

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 15 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

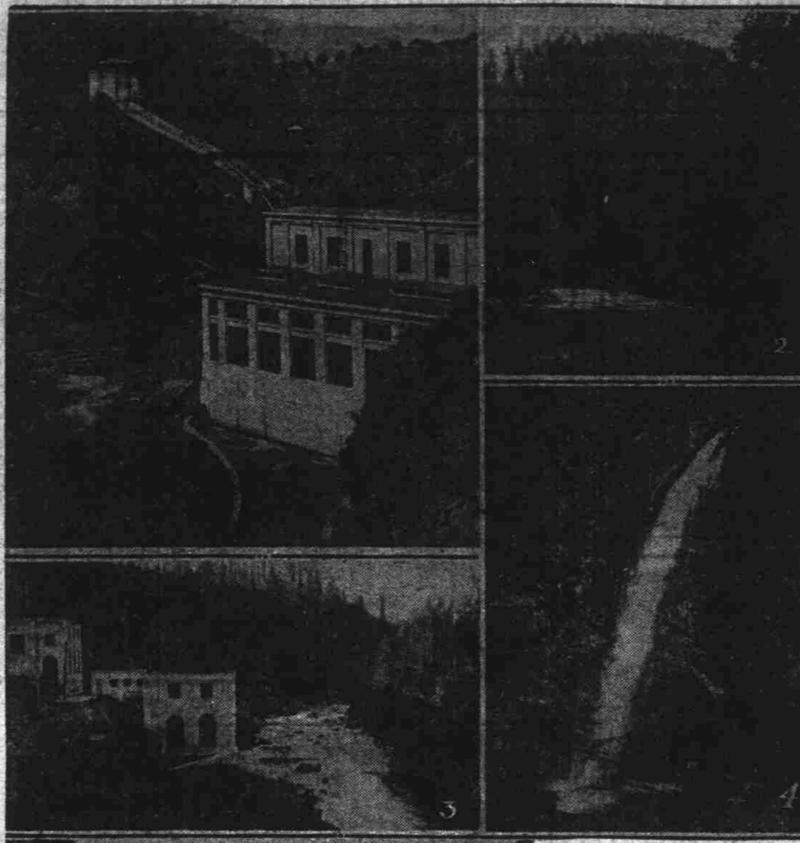
For the entire United States the water power developed averages 475 per capita. For California and Washington the average is one-third; for Oregon one-quarter. With the completion of the Oregon state, there are in Clackamas river Oregon's average will approximate that of its neighbors. The New England states, an industrial section, have a water power per capita in excess of the minimum potential. However, the installation per capita is only .16 horse power, or two-thirds the Oregon rate, that of Washington and one-sixth that of Montana. The situation in New York is almost identical with that in New England. The records show that 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.

LINFIELD COLLEGE
Founded in 1857
Declared Standard by the U. S. Bureau of Education
Second Semester Begins MONDAY, January 29, 1923
For information Write to President Leonard W. Riley, McMinnville, Oregon

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.

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

in the summer of 1921 of a campaign for \$150,000 of additional funds.

The college student enrollment is the largest in its history, with a prospect of a still larger increase at the beginning of the new year.

Improvement in the Albany college courses during the year of 1922 has been confined mostly to the music department which at present ranks along with the best in the state. In May a state wide drive for \$300,000, which would raise the endowment of the college to half a million, was started. The quota for Linn county, \$50,000, was raised the first few days, but on account of the delay in electing a new president the outside campaign has been postponed.

IDaho ADVANCES RAPIDLY

During the last two years, but particularly the year just closing, the University of Idaho has enjoyed healthy growth and now the institution finds itself sorely lacking in equipment and facilities to accommodate properly the yearly increases in registration. Four years ago the college enrollment averaged around 900, and the laboratory and classroom equipment was comparable. Three years ago the enrollment jumped to 983, the following year to 1150, and this fall the registration, exclusive of all extra courses, stands at 1274. With few exceptions the classroom space has not been enlarged, but noticeable increase has been made in the teaching personnel since that time. One new men's dormitory was completed this summer and a women's dormitory is now being constructed.

With an increased enrollment of 10 per cent over last year and all arrangements made for the first works on a building program, Whitman college at Walla Walla is completing its most successful year. A new men's dormitory and a central heating plant, to be completed by September 1, 1923, are the first structures on the building program for a greater Whitman.

A bond issue of \$150,000, providing the money for these buildings, is now being sold. The Whitman building corporation has received its charter from the state of Washington and is making preparations for the commencement of construction work soon.

Wishing the Readers of The Journal
A Happy New Year

DR. E. T. HEDLUND
DENTIST

456-459 Morgan Bldg.

EVENINGS BY APPOINTMENT ONLY
PHONE AT WATER 0004

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

Motors 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 Oregon, 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.

Deer 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.

University of Oregon

- The College of Literature, Science and the Arts
- The Graduate School
- The School of Journalism
- The School of Architecture and Allied Arts
- The School of Law
- The School of Business Administration
- The School of Physical Education
- The School of Education
- The School of Sociology
- The Extension Division

Four terms each year, with strong summer courses at Eugene and Portland

A high standard of cultural and professional scholarship has become one of the outstanding marks of the State University. For a catalogue, folders on the various schools, or for any information, write

THE REGISTRAR
UNIVERSITY OF OREGON, EUGENE, OREGON

Be Guided by This Sign when you MUST be sure of the quality

Rosarian Chocolates
Princess Chocolates
Antarctic Chocolates
Fruits and Nuts
Rosarian Chocolates

Russell & Gilbert Co.
Makers of Rosarian Candies Portland, Oregon

TELEPHONE BROADWAY 5992

That Reminds Me—
JOLLY-RATELLE print everything except postage stamps and money

JOLLY-RATELLE PRINTERS
269 WASHINGTON STREET
PORTLAND - OREGON

east shore of beautiful Waldo lake. Thence along the west shore of Odell and Crescent lake to connect with the old military road to Eugene. And so on south past other lakes and snow-capped mountains until Crater lake is reached, approximately 280 miles from government camp, and the terminus of a summer's vacation of unsurpassed scenic beauty.

LOANS
MONEY TO LOAN and LOANS WANTED

If you desire to borrow money or to loan money, see us. We have splendid applications both ways.

Oregon Investment & Mortgage Co.
210 Exchange Bldg., Second and Stark
Phone Broadway 4705

Underhill Shirt Co.
409-410 Central Bldg. Portland, Oregon
SHIRTS TO ORDER

To Serve
As a Legitimate Medium in Bringing Buyers and Sellers of Successful Businesses Together Is the Service Offered When

INVESTMENTS
SELL STORES
BUSINESS OPPORTUNITIES

Business Property Leases
Phone or Mail Us Your Listings
610 Henry Building Broadway 2872

"Cheer them—hear them"

Send your holiday greetings by long-distance telephone

Service to all points in the United States

AMERICAN TELEPHONE & TELEGRAPH CO.
THE PACIFIC TELEPHONE AND TELEGRAPH CO.

BELL SYSTEM