

OBJECTION IS FOUND TO PROPOSED POWER PLANT FOR THE CITY

Engineer Bowlby Renders Report for Journal on Practicality of the Scheme.

LACK RESERVOIR TESTS

Chief Criticism to Bull Run River Project Is That Maximum Capacity Would Result From Start.

Major H. L. Bowlby, well known consulting engineer, who was commissioned by The Journal to make an investigation into the merits and possibilities of the proposed municipal power plant, based on the hydro-electric development of the Bull Run river watershed, completed his work last week.

His report, as tendered to The Journal, is given herewith in summary form.

The conclusion of an earlier preliminary report, made for The Journal some time ago, was affirmed in this complete and thorough investigation.

Main Objection Stated. In brief, Major Bowlby concludes that the primary objection to the project lies in the fact that the maximum capacity (5000 horsepower) would be developed at the start, leaving no room for future development to increase capacity.

Other objections lie in lack of definite knowledge without extensive tests whether Bull Run lake would prove adaptable for reservoir purposes, and in the outlay necessary to install a system of distribution so as to supply 5000 arc lights scattered throughout the city.

Major Bowlby made his investigations in collaboration with J. L. Stannard, who prepared a report for the city, and George L. Mason, who carried on an investigation for the Portland Realty board.

Major Bowlby's report to The Journal follows:

Report is Submitted. I have completed my investigation of the proposed municipal electric light and power plant, known as the "Bull Run Lake Power Project."

In making this investigation, I have had the assistance of J. L. Stannard, consulting hydraulic and electric engineer, and of George C. Mason, a consulting civil engineer of this city.

Cost is Estimated. A power house complete with all necessary machinery and equipment, generating 5000 H. P., was designed and a transmission line to bring the power to the city limits of Portland.

Cheapest Layout Taken. This district was chosen because it afforded the cheapest layout for disposing of the surplus electricity left after serving the 5000 arc lights and delivering 750,000 K. W. hours for the various municipal services.

Leak Question Settled. The question of being able to seal the leaks in the bed of the lake could not be investigated on account of the ice and snow. Indeed, the feasibility of the whole project rests upon the possibility of controlling the outflow of the water from the lake through these subterranean outlets.

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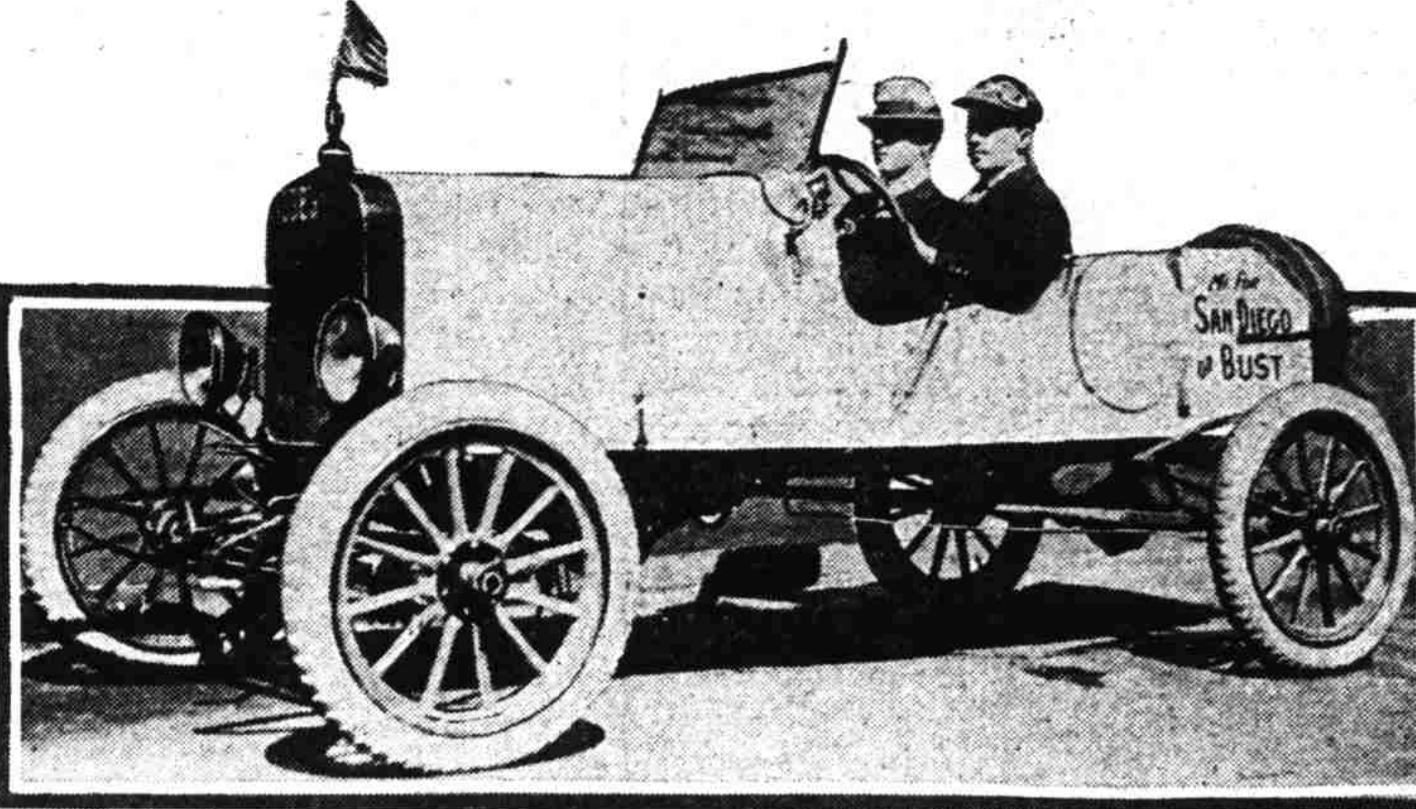
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AERONAUTIC STUDENTS TAKE DEPARTURE



Left to right—Charles W. Garland and Oscar Hall, who will motor to San Diego to begin course in aviation.

Charles W. Garland and Oscar Hall started for San Diego Saturday morning in a little made-over flier, and intend to arrive at their destination in six days. They are ordered to report at the U. S. aeronautics training school for a course of instruction in "birding."

city commission is a correct and conservative one. I have given only the summaries of costs in the various units. These are carried out in minute detail in Mr. Stannard's report to the city commissioners.

Summary—Generating, Transmission and Distribution Costs.

Impounding dam at Bull Run lake, \$ 100,000
Dwellings, intake, employees, 38,991
66-inch wood penstock from diversion to reservoir, 403,734
Right of way, 1,452
Reservoir and forebay, 99,715
Inclined tramway, 8,414
Construction plant at power house site, 9,917
Telephone line power house to diversion dam and to Bull Run lake, 10,056
Penstocks, anchors, by-pass connections, 171,054
Power house, crane, employees' dwellings, 64,270
Machinery and equipment for power house, 210,390
Transmission line and telephone, 30,863
Wagon road to power house, 32,538

Sub-total generating system and transmission, complete, \$1,327,159

Sub-Station Buildings and Equipments.
Main sub-station, \$ 122,325
Brooklyn sub-station, 69,052
North Portland sub-station, 36,298
South Portland sub-station, 49,241
Albina sub-station, 45,941
Columbia park sub-station, 23,953

Total cost of substations with equipments, \$ 338,740

Distribution System.
22,148 poles, \$ 252,801
981,254 pounds copper, 252,801
Guy cables, 11,711
Iron and oak steel, 15,555
Anchors and accessories, 34,434
Transformers and accessories, 87,447

Total cost: Poles, wire, guys, X-arms, anchors and transformers, \$ 984,558
Arc lights and fixtures, 291,841
Meters and services, 112,291
Instrumental wires, cable and lamp conduits for underground arcs, 163,949
Submarine cable and accessories, 81,697

Subtotal: Distribution system except substations and municipal services, \$1,091,723

Poles, wire, meters and transformers, \$ 92,000

Sub-total: Distributing system complete (substations and distribution lines), \$1,222,443

Grand total entire system, \$3,449,622

Horsepower is Figured. Major Bowlby's calculations of power that will be available show that 6380 horsepower will be found at the wheels, and allowing for loss in transmission, 5000 horsepower at switchboard in powerhouse, which is equivalent to 4500 kilowatts, or 3750 kilowatts at the end of transmission line in main sub-station, Portland.

He estimates that the 5000 arc lamps proposed will require 6,072,250 kilowatt hours at the lamps. Using a demand of 300 watts per lamp he finds that 5000 lamps will have a demand of 1500 kilowatts at the lamps.

Eighty per cent efficiency is necessary for distribution, which means that a gross of 1875 kilowatts will be necessary at the switchboard.

The city requires 750,000 kilowatt hours for its services, which, taken at a 30 per cent load factor, means that 285 kilowatts will be needed at the delivery point, or 336 kilowatts at a per cent efficiency basis at the sub-station.

Arc lights and incandescents together represent 1875 plus 355, or a total of 2230 kilowatts at the sub-station.

With the power available at the sub-station as 3750 kilowatts, this amount of 2230 kilowatts needed, will leave 1520 kilowatts left at sub-station to apply on the commercial load.

Both are on the lists of the officers' reserve corps, aviation division, of the U. S. army.

The training school is at North Island, near San Diego, and will accommodate several hundred men at a time. Three months is the shortest period given, but Mr. Garland has already received part of his course.

\$0 per cent of which would be available at the customers' premises, or 1215 kilowatts.

This figure carried out gives 1,666,000 kilowatt hours for delivery at customers' premises.

Major Bowlby's next figures have to do with expenses and revenue.

Maintenance and operation, \$ 141,546
Depreciation, 118,134
Interest on \$2,442,000 at 5%, 172,461
Sinking fund yearly installment on 20-year bonds, 104,000

Total expenses for one year, \$ 536,141

Revenue from 5000 arc lamps requiring 6,072,250 KWH at .0415 per KWH (present rate paid by city for electric light), \$ 252,206

750,000 KWH for municipal service at .02 (present rate), 15,000

Balance to be raised by selling 1215 KWH for residence lighting, \$ 267,506

1215x750,000 equals 1,000,000 KWH at .03, \$ 31,890

Balance to be raised by taxation, \$ 235,976

Are Lights Cost Considered. If the 5000 arc lamps should bear the entire expense of operating the municipal plant after deducting the revenue from the municipal services (\$15,000) and the revenue from the 1215 K. W. sold to residence consumers at 2 cents (\$21,890), each light will cost the City of Portland \$487,781 divided by 5000, or \$97.55 per arc per year.

An overhead arc light in Portland now costs the city \$51 per year. It uses 3100 watts of electricity; burns on the average 4050 hours per year and thus consumes 1215 K. W. hours per arc light per year. Fifty-one dollars divided by 1215 equals .042. That is, the City of Portland is now paying 4 1/2 cents per K. W. H. for its street lighting by arc lamps. This price includes everything; there is no additional charge for maintenance or upkeep.

Seattle Record Cited. In Seattle for the year 1916, the city paid the municipal lighting department 4 1/2 cents per K. W. H. for street lighting; the current measured at the substation with an 80 per cent efficiency in the distribution system, it is 1 1/2 cents divided by equals 3 cents. That is, the City of Seattle paid 5 1/2 cents per K. W. H. (measured at the lamps) in 1916, as compared with 4 1/2 cents paid by the City of Portland.

An investigation of the value of the distribution system of the Portland Railway, Light & Power company from data taken from the files of the public service commission shows that it would cost the city approximately \$1,600,000 to acquire the present distributing system for street lighting and the municipal services and to add sufficient equipment to carry the additional arc lights that have been planned for.

Cost of Operating a City Distribution System.
Cost of distributing system, \$ 118,281
Interest on \$1,000,000 at 5%, 50,000
Sinking fund 20-year bonds, \$ 25,000
Depreciation, 80,358

Total cost of operating distribution system, \$ 373,639

750,000 KWH at .02, 15,000

5000 arc lights, \$ 317,900

\$717,900 divided by 5000 equals \$143.58

If the city could purchase electricity by contract for street lighting at 2 cents per K. W. H., each arc light would cost per year for the current, 1215 K. W. H. at .02, \$2,430, and the cost per arc for operation, etc., \$63.50.

Total cost to city, per arc, \$87.97.

Manner of Distribution. Another angle from which the proposed municipal plant may be viewed is to distribute the annual expenses of operating the entire system among the three divisions: Street lighting, municipal services and residence lighting and then compare the resulting rates with those now paid.

KWH Per Annual Proposed
Rep'd Cent Expenses Services.
Street, 1875 50 287,380.50 5,000 arcs
Municipal, 355 9.5 50,802.25 750,000KWH
Lighting, 1520 46.5 216,578.25 1,000,000KWH
Total, 3750 100.0 \$554,761.00

The above distribution results in the following rates: Street lighting per arc per year, \$52.48; current for municipal services 5.77 cents per K. W. H.; and residence lighting, 20.31 cents per K. W. H. The present rates received by the Portland Railway, Light & Power are: Street lighting, \$51.51 per arc (average); municipal services, 2 cents per K. W. H.; and residence lighting, 7.2 cents per K. W. H. (average for all residence consumers).

As pointed out in my preliminary report, one of the primary objections to this project is the fact that it would develop its maximum capacity (5000 H. P.) at the start and could not have a future development to increase its capacity and thereby reduce the high cost per kilowatt.

Respectfully submitted,
H. L. BOWLBY.

LIVESTOCK IN NEED OF FOOD; FORESTERS TO GIVE ASSISTANCE

Ranges Will Be Thrown Open Earlier Than Usual, This Year, to Meet Demands.

REPORTS DISCOURAGING

Most of Cattle in Oregon and Washington Have Come Through Winter in Rather Poor Shape.

Unfavorable reports have been received by District Forester George H. Cecil of the Portland forest office concerning stock conditions in the national forest regions in Oregon. The unusually long feeding season is held accountable, hay being entirely used up in some sections.

In the Deschutes country, near the Fremont national forest, the upper John Day country, and in Baker county, Oregon, will occur the severest losses on account of late season and hay shortage. Most range cattle in Oregon and Washington have come through the winter in rather poor condition.

To Open Ranges Early. To meet the emergency the supervisors of the national forests in Oregon and Washington have been authorized to open them earlier than the usual date, whenever it can be done without injuring the early grasses, so that livestock, short of feed, may be provided for.

Forest service reports show that severe weather conditions are causing heavy losses of cattle and sheep in the northern Rocky mountain region. Because of unusually deep snow, continued storms and the late spring, the supply of feed in most of the region has been practically exhausted. Hay is now selling at \$20 to \$40 a ton and it is almost impossible to get even at these prices.

Fear Sheep Loss Heavy. The loss of sheep in Wyoming, Montana, Idaho, Utah and Nevada will, it is feared, be unusually heavy. Well posted stockmen estimate that it may reach 20 per cent. It is stated that the sheep are generally in poor condition and many of the bands which came through the winter without losses are now beginning to suffer. A light lamb and wool crop is anticipated for the whole Rocky mountain region.

All indications are that the cattlemen have been equally hard hit. In parts of Idaho, Montana and Wyoming unusually severe losses are in prospect. No reliable figures are obtainable from northern Nevada and Utah, but all reports agree that the number of livestock will be greatly reduced in those sections also.

The fact that supplies of grain and hay have been almost exhausted and the spring ranges are generally covered

With 14 members of the fire bureau already enlisted in the Oregon National Guard and the Oregon Naval Militia and other city employees making plans to enter the federal service, it is probable that before many days have passed more than 100 of the city's service will be in the army or navy forces.

Book Sale Goes to Red Cross Benefit

Red Cross fund raising campaign in Portland received another boost Saturday when the Meler & Frank company announced that it would donate the proceeds from the sale of the new book containing President Wilson's war message to congress, to the Red Cross message.

Stop! Look! Listen!
Coffee and Doughnuts 5c
Hot Cakes and Coffee 10c
Two Eggs any style, with 15c
Bread, butter and coffee 15c
Genuine Chili Con Carne... 5c
Big Hot Hamburger Sandwich... 5c

WOODS RICE & COCOA
Dairy Lunch
SIXTH AND STARK

with snow, leads experienced stockmen to fear that many more animals will die before the situation is relieved by warm weather. In some regions the snow is so deep that hay cannot be hauled to the starving stock except on hand-drawn sleds.

Livestock conditions in the national forest regions of Washington are good, with a fairly high lambing average.

Wife Alleges Desertion. Desertion is alleged in a divorce action brought in the circuit court by Juliette Hume against Percy Hume. The couple were married at Hudson, Wis., March 1, 1895.

U. of O. Announces Special Lectures

The University of Oregon extension division announces the following special lectures for Portland:
May 1, 8:15 p. m.—"Why We Are at War," Dr. Joseph Schafer, University club.
May 4, 7:30 p. m.—"The Evolution of the Sonata Form," Dr. John J. Landsbury, Central library; 8:30 p. m.—"The Resources of Modern Harmony," Dr. John J. Landsbury, Central library.
May 5, 10 a. m.—The first session of the grammar conference for all teachers of English in the high schools and grade schools of Portland, Lincoln high school; 7:45 p. m.—"The Old and the New in Drama," Mrs. Mable Holmes Parsons, Central library.
May 11, 8 p. m.—"The Philosophy of Kucken," Dr. George Rebec, Central library.
May 12, 7:45 p. m.—"The Best Short Story," Mrs. Mable Holmes Parsons, Central library.
Three of the best stories written by members of the short story class will be read. Central library.

Stein-Bloch Smart Clothes. This is one of the Smart, snappy Spring Overcoats In the Stein-Bloch line That will appeal to The younger men. It is called The Dunmore; It has a full body and skirt With belt all around, Buttoning in front. Stein-Bloch suits In all the good fabrics. \$20 to \$40. Ben Selling Morrison at Fourth.

"Her Greatest Love" From Ouida's famous novel, "Moths." The tragic story of a girl who sacrificed love, honor, liberty, for her mother. "You have always liked and admired Miss Bara. Now, you will love her. Her work in this picture is so skillful—so charming—yet so absolutely free from all preceding offerings that it is hard to believe that she is the same girl, 'Her Greatest Love' is truly a revelation." —Morning Telegraph. "The pearl of price on the breast of vice, The cup of gold in a drunkard's hand." Latest War Pictures in Pathe News Comedy — First Show 11 a. m. Regular Prices — Begins Today THE BARA Majestic

YOU and yours will enjoy to the extreme an evening of Dancing and Music at the MULTNOMAH HOTEL. Week-day Dinner Dance 5:30 to 8 in the Arcadian Gardens. MUSIC by the Royal Purple Orchestra. A la carte Service and Dancing till 12:30. Saturday till midnight. SUNDAY DINNER ONE DOLLAR 5:30 to 8

Thought to Be Spy; Only a Bootlegger. Roseburg, Or., April 28.—After watching the actions of a foreigner here for several days, suspecting that he was a spy, Sheriff Quine and Night Officer Wilcox raided the man's room in a local rooming house and found 27 quarts of whiskey. The man gave the name of Martin Lombardi. He was arraigned in the justice court this afternoon and entered a plea of guilty to a charge of violating the prohibition law. Sentence will be pronounced on Monday.