

DEVELOPMENT BY WATER POWER IS GROWING RAPIDLY

Millions Being Spent on Coast on New Projects; Oak Grove Unit Among State Enterprises

By Philip H. Dater
District Engineer, United States Forest Service

Water power development in the United States is progressing rapidly, particularly in California where several large projects are under way. Other large developments are under construction in Washington and Oregon.

Expenditures for new projects on the Pacific coast alone aggregate many millions of dollars. It is currently reported that one California company is spending a million a month. The largest local project is the Oak Grove unit of the Portland Railway, Light & Power company on the Clackamas river about 19 miles above the company's Cascade plant. The California-Oregon Power company during 1922 built a 142-mile transmission line from Prospect, on the Rogue river, to Springfield, and completed its hydro-electric plant on the Klamath river at Copco, California. This plant of 37,200 horse power serves Southern Oregon and Northern California.

46 PER CENT IN U. S.

Forty per cent of the developed water power of the world is in the United States. A recent estimate gives the total as \$248,000 horse power. Statistics by the United States geological survey in 1921 show that there are in the United States 3120 water power plants of 100 horse power or more capacity, with installed water wheels of 7,326,958 horse power. Seventy-eight per cent of this total is in public utility plants and 22 per cent in manufacturing plants. New York state leads with 1,211,857 horse power; California is a close second with 1,149,093; Washington is third with 454,356; Maine fourth with 449,614; Montana fifth with 344,490; Idaho thirteenth with 274,858 and Oregon fifteenth with 185,315 h. p. These state totals compare favorably with the totals for some of the most progressive foreign countries. France has 1,400,000 horse power; Norway 1,350,000; Sweden 1,200,000 and Switzerland 1,070,000.

The New England states have the largest percentage of development, where the installed capacity of 1,310,000 horse power is about midway between the estimated potential power at low water flow and that using storage. The three Pacific coast states have an installation of 1,500,000 horse power and a potential power varying from 11,500,000 horse power at low flow to 23,000,000 using storage. Oregon, with an installation of 185,000 horse power has estimated potential power varying from 4,832,000 horse power at low flow to 8,447,000 using storage.

ONE QUARTER IN OREGON

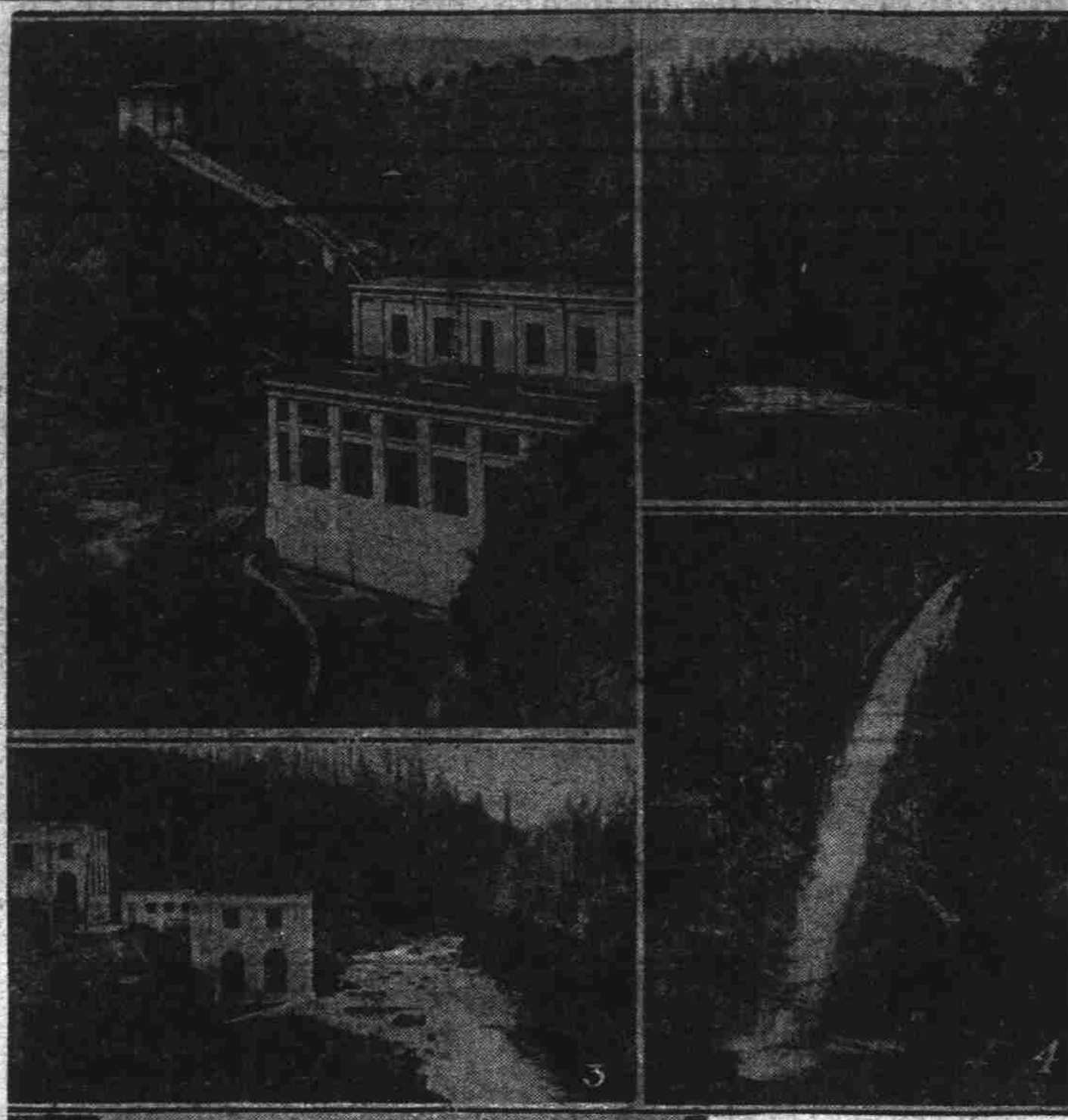
For the entire United States the water power developed averages 475 per capita. For California and Washington the average is one-third; for Oregon one-quarter. With the completion of the Oregon state, there are in Clackamas river Oregon's average will approximate that of its neighbors. The New England states, an industrial section, have a water power potential in excess of the minimum potential. However, the installation per capita is only .16 horse power, or two-thirds the Oregon rate, and that of the Pacific coast country is already relatively better developed than the older industrial centers. To justify further development in Oregon there must be an increase of population. Oregon has three-quarters of one per cent of the population of the United States, two and one-third per cent of the developed water power and 17 per cent of the possibilities. To build large water power plants requires the investment of many millions of dollars. Until market is available, invested capital can not afford to carry large interest charges. Shown a market, power investment and development will follow speedily.

Contrary to the published statements of many enthusiasts "white coal" is not "free." It has been quite the custom among non-technical writers to consider water power as a product costing about the same as the air we breathe. As a matter of fact water power is not always the most economical power even in regions where water resources are abundant. Steam power is sometimes actually cheaper. There should be a mental blue-sky law covering non-technical discussion of water power matters. Probably some writers are confusing cost with use of natural resources. A pound of water used for power is not consumed and lost as is the case with a pound of coal or of oil. In the economic use of natural resources water power has nearly every argument in its favor; nevertheless, the hard fact remains that water power costs.

Eighty-five per cent of the water power sites in the United States are under the jurisdiction of the federal power commission. This commission, consisting of the secretary of war, interior and agriculture, was created in June, 1920. It has jurisdiction over sites affecting navigable streams, international boundaries and government lands. The commission grants licenses for a term period, which period by law cannot be greater than 50 years. Licenses under the commission pay certain rental charges to cover administration costs and use of government lands. Since its creation the commission has received applications for licenses for projects totaling over 20,000,000 horse power. Use of the water itself is a state right and water appropriations must be made under state laws and subject to state regulation.

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WATERPOWER IN THE OREGON COUNTRY



(1) Northwestern Electric plant on White Salmon river; (2) Scene of F. R. L. & P. new power development on the upper Clackamas river; (3) F. R. L. & P. plant on Bull Run river; (4) An Oregon waterfall that suggests power possibilities; (5) F. R. L. & P. construction camp on upper Clackamas.

State Colleges Thrive Campaigns Successful

A campaign for \$1,250,000 to promote the work of Willamette university, the dean of institutions of higher learning in the Oregon country, was successfully conducted late in the year. Each year since 1915 the enrollment at Willamette university has been increased between 15 and 18 per cent, resulting during 1922 in over 568 students registering. Lausanne hall has been finished entirely throughout and 110 women students are resident.

Linfield college, formerly McMinnville college, was opened by the Baptists in McMinnville in September, 1897, and was chartered by the state January 30, 1898.

During the last year the college received the gift of Mrs. F. E. R. Linfield of property amounting to a quarter million dollars, and the name of the school was changed to Linfield college January 10.

The long standing debt has been paid in full and all of the expenses of the administration have been fully and promptly met. A new gymnasium with a full time physical instructor has been added. A concrete tennis court was built. The attendance has been much larger than before, the present enrollment being 269, 225 of whom are college students.

UNIVERSITY REORGANIZED

During the last year the administration of Pacific university at Forest Grove has been reorganized under the leadership of President William Clarence Weir, formerly connected with the Washington State Normal school at Bellingham. The campaign for providing this pioneer institution with a substantial endowment and efficient equipment has been reopened under President Weir's direction. It is planned that a new science building and a structure to house the conservatory of music will be erected on the beautiful Pacific university campus at Forest Grove within the next few months.

PACIFIC COLLEGE ADVANCES

During the last year Pacific college at Newberg has made great advance scholastically than in any other year of its history. This has been made possible by the successful completion

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MILLION PERSONS VISIT NORTHWEST FORESTS IN YEAR

Of This Number 457,706 Enjoyed 12 National Reservations of Oregon.

During the past summer over 1,000,000 persons visited the 22 national forests of Oregon and Washington. Of this number 457,706 were visitors to the 12 national forests of Oregon and 573,246 to the eight national forests of Washington.

Between 5,000,000 and 7,000,000 persons visit the national forests of the entire United States each year, said Chief Forester William B. Greeley, in the annual report of the forest service, United States department of agriculture, recently.

AUTOS CHANGE THINGS

Motor and good roads, the statement continues, have combined to effect a radical change in the outdoor recreation habits of the American people. Vacation time is now a period of free movement, nomadic enjoyment of widely separated scenes, and of simple living in the open.

Rich in scenic beauty and natural charm and offering the primitive attractions of the wilderness, the national forests afford an incomparable field for the indulgence of this wholesome tendency toward rational play and physical improvement. Nowhere is this truer than in the Pacific Northwest, whose scenic resources are just beginning to be appreciated.

Such an array of sublime peaks as Hood, Jefferson, Three Sisters and Pit in the Adams, St. Helens, Rainier and Baker in Washington, are to be found nowhere else in the United States.

Within the boundaries of the national forests travelers, by motor, by wagon, on horseback, or on foot, campers, hunters and fishermen, amateur photographers, mountaineers, berry pickers, naturalists and every body else who wishes to come have equal opportunity.

Care with fire and in camp cleanliness are the only requirements imposed upon their sojourn.

CENTER OF RECREATION

The wide distribution and extent of the national forests and their proximity to thousands of cities and communities make them natural centers of summer recreation, particularly for the masses of people whose vacation must be inexpensive.

The encouragement of recreational use of the forests would therefore be a distinct hardship, and failure to develop recreational possibilities would mean withholding a form of public service which ranks in social and indeed economic importance with the timber, forage and waterpower values of these properties.

Counties such as Gill county, Ariz., and Fresno and Mariposa counties, California, and cities such as Denver, Salt Lake City, Los Angeles and Butte now have programs of county or municipal development which provide for maintaining county or municipal camp grounds within the national forests.

While not a county camp ground, Portland and Multnomah county have the Eagle creek forest camp, in the maintenance and improvement of which the Multnomah county commissioners have shown the keenest practical interest and cooperation.

This growing use means for the national forests new opportunities of service of immeasurable public value.

SKYLINE TRAIL INVITES YOU TO ENJOY NATURE

Hunting, Swimming, Hiking and Matchless Scenery Are Features Offered by Route.

By George E. Griffith
District Forest Supervisor

Actual construction work on the Oregon Skyline trail during the past field season included the further opening up of sections of the main trail, and the building of lateral roads to make the trail more easily accessible. The federal forest service spent a total of \$31,500 on such work this year. Meanwhile, the Oregon Skyline trail offers a rare opportunity to those hardy individuals who like to take their recreation "in the squish," and who deplore the advent of the commercial hotel and the auto tourist into the few remaining spots of virgin natural beauty.

GAME ABUNDANT

Such travelers will find trails good for the most part, well pointed with signs and plenty of camping places by lakes and streams, or in mountain meadows. Excellent fishing abounds, most of the lakes being well stocked with trout. During the open season good hunting may be had, either by those whose tastes run to the rifle or to the camera.

Dear are common within short distances of the trail. During the late summer months the huckleberry patches are frequented by black and brown bear. Cougar, lynx and bobcat are not plentiful, but are occasionally seen. Game birds, especially grouse and pheasants, have been scarce, but are gradually increasing. Hunting and fishing licenses are, of course, required.

SWIMMING GOOD, TOO

Excellent swimming may be enjoyed in most of the 250 lakes, although a few are too cold to appeal to the average traveler. Mountain climbing offers a challenge to those of Alpine tastes, ranging from some of the more easily scaled snow peaks, to Three Fingered Jack, which it is said, bears the distinction of never having been climbed.

An occasional forest ranger will be met, and a visit to the fire lookout on his mountain peak, with his scientific instruments and his far flung vista of mountain and valley will add interest and variety. Or the silence may be broken by a crew of expert fire fighters, building trail, but ready for instant defense against the ever threatening enemy of the forests—fire.

So a month or more passes pleasantly, as the training trails the skyline ridge south from government camp on the Mount Hood loop road, past Olla Olla lakes, Mount Jefferson park, Marion lake, Three Fingered Jack and across the McKenzie highway. Again southward, past the Three Sisters, Elk lake, Lava lake, Cultus lake, and along the

1922 Forest Fires Do Heavy Damage

Forest fires in Oregon and Washington during the season of 1922 burned over 62,240 acres of national forest land and destroyed \$98,642.72 worth of forest resources, according to reports compiled in the local office of the district forester. In all 1223 fires were reported; 64.5 per cent of these were man-caused and should have been prevented, forest officers state.

Timber Sales Total 316,714,000 Feet

Timber sales from the national forests of the Pacific Northwest district, embracing the states of Oregon and Washington, amounted to a total of 316,714,000 feet board measure for all species, valued at \$47,765.99, for the past fiscal year, according to the forest service, U. S. department of agriculture.

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