to the people by the legislature.

Great was the distress among the teachers and students over the school's abandonment. The \$40,000 main building, for which a caretaker was provided, would ultimately fall into decay. There were books in plenty, but none to read; papers, but none to play; class rooms equipped with every article of school furniture, but none to teach or to recite; laboratories, to conduct experiments, but none to experiment; a kindergarten for the training school, but no children; a campus, but no students to make merry there in athletic sports and games. It is easier to destroy than to create, they said, and the splendid work of years was undone in a few fateful days by thoughtless iconoclasts.

This they gloomed, and the forebodings would have been realized but for the action of the state in leasing

the normal school plant to the local school district, which now uses it to house its public and high schools while the large district building stands empty. Thus the state's plant has been in some measure kept intact through occupancy, and can be put in shape again for the state's use by a reasonable expenditure.

The millage tax bill for the school's restoration and permanent maintenance has been wisely drawn, in that it permits the use of whatever sum the board of regents considers necessary for equipment and repairs. The school was never wholly abolished, merely suspended, and when revived would be subject to the legislative act of 1907. It would be controlled by a board of nine regents, called "The State Normal," and composed of five ex-officio regents and of six appointed regents. None of the latter would be from normal school counties, thus disposing of any fear of local interference with the management. Thus the work of the Eastern Oregon State Normal would be directed precisely as that of the Oregon State Normal at Monmouth is now directed, and it would be wholly removed from the sphere of political influence. One-fourth of a mill, or two and one-half cents on each thousand dollars of assessed valuation, would be ample for its support. It need not ask and will not ask for another dollar aside from its annual income.

Oregon Normals Economical.

This reminds me that the Oregon normals have done a large amount of work for a very little money. Washington, for instance, has regularly appropriated from three to four times as much money for its normal schools as the Oregon normals received. The

Dredging Operations for 1913.

Chart No. and Location.	Cubic Yards.	Depth.
1—Harbor	559,876	27 Feet
2—Reeder's Cross	104,759	28 Feet
3—Morgan's Bar	31,389	28 Feet
4—Henri Bar	697,527	28 Feet
5—Mouth of Cowitz	46,296	28 Feet
6—Upper Martin's	318,577	28 Feet
7—Lower Martin's	146,712	28 Feet
8—Hunter's Bar	1,415,440	28 Feet
9—Doblehower's	360,473	28 Feet
10—Slaughter's	693,386	27 Feet
11—Ladu's Bar	120,222	28 Feet
12—Bachelor's Slough	84,115	12 Feet
13—Westport	157,782	20 Feet
14—Fale's Slough	2,592	28 Feet
15—Oregon Slough	1,005,379	20 Feet
16—Grounded Vessels	146,603
17—Sand Island	1,154,594	12 Feet

LENGTH SHIP CHANNEL DREDGED

Year	Length
1902	5.4 mi.
1903
1904	11.67 mi.
1905	12.59 mi.
1906	10.13 mi.
1907	1.03 mi.
1908	9.67 mi.
1909	7.09 mi.
1910	6.36 mi.
1911	9.5 mi.
1912	14.11 mi.
1913	18.59 mi.

ESTIMATED CUBIC YARDS REMOVED FROM SHIP CHANNEL WILLAMETTE & COLUMBIA RIVERS

1902	903,140 cu. yds.
1903	3,549,290 cu. yds.
1904	1,862,652 cu. yds.
1905	1,207,093 cu. yds.
1906	1,841,096 cu. yds.
1907	1,268,627 cu. yds.
1908	1,885,513 cu. yds.
1909	2,015,798 cu. yds.
1910	2,010,196 cu. yds.
1911	3,300,509 cu. yds.
1912	5,300,509 cu. yds.
1913	7,045,722 cu. yds.

average cost of normal school students in Oregon in 1907-8 was \$84. This compares very favorably to Rhode Island, \$294; Colorado, \$248; Massachusetts, \$180; Oklahoma, \$141; South Dakota, \$125; Washington, \$159; Wis-

water from her prow as though eager to get back into service again after the period of inactivity since work was stopped on the north jetty for lack of funds. It is now possible to deliver 4000 tons of rock a day for the north jetty.

The Port of Portland launch, carrying us back up river, passed the steamship Georgian, the first to arrive in port after passing through the Panama canal.

"Look here at her markings," suggested Captain Groves.

The markings showed a draft of 30 feet.

And that is what it means in size of vessels to have a 30-foot channel from Portland to the sea and 31 feet over the bar, with certainty of greater depth.

This port gives safe entrance into the estuary and to the head of deep-sea navigation to almost any ship afloat.

It goes out over the world that the bar channel is so deep that dead low water there are no waits and no vessels pounding or scraping on the bottom.

It is said by navigators that the river channel may be confidently essayed with the commissioner's efficient pilotage service. Public docks are building and give assurance of good berthing and quick discharge of cargo.

The government is charting the harbor with a view to estimating the material that will have to be removed in establishing a uniform harbor depth of 30 feet.

All these things make for commerce and Portland's handling of the commerce due her as chief distributing point in a trade area of a quarter of a million square miles—a greater area than lies back of any other city on the Pacific coast.

DEPTH SHIP CHANNEL END DREDGING SEASON

Year	Depth at Zero
1884	17 FT.
1889	17 FT.
1894	17 FT.
1896	20 FT.
1897	21 FT.
1898	21 FT.
1899	21 FT.
1900	21 FT.
1901	21 FT.
1902	22 FT.
1903	23 FT.
1904	24 FT.
1905	24 FT.
1906	24 FT.
1907	25 FT.
1908	25 FT.
1909	25 FT.
1910	25 FT.
1911	26 FT.
1912	27 FT.
1913	28 FT.
1914	30 FT.

consin, \$140; Minnesota, \$115; New York, \$106; West Virginia, \$98; Pennsylvania, \$84; Illinois, \$75.

I consider this a very remarkable in view of the troublesome if not avenging Nemesis which pursued the Oregon normals from pillar to post, Illinois only shows a lower cost per student, while that of Pennsylvania is precisely the same.

The Eastern Oregon Normal and the Southern Oregon Normal are, in my opinion, equally entitled to consideration. Both have state plants unused by the state, both are needed in their particular sections and by the commonwealth at large. President Campbell of the Oregon university, says that about 1000 new teachers are needed yearly for the Oregon schools. Is it not the state's function to supply trained teachers for its children, if it is the state's function to supply trained men and women for the several professions? It would be as inconsistent to dispense with all state institutions of higher learning as to dispense with the normal schools. They are not the cause, but a com-

tributing cause, of high taxes. State taxes were higher after two normal schools were suspended and only one retained. The cost of all three would be but nine cents on every thousand dollars of taxable property. Monmouth receiving four cents, and Ashland and Weston two and one-half cents each. Thus by denying himself one 10 cent cigar each year, the thousand dollar taxpayer will more than save for himself the cost of three normal schools.

Alabama has four normal schools; California five, Connecticut four, Illinois five, Massachusetts nine, Michigan four, Minnesota five, Missouri four, New York 12; North Carolina four, Oklahoma four, Pennsylvania 12, South Dakota four, West Virginia seven, Wisconsin seven, Georgia, Kansas, Kentucky, Maine, Texas, Vermont and Washington three each. Thirty-two other states content themselves with two each, but the educational trend of the times is toward small normal schools and plenty of them, as indicated by the views of many educators.

Weston, the home of the Eastern Oregon Normal School, is a pretty town, down pleasantly located at the foot of the Blue mountains, on the R. & N. line, in the richest of Umatilla county. Its altitude is 1800 feet and its population about 500. It has a fine gravity system of water, supplying plenty of pure water, and boasts of the best health conditions. In all the history of the Eastern Oregon Normal, there has not been a single death among its students or faculty except that of the late President Martin, who died of the school an illness of a few days, and the cause of the illness was attributed to the pure water of the town.

Reports received by the committee from all over the state show that public sentiment is trending in favor of the normal schools, and that both bills are likely to pass by large majorities.

Many people are learning the lesson it before, that the \$75,000 normal school plant at Weston, Oregon Normal School, is a pretty town.