

The 1,200-Ft. Cantilever Bridge at Longview, Wash.

Columbia River Crossing 50 Miles Below Portland, Ore., Completed as
Toll Structure After Many Legal Difficulties—Provides 1,100-Ft.
Channel With 195-Ft. Vertical Clearance

By CLIFFORD E. PAINE
Vice-President, Strauss Engineering Corp., Chicago, Ill.

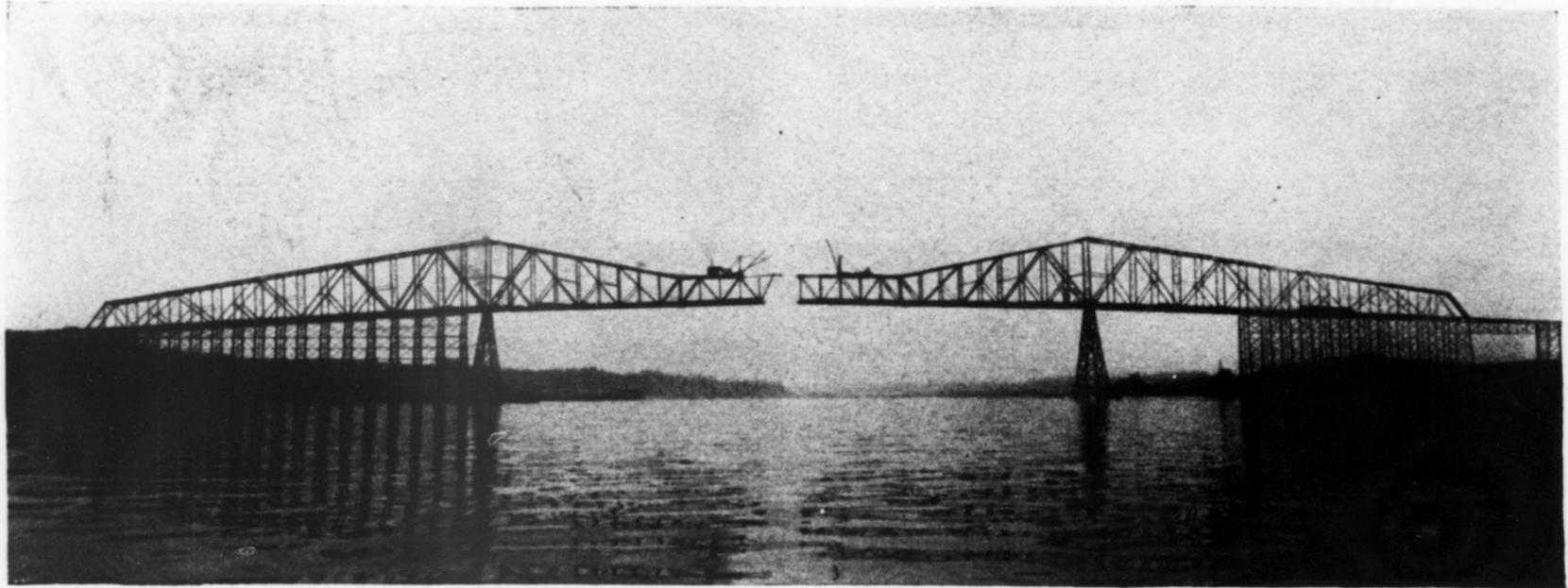


FIG. 1—LAST MOVE OF THE TRAVELERS ERECTING THE 1,200-FT. CANTILEVER SPAN
OVER THE COLUMBIA RIVER AT LONGVIEW, WASH.

THE COLUMBIA RIVER Longview bridge, which was opened to traffic on March 29, spans the Columbia River at Longview, Wash., 50 miles below Portland, Ore. It is the longest cantilever structure in the United States, having a main span of 1,200 ft. and anchor arms 760 ft. long. In addition, its clearances above mean low water are unusual—185 ft. at the channel pier and 195 ft. at the center of the main span. A plan and elevation in Fig. 2 give dimensions and indicate the long approaches.

History of Project—Having failed in an effort to have the bridge built jointly by the states of Washington and Oregon, those most interested in the development of the district prevailed upon private interests to promote the enterprise, with the result that W. D. Comer and Wesley Vandercook were granted a franchise in February, 1925. The franchise, however, required that the plans be approved by the highway departments of the states of Washington and Oregon. The highway department of the State of Washington approved the plans. The highway department of the State of Oregon did not approve the plans and the Oregon Legislature passed a bill which restrained the highway department from approving them until they were first approved by the port of Portland. Before this obstacle could be overcome the franchise expired.

A second franchise was obtained by the promoters in January, 1927. Under this franchise, approval by the highway departments of the two states was eliminated and it was stipulated that the plans must be approved by the secretary of war, the secretary of commerce and the secretary of agriculture. After many hearings before the three secretaries and their representatives, a permit to construct the bridge was issued Nov. 3, 1927. The

permit stipulated a clear channel width of 1,000 ft. with a minimum vertical clearance of 185 ft. at the channel pier, 195 ft. at the center of the channel, and 155 ft. at the Longview pier-head line. It also stipulated that there should be only one pier between the channel and the Longview pier-head line. In order to meet this latter requirement it was necessary to utilize a main-channel span of 1,200 ft. and to adopt the unusual anchor-arm length of 760 ft.

Foundations

Conditions—Borings indicated a bed of gravel and sand extending more than 100 ft. below mean low water. Overlying this stratum of gravel and sand was a deposit of black basaltic sand of varying depth. The upper surface of the gravel bed was at El. 84.7 below datum on the Washington side (at pier 1, see Fig. 2), from which it sloped upward toward the Oregon side to El. —55 at pier 2, —42 at pier 3 and —32 at pier 4. The depth of water at piers 1, 2, 3 and 4 is approximately 35 ft. at mean low water stage. At a 17-ft. river stage the velocity of the current is 6 miles per hour.

Pier Design and Construction—Pier 1 is carried down to El. —50 where it is founded on piles (20 in. or more at the butt) driven to refusal with an average penetration of 30 ft. The footing is 24 ft. wide, 81 ft. long and 12 ft. deep. Two hundred and sixteen piles were used, and the direct load per pile from dead load plus live load is 22 tons.

From the top of the footing up to El. —2.0, pier 1 consists of two vertical shafts $11\frac{1}{2}$ ft. square connected by a solid diaphragm of concrete which varies uniformly from a thickness of $11\frac{1}{2}$ ft. at the bottom to 6 ft. at the top. Above El. —2.0 the two vertical shafts are extended

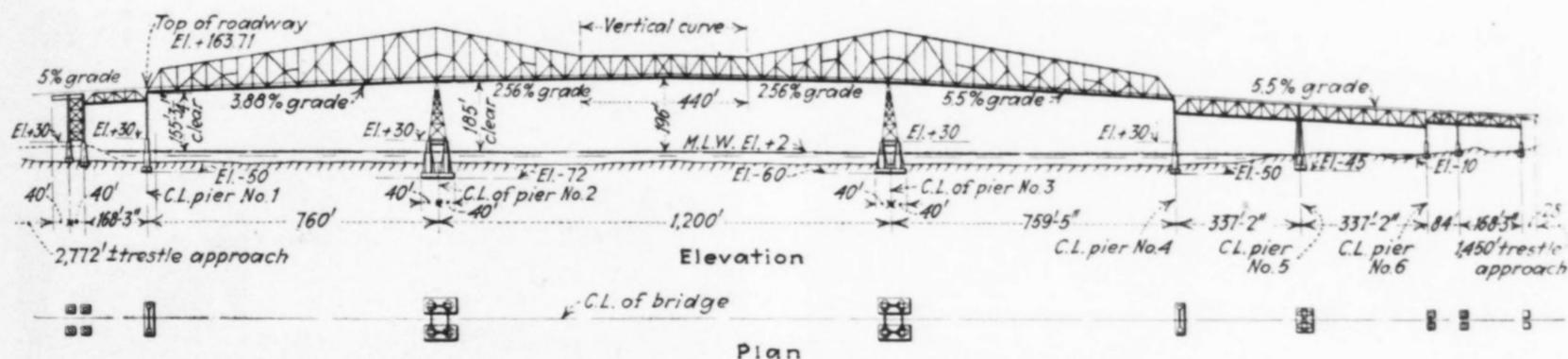


FIG. 2—PLAN AND ELEVATION OF COLUMBIA RIVER-LONGVIEW BRIDGE

upward to El. 30 and are connected at the top with a diaphragm 15 ft. deep and 4 ft. thick. Shafts and diaphragms are heavily reinforced.

For the construction of the portion of the pier below El. -2.0, a crib was built of 12x12-in. timbers tightly bolted together and calked. The inside dimensions of the crib conformed to the outside dimensions of the pier. The crib was built and all reinforcing steel was placed within it at the Pacific Bridge Co.'s dock at Portland, Ore. Excavation for the pier was accomplished by means of a clamshell bucket, after which piles were driven to grade. The crib was floated 50 miles down the river to the bridge site and sunk in place. All openings between the bottom edges of the crib and the excavated hole were carefully closed up with lagging.

A vertical bulkhead separated the crib into two halves, the bulkhead being shaped to provide proper keys for the joint. Concrete for half of the pier, from El. -50 to El. -2.0, was then poured in one continuous operation by means of two 10-in. tremies, which, with their hoppers, were supported directly on the crib. During pouring there was no movement of the tremies except the raising and lowering necessary to control the flow of concrete. As the concrete rose in the crib the shortening of tremies was effected by removing successive sections of the pipe at the upper ends. The upper portion of the pier (from -2.0 to 30.0) was placed in the usual manner.

Pier 4 is similar to pier 1 except that it is founded on the gravel bed with a unit-bearing pressure of less than 3 tons per square foot.

Pier 2 is also founded on gravel but at El. -72.0. It has two footings, each 39x84 ft. with the long dimension parallel to the axis of the bridge. The footings are 16 ft. deep and are spaced 70 ft. c. to c. Each footing carries two vertical shafts 45 ft. apart, having a cruciform section at the base of each arm, which is 33 ft. 4 in. long and 14 ft. wide. The section reduces uniformly to a square 14 ft. on a side which extends from El. -2.0 to 30.0. At the top all four shafts are connected by deep longitudinal and transverse diaphragms.

The method of construction of this pier was the same as for pier 1. Separate cribs were made for each footing

and a bulkhead was placed so that one shaft and half of one footing were poured as one unit. In this operation four tremies were used within the shaft. On one side of each shaft the crib was built to clear the shaft by 3 ft., and separate forms were provided for that face of the shaft. After completing the pier this well between the crib and the shaft was pumped out, the forms were removed and the surface of the concrete was inspected. Inspections made in this way in six wells on the several piers revealed in every case an excellent grade of concrete.

Pier 3 is similar to pier 2 except that the bottom of the footing is at El. -60.0. It is worthy of mention that although more than 20,000 cu.yd. of tremie concrete was placed, the work was so skillfully handled by the contractor that only once during the whole operation did a tremie lose its charge.

Superstructure

General Design—The bridge carries a 27-ft. roadway and two 3-ft. sidewalks. The trusses of the main bridge and of the 335-ft. approach spans are designed for a live load of 60 lb. per square foot plus impact. The trusses of the shorter deck spans are designed for a live load of 100 lb. per square foot plus impact. The floor system throughout is designed for a live load of two 20-ton trucks on the roadway, plus an impact allowance of 30 per cent.

Silicon steel is used for all main members in rocker bents, towers, trusses and main spans and 335-ft. side

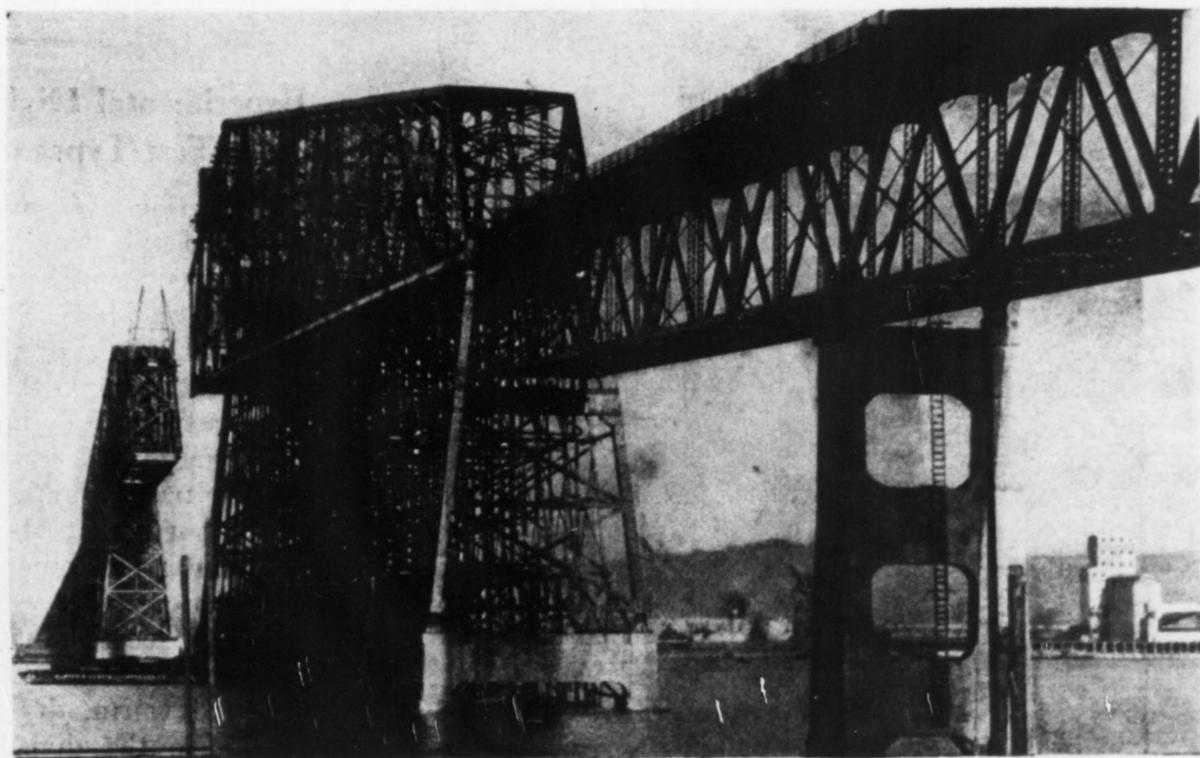


FIG. 3—LONGVIEW BRIDGE PROVIDES 195-FT. VERTICAL CLEARANCE UNDER MAIN SPAN
Note the timber falsework supporting anchor arms.

spans. For this material the unit working stresses adopted were 24,000 lb. per sq.in. in tension, and 22,500-75 l/r lb. per sq.in. in compression. For ordinary structural carbon steel, the unit working stresses employed were 16,000 lb. per sq.in. in tension, and 15,000-50 l/r in compression.

The 760-ft. anchor arms were designed to be self-supporting as simple spans without floor deck. The design provided for erection of the entire 1,200-ft. channel span by the cantilever method with 85-ton stiff-leg derricks working on the top chords.

Erection—The deck truss spans and the anchor arms were erected on falsework and work on the anchor arms proceeded from the shore toward the main towers. Although the anchor arms had been designed as self-supporting spans so that falsework would be necessary for a minimum length of time, no advantage was taken of this, since river conditions were so favorable, and the anchor arms were not swung until after the cantilever arms were completed.

Since the shoes at the top of the main towers (Fig. 4) are fixed, it was necessary to shift the anchor arms in a longitudinal direction in order to make the pin connections between their bottom chords and the shoes. This movement was easily effected by a slight racking of the falsework. The suspended span was cantilevered out an equal distance from each side of the channel. Final closing was effected by means of 500-ton hydraulic jacks placed in the bottom and top chords at the connection of the cantilever arms and the suspended span.

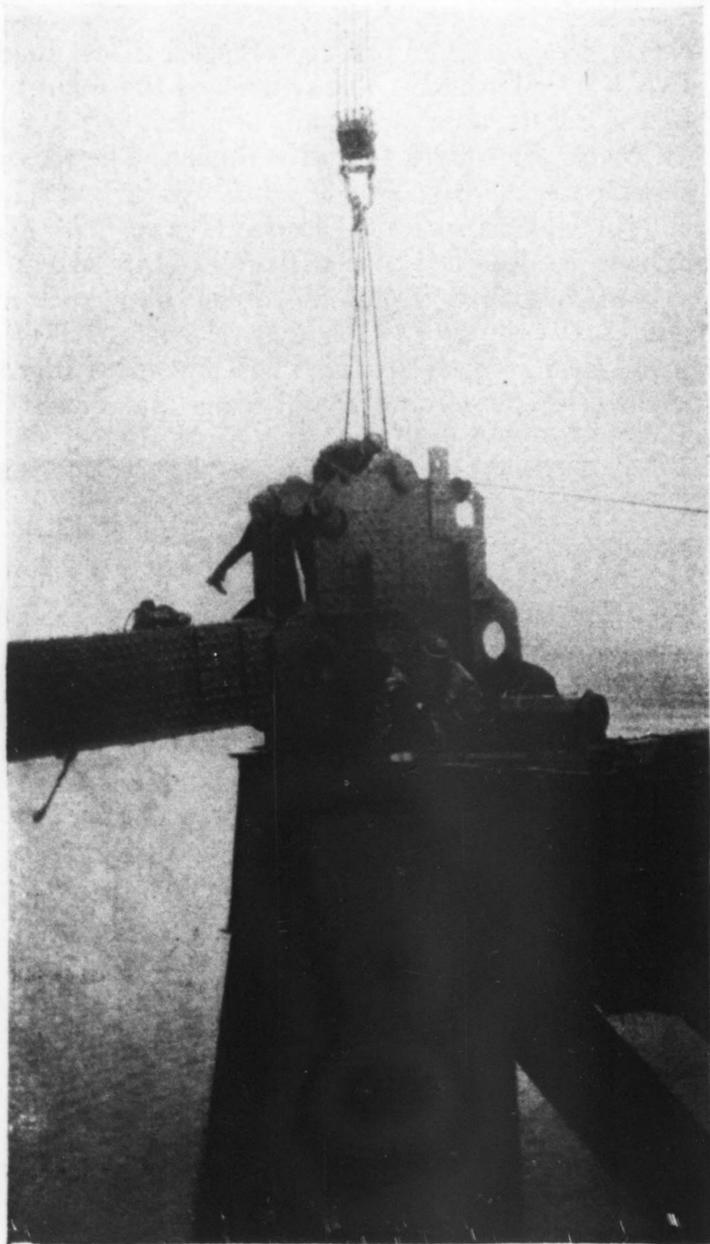


FIG. 4—SETTING MAIN SHOE ON TOP OF TOWER AT PIER 2

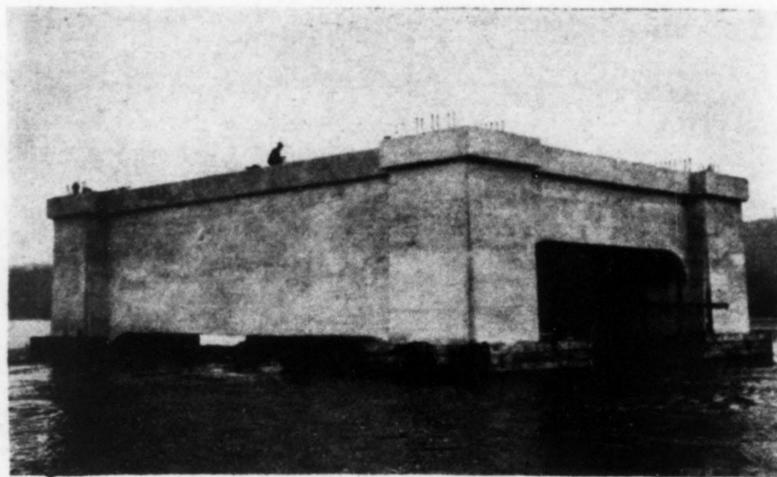


FIG. 3—MAIN CHANNEL PIER COMPLETED, LONGVIEW BRIDGE

Constructed by open crib with tremble-placed concrete

During erection of the suspended span, forms were placed on the anchor arms for the floor deck, and pouring of concrete was started. The floor slab has a total thickness of 6 $\frac{3}{4}$ in. and is a 1:1:2 mix of concrete using a lightweight volcanic rock for aggregate, which gave a unit weight of 120 lb. per cubic foot, and physical properties substantially equal to those obtained when using gravel aggregate.

Progress of the Work

General design plans for the project were started in October, 1928, field work began in November, and the bridge was opened to traffic on March 29, 1930—eighteen months after commencement of the general plans. More remarkable than the time record, however, is the record of building a structure of this magnitude without suffering a serious injury to any employee on the work. Approximately 25,000 cu.yd. of concrete and 12,800 tons of structural steel were required in the construction of the bridge.

The Bethlehem Steel Co. was general contractor. The Pacific Bridge Co. was subcontractor for the foundations and J. H. Pomeroy & Co. were subcontractors for steel erection. The Strauss Engineering Corp., as engineer for the Columbia River Longview Bridge Co., made the design and supervised the construction.

Experimental Highway to Be Constructed to Test Types of Low-Cost Surfacing

Construction of an experimental highway, with twenty half-mile lengths of various low-cost oil-treated surfaces, has recently been started under the joint supervision of the U. S. Bureau of Public Roads and the California Division of Highways. The same two organizations will maintain the 10-mile stretch for three years, keeping account of the construction and maintenance cost as well as the service obtained, with a view to obtaining accurate comparative cost data for the various types of surface used. Some sections will be sealed before winter and others will be sealed later, depending on their action under weather and traffic conditions. The test road is located in the mountains near the Nevada line, where the climate includes both severe winter conditions and warm, dry summers. Results of the test, according to the division of highways, should be of value not only to California but also to other states that look to the Bureau of Public Roads for this type of information.

\$10,000,000 POWER PROJECT AT ARIEL UNDER WAY U. S. AND CANADA PLANNING HUGE PARK AT PEACE ARCH ALL WEST COAST WILL JOIN LONGVIEW IN NEW BRIDGE OPENING

500 MEN AT WORK ON BIG RESERVOIR

Dam Site Is Humming With Activity; Many Buildings Erected; Plan to Develop 54,000 Horsepower.

Special to The Times.
KELSO, Saturday, Nov. 23.—The Northwestern Electric Company's power site on Lewis River at Ariel, thirteen miles above Woodland, is a beehive of activity, with approximately 500 men employed on construction work on the dam and in preliminary work at the dam site. This project is the second largest ever launched in this part of the state, being second only to the Longview development. The first unit, to develop 54,000 horsepower, will represent a \$10,000,000 investment.

Already 350 of the 500 men employed on the project are housed at the camp which is under construction on a sloping hillside. An office building, the dining hall, which accommodates 100 men, and twenty-seven bunkhouses, each of which accommodates sixteen men, have been completed at a point about a quarter mile from the dam site and are occupied. Three more bunkhouses are under construction and the fact that the company plans to have 75 bunkhouses by next summer, the first year of the project, indicates the vast army that will be employed then.

Many Modern Cottages.
Overlooking the temporary construction camp are half-a-dozen modern cottages for employes, and a few more are being built. The modern residences to cost \$8,000 to \$10,000 each, which will be the permanent homes of the power plant personnel. They are being built by the construction chiefs until the plant is completed. The start of work has had an immediate effect on the local economy. Cowlitz and Clark counties, absorbing most of the unemployed men in this area.

H. C. Lincoln is construction manager and engineer for the Inland Power & Light Company, which will be the company that owns the plant. The Phoenix Utility Company, the construction branch of the Northwestern Electric, is doing the building. Minimum wage \$4.50.

A minimum wage of \$4.50 a day is being paid. Four or five men are reporting for every job, and an effort is being made to employ local men as far as possible.

Traffic on the Lewis River highway is heavy and the road is already showing the effects of it in places. B. B. Biddle has the contract for the maintenance of the highway and a large crew is employed. The upper part of the road will be foot bridge completed.

The company has completed a foot-bridge across the Lewis River at the dam site for the convenience of the workmen in getting to and from their work on the project. The abutments for the steel bridge, for which the Pacific Bridge Company of Portland has the contract, are now going in. The bridge will be a few feet below the dam when it is completed and will be a permanent structure.

Lynch Brothers, who are doing the drilling on the site, have six drilling outfits, three working on each side of the river, making tests of foundation conditions. Two crews are now engaged in building a telephone line to the ocean for communication activities. Land Is Purchased.

The Northwest Electric Company has purchased 8.25 acres of land near the Woodland railway station for use as the site for a sliding where material for its dam and power project will be unloaded. They acquired 6.5 acres of the land from J. Goerig and 1.75 acres from C. O. Talbert. Woodland business men are taking steps to remedy the housing shortage situation which has developed there through the sudden influx of a large number of men because of the construction work on the power project. With the completion of additional housing at the construction site some of those who had located in Woodland will move there. Plans are under consideration for the organization of a company to build a number of houses at Woodland.

RAYMOND CHURCHES USE BUS FOR SUNDAY SCHOOL PUPILS

Special to The Times.
RAYMOND, Saturday, Nov. 23.—Something new in the practices of churches in this area has developed. Wide-awake methods of holding Sunday school are attracting attention. It is to be adopted in the Raymond starting December 17th. The result of a deputation by pastors of the Methodist, Baptist, Presbyterian and Lutheran churches to visit the city schools on week days, has been hired to perform the duty of the Sunday School.

STRAWBERRIES AT KALAMA RIPEN IN SPITE OF FROST

Special to The Times.
KELSO, Saturday, Nov. 23.—About fifty acres of strawberries have been planted in the Cowlitz district near Kalama, which specialize in strawberry farming, this fall and additional acreage will be planted in the spring. Due to the dry weather plants are not putting out many runners and plants for additional acreage have been scarce. Despite recent high frosts some of the plants planted this week were harvested.

REFORESTATION IS PLANNED BY INDIAN AGENCY

Native and Imported Trees to Be Planted on Quinault Reservation; 600 Acres to Be Covered in Year.

Special to The Times.
ABERDEEN, Saturday, Nov. 23.—An extensive reforestation program will be carried on to the fullest extent possible with the funds available by the forestry branch of the Quinault Indian Agency next year. H. B. Steer, forester of the Indian Agency, said this week. Beside a large quantity of native trees, Mr. Steer hopes to plant some imported species.

Five thousand Douglas firs will be planted next year under present plans, he said, as well as about an equal number of cedar, spruce and hemlock. In addition, Mr. Steer has ordered quantities of redwood, Idaho white pine and some hardwood seedlings from the burned-over lands of the reservation. This will be the first extensive planting of other than native trees. He hopes to cover an area of about 600 acres next year, although no special funds have been appropriated and the planting will have to be done by the regular crew employed by the service.

Mr. Steer has investigated conditions on a trained forester's stand, and he believes that a number of species, such as redwood, Idaho pine and certain hardwoods should thrive on the reservation. About a year ago his department planted several hundred spruce on a burned-over tract and at the end of the year the trees showed about a 99 per cent survival.

PIONEER OYSTER BED IS REVIVED

Plantings Are Made Near Bruceport, Where Bivalves Were Farmed as Early as 1860; Industry Grows.

Special to The Times.
RAYMOND, Saturday, Nov. 23.—The first oyster bed in the Puget Sound commercially fished oyster bed in the state, was reseeded this week with Japanese oysters.

The planting was made near Bruceport, where the charred wreck of the Robert Bruce, a sailing vessel which carried oyster cargoes from Seattle to San Francisco prior to 1880, may still be seen. The bed there was fished out years ago, but is now being rebuilt by the new owners, the Willapa Oyster Farms, Inc., headed by Gerald Morgan and Prof. Trevor Kincaid of Seattle.

The shipment, 1,000 cases, is both the first planting to be made in the Puget Sound and the first in the new fields in this harbor, through the Willapa Harbor ports. It was estimated that there were about 20,000 young seed oysters in the shipment. A few cases were broken open and the seed was found in excellent shape, with a firm growth of old abalone, scallop and oyster shells.

Continuing the activity in the recently rehabilitated oyster industry on the coast, the purchase of approximately 300 acres of oyster land in the bay by another Seattle company, composed of State Senator Paul House and the late Senator Frank House, is being completed. The property is being purchased from the estate of the late Senator House. The purchase is also being pushed rapidly. That company has taken over 250 acres of oyster land.

the city schools on week days, has been hired to perform the duty of the Sunday School. Victor Wilson, owner of the Elk Creek bus, will inaugurate his Sunday morning bus service from Raymond. Coming in from Elk Creek, he will pick up Sunday School students as he picks up public school students. He will discharge his passengers at the various churches they wish to attend, and then make a trip to the Garden Tracts for another load.

SNOHOMISH AGRICULTURE SHOWS GAIN

Increase of \$225,000 Over Last Year Is Shown by County Agent's Report; Dairying More Active.

Special to The Times.
SNOHOMISH, Saturday, Nov. 23.—That the agricultural industry of Snohomish County is gaining steadily from year to year is revealed by a report made recently by County Agent Arnold Z. Smith for 1929. According to figures compiled by Mr. Smith, agriculture during this year was worth \$9,555,000, or an increase of \$255,000 over last year. Of this amount \$3,455,000 was credited to the dairy industry, which represents a substantial gain over the previous year. The poultry industry contributed \$2,450,000; horticultural crops added \$800,000; field crops, \$2,700,000; miscellaneous incomes such as wheat, sheep, swine, bulbs and the like accounted for \$180,000. With the exception of horticulture, all industries named have shown a decided increase.

Now 5,800 Farms.
The county agent's report also shows that in 1919 there were listed 1,813 farms in the county, which number in 1929 was increased to 4,740, while this year it is estimated there are 5,800. In 1919 there were 34,000 acres of improved land in the county, in 1929 there were 72,220 and this year there are 78,750 acres under cultivation. The number of dairy cows on farms during the past twenty years has increased from 11,875 to 22,200, and these cows produced 15,372,350 gallons of milk during the past year. The poultry industry, which is rapidly becoming one of the foremost producers of revenue, has increased from 1,075,000 chickens in 1919 to 7,055,000 estimated in this county this year, laying 6,335,000 dozen eggs.

More Vegetables Shipped.
"One of the recent developments in the agricultural industry is the growing and shipping of carload lots of vegetables," stated Mr. Smith. "Up until a few years ago practically nothing had been shipped of this kind and this year nearly 400 cars of vegetables will be shipped from the county. The major part of this, of course, is head lettuce and green beans and cabbage. Some cars of mixed vegetables make up the balance. It is firmly believed by those who have given this matter a great deal of study that a beginning has just been made along this line."

According to a report by Donald L. Saunders, assistant county agent, 14,500 pounds of butterfat in 1929 Snohomish County Dairy Herd Improvement Association during October, which produced an average of 2.3 pounds of milk and 23.3 pounds of butterfat. There were 214 cows which produced over forty pounds of butterfat for the month.

Olsen Herd Is First.
In the large herd division, the twenty-one grade Guernseys belonging to Christopher Olsen of East Stanwood placed first, with a production of an average of 743 pounds of milk and 37.1 pounds of butterfat. A dimer of Stanwood and Stanwood placed first, with a production of an average of 743 pounds of milk and 37.1 pounds of butterfat. The herd of Nels Welen, also of Silvana, placed second with an average of 771 pounds of milk and 32.7 pounds of butterfat. The herd of sixteen Holsteins. The herd of Nels Welen, also of Silvana, placed second with an average of 771 pounds of milk and 32.7 pounds of butterfat. The herd of sixteen Holsteins. The herd of Nels Welen, also of Silvana, placed second with an average of 771 pounds of milk and 32.7 pounds of butterfat.

WHATCOM PLANS POULTRY SCHOOL

Date of Instruction Is Set as December 19 to 21 at Meridian High School; Many Expected to Attend

Special to The Times.
BELLINGHAM, Saturday, Nov. 23.—L. N. Freeman, assistant county agent, has announced that Whatcom's annual poultry school will be held at the Meridian High School on December 19, 20 and 21. There will be several unusual features. The program is being shaped by the county agent's office in cooperation with the Washington State College, which will furnish some of the speakers. It is anticipated that the attendance will exceed that of last year, due to the increase in the number of poultrymen in this district. The Washington Co-operative Egg & Poultry Association has about 3,000 members and there are hundreds of other poultrymen, it is estimated.

Survey for Buildings At Blaine Ordered

BLAINE, Saturday, Nov. 23.—J. S. Myers, deputy collector of customs, has just received proposals of bids for topographical surveys of building sites for the two government buildings here, which indicates that construction of the buildings will be commenced at an early date.

MODERN TOWN PUMP YIELDS GASOLINE



With the "oil boom" excitement keeping the city in a turore, Bellingham residents gather around the "town pump" to watch operations. The well, at a street intersection, is yielding a fluid that has been revealed as 96 per cent gasoline and operators of service stations in the vicinity declare their storage tanks are not leaking. City officials, members of the Chamber of Commerce and curious visitors look on as a workman pumps water and oil from the hole.

MOUNT ADAMS ROAD IS URGED

Representative Summers Presents Matter of New Highway Through Reservation to Officials.

Capital City Bureau, The Seattle Times, 905-6 Colorado Building.
WASHINGTON, Saturday, Nov. 23.—Representative John W. Summers has conferred with Secretary Wilbur of the Department of the Interior and Commissioner Rhoads of the Indian Bureau to explain in detail the plans for the proposed Mount Adams road through the Yakima reservation. His purpose was to place before the reservation the road to existing roads, the reservation timber, the principal settlements and the economic factors. No decision was reached. Mr. Summers says, and investigation is being made by the law against misbranding, according to decision of the Department of Agriculture reported to Senator McNary. This reverses a previous ruling.

Holiday Bazaars Planned

ELMA, Saturday, Nov. 23.—Holiday bazaars for November 20 and December 7 have been announced by the women of the First Christian Church and by the Ladies Aid Society of the Methodist Episcopal Church. A dinner for the public will feature the bazaar of November 26.

LYNDEN ALTERS WATER SYSTEM

Extensive Improvements Are Being Made in Preparation for Next Summer's Demand.

Special to The Times.
LYNDEN, Saturday, Nov. 23.—Extensive alterations and improvements in the Lynden Water Department which will be completed by next summer, are now under way, according to E. A. Knittel, water superintendent. In order to save the expense of erecting a new water tank, the capacity of the city's pumps is being increased from 200 gallons to 300 gallons a minute. By raising the capacity of the existing water department will be able to function with one storage tank. The second tank, the tower tank, which is now in a decayed state, will be torn down after the first of the year. All of the homes in Lynden that use city water will be meters by the beginning of the spring season next summer, Mr. Knittel says. The work of installing the meters will be started soon after the first of the year.

Oregon Prune May Grow In Washington

Designation Is Merely Trade Name and Not Violation of Law Against Misbranding, Says New Ruling.

Capital City Bureau, The Seattle Times, 905-6 Colorado Building.
WASHINGTON, Saturday, Nov. 23.—Prunes grown in Clark County, Washington, may be labeled "Oregon prunes" without running afoul of the law against misbranding, according to a decision of the Department of Agriculture reported to Senator McNary. This reverses a previous ruling. Investigation, it is stated, has shown that the Clark County prunes is of the same type known to the trade as "Oregon prunes," and distinguished in that way from the California prunes. The Oregon designation is therefore held to be a commercial name for type rather than locality. While they may be marketed as Oregon prunes, prunes grown in Washington may not be sold under any statement that they were produced in Oregon.

POLITICS BEGINS TO HOLD INTEREST THROUGHOUT STATE

Special to The Times.
RIDGEFIELD, Saturday, Nov. 23.—Oscar D. Thygeson, prominent merchant, was nominated for mayor on the People's party ticket at the annual town caucus held here last night. The only one in the field so far. Other officials named were John W. Giberson and Thomas H. Blackwell, who were nominated as candidates to succeed themselves, as was City Treasurer Jake Zylstra. The new city officials will be elected December 7.

LYNDEN ALTERS WATER SYSTEM

Extensive Improvements Are Being Made in Preparation for Next Summer's Demand.

Special to The Times.
LYNDEN, Saturday, Nov. 23.—Extensive alterations and improvements in the Lynden Water Department which will be completed by next summer, are now under way, according to E. A. Knittel, water superintendent. In order to save the expense of erecting a new water tank, the capacity of the city's pumps is being increased from 200 gallons to 300 gallons a minute. By raising the capacity of the existing water department will be able to function with one storage tank. The second tank, the tower tank, which is now in a decayed state, will be torn down after the first of the year. All of the homes in Lynden that use city water will be meters by the beginning of the spring season next summer, Mr. Knittel says. The work of installing the meters will be started soon after the first of the year.

BELLINGHAM NOW IS 'OIL-MINDED'

Mystery of Well at Street Intersection Is Unsolved; Several Companies Prepare to Drill.

Special to The Times.
BELLINGHAM, Saturday, Nov. 23.—Electricity, less than three weeks ago by the discovery of gas and petroleum in one of its most traveled streets, Bellingham has become "oil-minded." Every day since November 5, when water department employees found a seepage beneath a water main, oil has been the chief topic of conversation in the city and every day many citizens watch digging and pumping operations. Meanwhile, two groups of men have been quietly obtaining oil drilling leases on thousands of acres of Whatcom County lands, and they plan to begin drilling this winter. One group will have nearly 5,000 acres to drill on, and another group on December 1. A week later work is to start on a derrick, according to President Dan Smith of the Washington North Counties Petroleum Corporation, Inc.

Gold Star Mothers Of Kelso Honored

KELSO, Saturday, Nov. 23.—Two gold star mothers, whose sons died in the service during the World War, Mrs. Inez Nash and Mrs. J. M. Gunn, were made life members of the Auxiliary Gray Rathbone Post, American Legion, at its meeting this week. Janet Aregi is the first daughter of a local veteran to join the Auxiliary.

Hearing to Be Held On Closing of School

MONTESSANO, Saturday, Nov. 23.—A hearing will be held in connection with the Chenos Creek school controversy at 9 o'clock Monday morning. Mrs. Lota King Wiley, county superintendent, has announced. The closing of this school by its directors has been the subject of a long-drawn-out battle.

LYNDEN ALTERS WATER SYSTEM

Extensive Improvements Are Being Made in Preparation for Next Summer's Demand.

Special to The Times.
LYNDEN, Saturday, Nov. 23.—Extensive alterations and improvements in the Lynden Water Department which will be completed by next summer, are now under way, according to E. A. Knittel, water superintendent. In order to save the expense of erecting a new water tank, the capacity of the city's pumps is being increased from 200 gallons to 300 gallons a minute. By raising the capacity of the existing water department will be able to function with one storage tank. The second tank, the tower tank, which is now in a decayed state, will be torn down after the first of the year. All of the homes in Lynden that use city water will be meters by the beginning of the spring season next summer, Mr. Knittel says. The work of installing the meters will be started soon after the first of the year.

BLAINE SITE SPAN TO BE MAY BE SET DEDICATED ASIDE SOON IN JANUARY

Area Would Extend Across International Boundary; Flag Day Association Is Sponsoring Movement.

Huge Structure Across Columbia River Is Being Rushed Toward Completion; Ceremony Planned

Special to The Times.
BELLINGHAM, Saturday, Nov. 23.—Plans formulated by the International Flag Day Association for the construction of a bridge and its opening to traffic, has been set for the middle of January, with the exact date yet to be fixed. The event will be participated in by the entire West Coast from San Francisco north to Seattle. San Francisco officials have asked for information, while Seattle, Tacoma, Olympia and Portland are planning participation. Longview committees have announced that Kelso and Rainier will actively take part, and mayors of both towns will be invited. Mayor A. L. Gibbs of Longview in the reception committee. Other committees selected are E. B. Buckwalter, Tacoma; J. H. Pomeroy, Olympia; and Arthur Anderson, publicity.

Carlisle Boy, 6, Killed as He Runs In Front of Auto

Special to The Times.
ABERDEEN, Saturday, Nov. 23.—A fatal injury was suffered by Jean Miller, 6-year-old son of Mr. and Mrs. Arthur Miller, when the youth ran in front of an automobile driven by Casper A. Schneider, Aberdeen, in front of the Miller home. Carlisle late yesterday afternoon.

The child was rushed to the Hoquiam General Hospital in the Carlisle ambulance, dying shortly after reaching the city. Schneider reported to police that just as his car was meeting another automobile, the lad ran into the street and that in dodging the first machine, the boy ran into the path of Schneider's car. Schneider stated that he brought his car to a stop within fifteen feet. The report also was signed by Earl Whalen of Carlisle, who witnessed the accident.

Two Truckloads Of Broken Toys To Be Repaired for Santa

The Seattle Times News Bureau.
HOQUIAM, Saturday, Nov. 23.—Santa Claus will have to make two trips to Hoquiam, Hoquiam, a plea issued by the fire department and service clubs resulted in two truckloads of broken dolls, tricycles and huge piles of all the various little playthings that cause children to shout with glee on Christmas morning.

Mount Vernon Soon Will Have New Street Lights

Special to The Times.
MOUNT VERNON, Saturday, Nov. 23.—After a few weeks of delay the Mount Vernon City Council has ratified the street lighting project on First Street which provides for the installation of a modern ornamental lighting system. Work on the installation of the system will not be started until after the first of the year. The project has been sought by business men for more than two years.

Dairy Company Is Formed at Camas

RIDGEFIELD, Saturday, Nov. 23.—The Camas Dairy Company has filed articles of incorporation with Fred F. Strickling, Clark County auditor. The concern purposes to do a general business, and is incorporated for \$10,000 and will have its headquarters at Camas, southeastern part of the county. The incorporators are H. L. Martin of Camas and A. L. Leithwaite and J. R. Frun of Portland.

HOQUIAM SCHOOL PLANS PLAY

HOQUIAM, Saturday, Nov. 23.—"The Radio Mystery," a three-act play by Dana Rush and John Hagan, will be presented by the junior class of the Hoquiam High School in the school auditorium, December 13.

CARAVAN TO BOOST TOURING IN NORTHWEST IS PLANNED

Special to The Times.
HOQUIAM, Saturday, Nov. 23.—Hoquiam will lend its support to the formation of a Northwest Coast Empire Association, with the object of developing loop travel along the Oregon and Washington Coasts and the Pacific Highway, as proposed by the Astoria Chamber of Commerce recently. The proposed association, which would be modeled somewhat after the Redwood Empire Association, would sponsor a caravan in the spring to establish contacts at tourist centers along the route and direct travel between California and Canada along the coast highways. Part of the association's objectives would be to direct northward travel from the Pacific Highway to Newport, Ore., then north to Astoria, and thence along the coast from Point Tillamook to Raymond and Grays Harbor or via Longview bridge to Olympia. Southward travel from Canada would be diverted from the Pacific Highway at Olympia to Grays Harbor, Raymond, Astoria and Newport.