

NORTHWESTERN ELECTRIC, GREAT LIGHT AND POWER COMPANY, ENTERS PORTLAND.

LESS than a year has passed since the first announcement that the Northwestern Electric Company would enter Portland as an active competitor in the electric light and power field, and of its plans for the development of a great electric power system in Western Oregon and Washington, but already the better part of \$3,000,000 has been spent on the project and the first unit of the contemplated system is almost complete.

The programme for 1913 is even more extensive. Close to \$2,000,000 will be spent in development work in Portland alone. In Vancouver, Wash., at Camas, and in the White Salmon Valley other extensive development will be carried out.

And within the next few years, the Fleischhackers of San Francisco have announced, they and the capitalists interested with them in the Northwestern Electric Company are prepared to spend from \$5,000,000 to \$20,000,000 in the development of Portland and the territory tributary to it.

As late as last April the Northwestern Electric Company was not known to the public. Its first introduction came through its application for a 25-year franchise for the development and distribution of electric light, power and heat in Portland. Since then it has received the franchise, an instrument safeguarding the interests of the public very thoroughly, first by unanimous vote of the City Council, then by overwhelming majority of the people; it has almost completed a huge dam and power plant on the White Salmon River, above Underwood, Wash., to generate 20,000 electrical horsepower, and it is ready to begin active work in Portland at once.

The plant on the White Salmon River is now, by the engineers' estimates, 75 per cent completed. The big concrete dam, a mighty piece of engineering which presented many problems of construction, and the steel and concrete powerhouse below it will be ready for operation by the end of March. For months between 700 and 1000 workmen have been employed on this project.

The White Salmon plant was first located and the plans for its development worked out by B. C. Condit, of San Francisco, acting for the Fleischhackers, and he is now in active control and supervision of the work. The White Salmon River at the point where the dam is being constructed is a narrow gorge and in this gorge the dam proper is placed. Its length at the bottom is only 60 feet, but at the crest it will be 470 feet long. From bedrock to the top of the dam is approximately 125 feet, and it will be 96 feet through at the bottom and 15 feet at the top. It will contain about 30,000 cubic yards of concrete.

From this dam to the powerhouse, about a mile downstream, the water will be carried in a big wood stave pipe, the largest flume of its kind in the world. Its diameter is 13 feet 6 inches. Seven hundred feet from the power plant it splits into two pipes of nine feet diameter, and about 500 feet from the powerhouse these pipes will be changed to steel riveted pipe and carried into the powerhouse and to the turbines, or waterwheels, which operate the two 10,000 horsepower generators.

But large as it is, this plant is only one unit, representing but a fifth of the power ultimately to be developed by the Northwestern Electric Company and used in the industrial upbuilding of the country contiguous to Portland. A few miles further up the Columbia River is the Klickitat, a stream rising like the White Salmon at the base of Mount Adams and flowing through a fertile but undeveloped valley. The second unit of the system will be located on this stream. It will develop 30,000 horsepower, and work on it will start very soon after the completion of the White Salmon plant. The plans are already in the hands of the engineers. The beginning may be made before the end of 1913.

The third contemplated unit, on the Lewis River, a tributary of the Lower Columbia, rising from Mount St. Helens, will be as large as these two combined. It will generate an estimated 50,000 horsepower and is to be in operation in two years. By that time the industrial development of the country about Vancouver, Wash., and along the Lower Columbia is expected to have become so great that nearly the whole of this immense power output will be required for it.

The company also has other power sites on the White Salmon River, making a grand total of more than 100,000 available horsepower.

In 1913, however, the principal activity of the Northwestern Electric Company will center in Portland. Here there is a tremendous amount of work to be done in installing a distributing system and auxiliary steam power plant.

Under the personal supervision of W. E. Coman, the experienced railroad official who takes up his duties as vice-president and general manager of the power company on January 1, the work will go rapidly forward. It will probably be well under way by the end of January.

Already work has started on a \$250,000 auxiliary steam power plant and transformer station on the river front in Lower Albina, directly across from the Columbia docks and very near the Albina Ferry landing. This auxiliary plant is designed entirely for use in emergency. It may never be called on at all, but in case of accident to the White Salmon plant, or the power transmission wires from there, it could be shunted into service almost instantly. It will be modern in every respect, with oil burning furnaces.

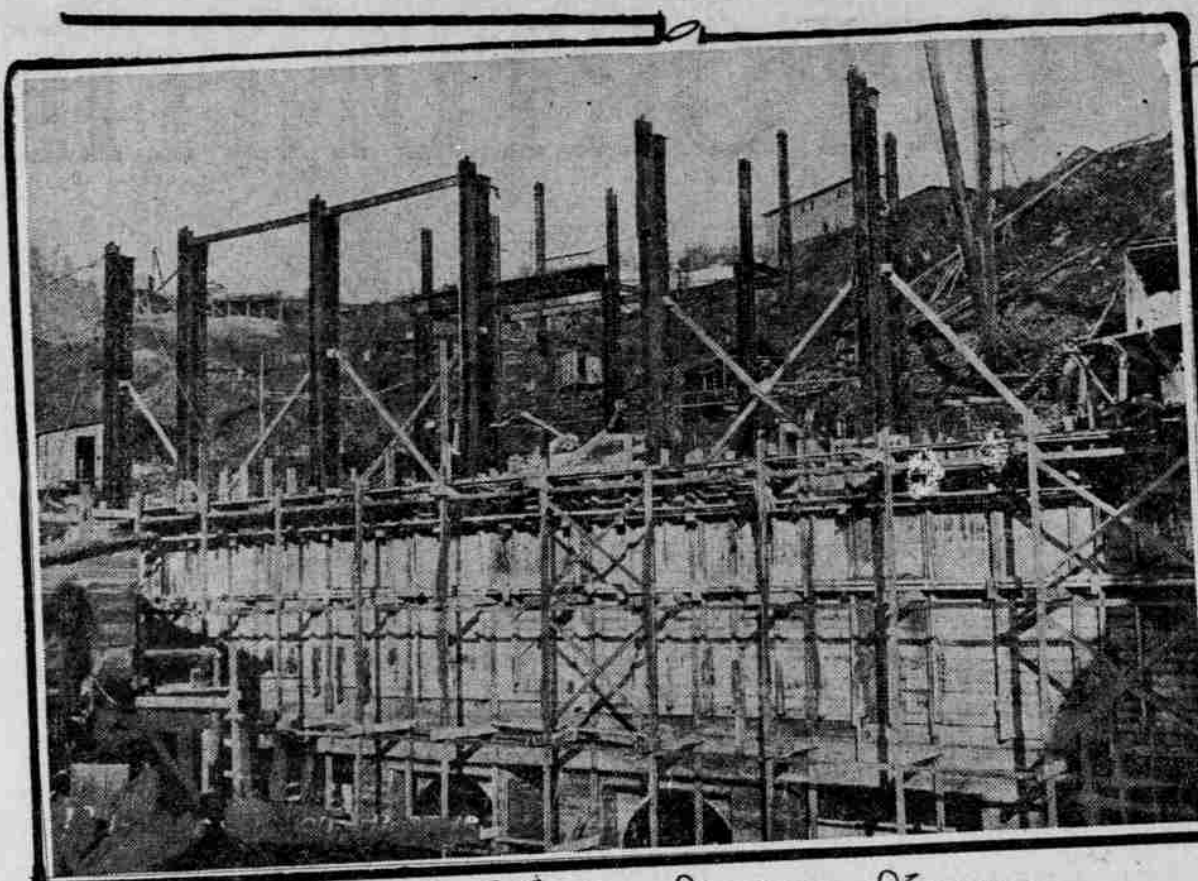
This plant will be planned for 2,500 KW capacity with the necessary boiler capacity for operating it. The first unit of 7500 KW capacity will be installed at once, with the boilers and necessary auxiliaries.

At the transformer station to be built here, the 60,000-volt current brought by the transmission line from the White Salmon will be reduced to 11,000 volts. The East Side distributing station will also be located here.

Cables will be carried under the river from this transformer station to the West Side, where they will run underground to the main distributing station of the Portland system, which is to be built in connection with the new Pittock building at Tenth and Washington streets. Here alternating current at 11,000 volts will be transformed down to direct current of 240 volts for use in the business district. Other cables will be brought across the river and the alternating current taken directly to the residential and outlying districts on the West Side for both power and light.

The East Side distribution will be alternating current and will be handled from the combined steam, transformer and distributing plant near the Columbia dock.

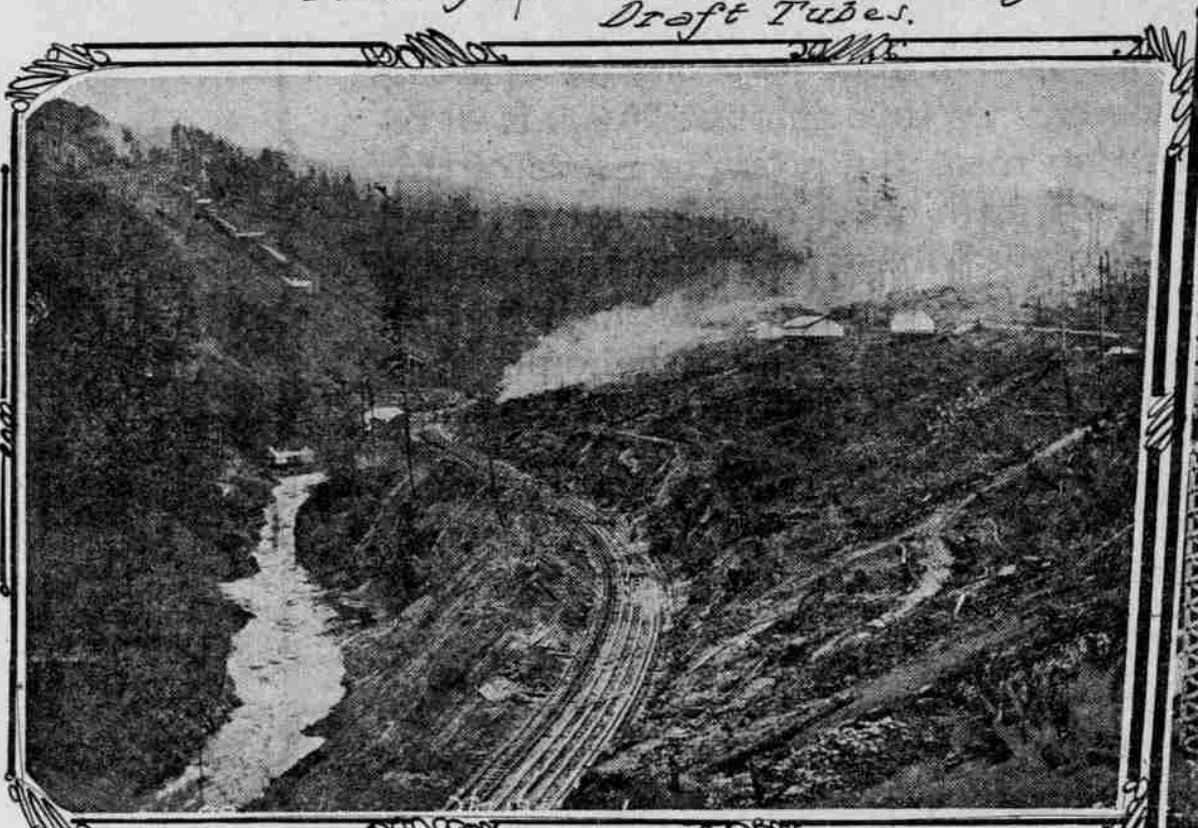
One of the biggest jobs in connection with the distributing system will be the installation of miles of power wires in lead cables in the underground district of the West Side. All the power wires radiating from the distributing station in the Pittock building will run underground. Imagine what it will mean in labor and expense



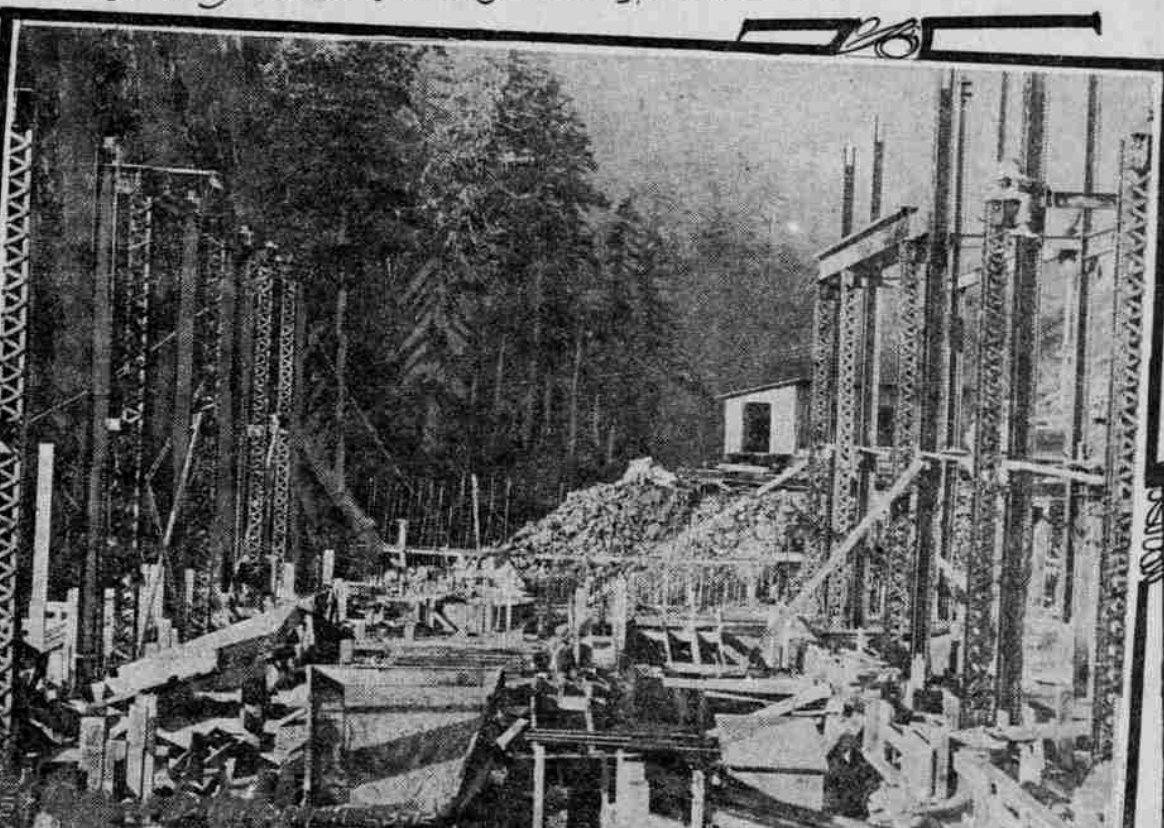
Front of Power Station Showing Draft Tubes.



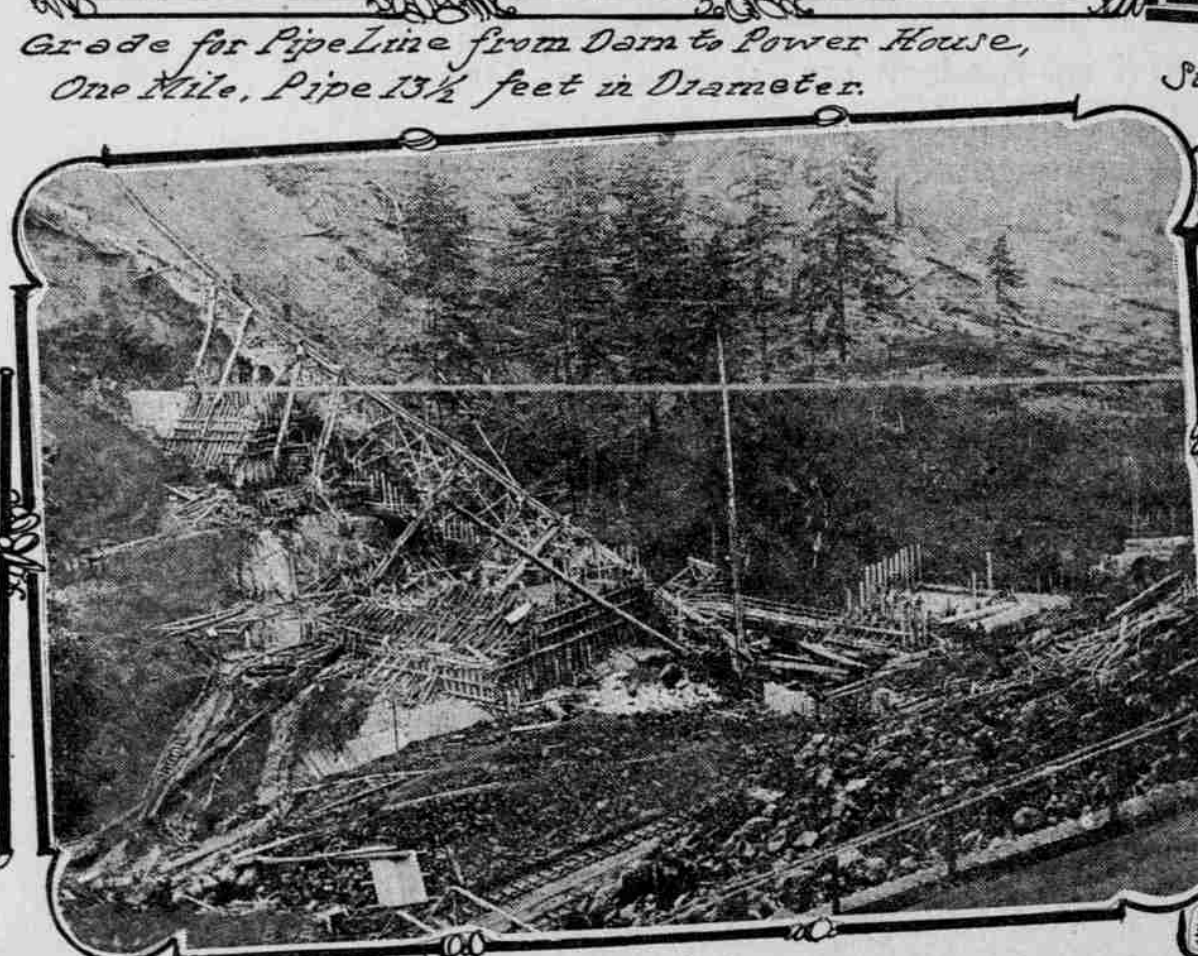
Base of Dam Seen from Up Stream.



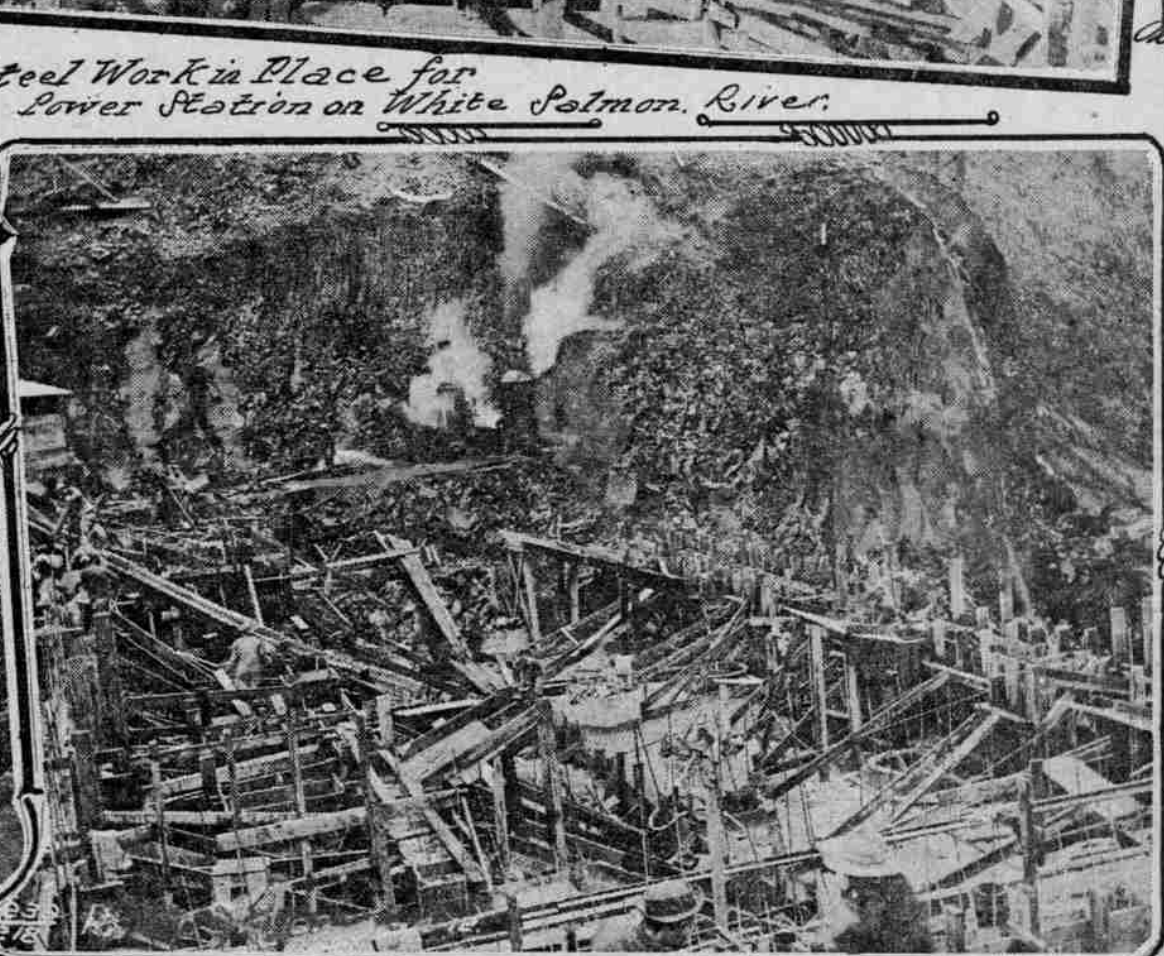
Grade for Pipeline from Dam to Power House, One Mile. Pipe 13½ feet in Diameter.



Steel Work in Place for Power Station on White Salmon River.



Foundation for Dam, 125 feet high, on White Salmon, Line Shows where Crest of Dam will Be.



Power Station Site Below Dam on White Salmon, Site Blasted out of Solid Rock.

to lay between 50 and 100 miles of lead cables, each containing its bundle of current-carrying wires, under the city's pavements to gain a conception of the vastness of the task.

It will be hurried forward with all being filled in the East, and as fast as it is made the cable will be rushed to Portland. It is hoped to have most of the underground work completed in six months.

While this work is going on other gangs of men will be putting in poles and stringing hundreds of miles of overhead wire for the distribution of current outside the underground district. As rapidly as the big job can be finished up, and it will be finished as rapidly as hundreds of men can do it, current can be furnished direct to Portland consumers.

In the meantime the actual building of the pole line on which will be strung the heavy cables bringing power at 65,000 volts pressure from the plant on the White Salmon to Portland, 72 miles, is under way. On its wooden poles this line will parallel the North Bank Railroad down the Washington side of the Columbia River as far as Camas,

Wash., where it will swing across the stream to the Oregon coast, on three huge steel towers that will hold the cable 135 feet above low water. One tower will be erected on concrete foundations on each side of the stream while a third will be built on Lady Island, in midstream.

A branch of the cable line may be brought down the Washington side to Vancouver, where the Northwestern Electric Company is now asking a franchise for electric light and power and a franchise to operate a street railway.

The power cable itself will be of stout and unique construction. Instead of the familiar copper, it will be of aluminum strands woven around a steel center. The purpose of this construction is to make the cable unusually strong and able to withstand high winds and climatic conditions, with special reference to "saw-thaw."

The cost of this power line alone will be close to \$250,000. Within the next 30 days excavation will begin for the big Pittock building, on the Pittock block, at Tenth and Washington streets. San Francisco architects are now hurrying forward

the plans. This huge structure will cover the entire block. For the present put up by the Northwestern Electric Company itself, it is financed by the Fleischhackers, of San Francisco, and foundations will be laid for a 12-story building.

PORTLAND LIVESTOCK CENTER.

Receipts of livestock at the Portland Union Stockyards amount to between 5500 and 6000 carloads annually. The great volume of this business has grown up within the past three years, since the centering of the livestock industry on the peninsula formed by the Willamette and Columbia rivers, and the entrance to the Portland field of the Swift packing interests. The 1912 receipts fell slightly below the 1911 receipts, due to the abnormally high prices prevailing in 1911, which drew considerable stock from the Middle West. The total receipts of hogs increased by 33,744 the past year, and a large part of this increase came from Oregon, showing that farmers in this state are awakening more and more to the advantages of engaging in the livestock industry. The receipts of the Portland Union Stockyards for the last few years follow:

	1909.	1910.	1911.	1912.
Cattle.....	20,556	89,723	88,139	77,328
Calves.....	2,418	9,297	6,518	2,847
Hogs.....	82,323	82,323	85,273	119,017
Sheep.....	32,092	167,413	301,052	256,028
Horses and mules.....	536	1,741	2,255	2,558
Carloads.....	1,417	5,498	5,844	5,877

some of their associates in the Northwestern company are interested with them. Much of the building will be reserved for general offices and the main distributing station of the company. The completed building will cost about \$1,000,000.

Herbert and Mortimer Fleischhacker, of San Francisco, the principal backers of the Northwestern Electric Company, are among the best-known financiers on the Pacific Coast. Herbert Fleischhacker is president of the Anglo & London-Paris National Bank and Mortimer Fleischhacker is head of the Anglo & California Trust Company. They have been heavily interested in the electric power business in California for years and control the Western Electric Company, the principal competitor of the so-called "power trust" of California, and one of the biggest companies in the West. This company now has under development on the Feather River, in Northern California, an electrical project that will ultimately give 500,000 horsepower.

"The Northwestern Electric Company is the biggest development enterprise to come to Portland in 15 years," said Colonel C. E. S. Wood at a recent Ad

Club luncheon, at which he told of the plans of the Fleischhackers and their associates for building up Portland and its surrounding country.

And his statement is borne out by the plans announced and the construction already blocked out and under way, which make this big concern a huge factor in the industrial upbuilding of this section of the Northwest for many years to come. The coming of the Northwestern Electric Company may be said to mark a new era of development for Portland.

The working out of the plans of this Titanic enterprise will give Portland itself a vast augmented supply of current for city lighting, as well as make available abundant electrical energy for delivery to the innumerable manufacturing concerns, large and small, for which this form of power is most economical and efficient.

The construction of hydro-electric plants, transmission lines, conduits, stations and other works means the expenditure in Portland and Portland's immediate territory of great sums of money in the employment of labor and the purchase of materials, this year and for years to come.