

CRATER LAKE TO OPEN SOON

Preliminary Work to Begin Next Week—Road Construction Is First Item.

MEDFORD, May 1. (AP)—Preliminary work preparatory to the official opening of Crater Lake will begin next week, according to Supt. C. G. Thomson, with headquarters in this city. War on pine beetles and road construction will be the first activities. Representatives of the Warren construction company of Portland in charge of road building in the park, arrived Friday, and will leave to select a site for a rock quarry to be erected in the park. Early melting of the snow will permit early work on the road.

Engineer Green formerly of the Redwood highway has been named by the bureau of public roads to take charge of road work in the park this season. The Yokey timber company, who have large timber holdings adjoining the park and a federal entomologist, will combat the pine beetle. Rodger Welles has been named park ranger and with two aides will begin his duties at once.

Maxville-Wallowa Road Now in Good Condition

PROMISE. (Special)—The road from Maxville to Wallowa has been worked during the past week and is reported to be in excellent condition. The road from Maxville to Promise is quite rough, although cars are traveling over it every day.

"So you hiked from Prisco to New York in eight days?" "Yes, I should have made it in seven, but I had to walk ten miles."

Road Construction Hazardous In Montana Mountain Project

(By C. E. Purcell) District Engineer, Bureau of Public Roads.

There is now being built across the continental divide, in Glacier National park, one of the heaviest and most spectacular pieces of road construction in the Northwest. Twelve miles of highway, from Logan Pass down the west side of the divide, to McDonald creek is being hewn out of the mountain side. Creeks, gulches, rock points, cliffs carved by glaciers and glaciers themselves are the natural obstacles that engineers and contractors are fighting and overcoming.

The Trans-mountain highway will afford a connection between Belton on the west by way of Lake McDonald, Logan Pass and Lake St. Mary, and the present main north and south highway on the east side of the park. The proposed improvement begins at the end of the Park Service road about 21 miles from Belton and connects on the east side, with a road now being built by the Park Service along the north shore of Lake St. Mary. The work has been divided into two projects; the west side project, which is the one now under construction, and the east side project, which is about eight miles in length, extending from Logan Pass to Going-to-the-Sun Chalet at the upper end of Lake St. Mary. When the west side project was contracted there was but 20 miles out of the total distance of 55 miles that could be traveled.

In the fall of 1924 the bureau of public roads was asked by the Park Service to make a survey for this road and later on arrangements were made to have the bureau handle the construction. The location uses a maximum six per cent grade, compensated on curves. The stationing starts at zero at the summit and runs to 657, with the loop at station 410 and the lower tunnel at station 440. This tunnel will be about 250 feet long and will have windows in the side, similar to the Mitchell Point tunnel on the Columbia River highway.

W. G. Peters Engineer in Charge. W. G. Peters, associate highway engineer with the bureau of public roads, was put in charge of this project. Mr. Peters has been in the employ of the bureau for several years, having successfully completed the construction of the Mt. Hood Loop in the fall of 1924. The latter part of May, 1925, the engineers established their camp at Snow Shoe cabin on Trapper creek, near station 590. Contractors were notified that arrangements would be made so that they might inspect the work in a body. On June 2 and 3 about 35 representatives of contracting firms went over the project. Both before and after this date other contractors looked over the work. The principal items of work were as follows: clearing, 90 acres; unclassified excavation with power shovels, 480,000 cu. yds.; tunnel excavation 16,000 cu. yds.; masonry in structures, 2200 cu. yds.; masonry walls, rails, etc., 7000 cu. yds.; surfacing, 14,500 cu. yds. Bids were called for and opened on June 20. Of the 12 contractors submitting bids, Williams and Douglas of Tacoma, were low with a bid of \$849,145, based on power shovel excavation and metal pipe culverts. The contract was awarded to them on June 11.

Truck Supplies 18 Miles. On June 22 the contractor's forces arrived at Belton and began the preliminary work of erecting camp and starting construction. The first camp was built at McDonald creek, near station 580, about 23 miles from Belton. Material and supplies could be trucked from Belton to Avalanche creek, a distance of about 18 miles. Beyond this point it was necessary to use pack horses. A second camp was built above the loop at station 410. The rock work on the cliffs from station 379 to 390 was handled from this camp. A 3/4-yard Osgood gas shovel was brought in and started at the lower end, hauling from the shovel being done with dump wagons. The shovel did the greater part of the grading between stations 653 and 520. Then with the idea of reaching the higher parts of the road the shovel simply dug a road for itself from station 630 to 497, leaving the right of way at this point the shovel started to climb to the top.

When the work closed down the latter part of October the shovel had reached a point opposite station 425. It is the contractor's intention to work up the mountain this spring, and to bring the shovel back on line at about station 410. Some team work was done in the flat country between stations 640 and 537. The heavy rock work on the cliffs between station 379 and 390 was done with air driven jack hammers, mucking the rock out by hand. This work has been hazardous for engineers as well as contractors. Men were let down on ropes when cross-sectioning and also when starting the drilling. Part of this work will be a half tunnel section. In several stations the excavation will run 3000 cu. yds. per station.—Pacific Builder and Engineer.

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REDUCE PISTON DISPLACEMENT

Trend Toward Smaller Motors in America Has Been Steady During Recent Years.

Recent discussion by Sir William Lettis of England and William I. Irvine, former Trade Commissioner, United States Department of Commerce, regarding the use of the European type, high speed motor in small cars as a measure of protection to our export business in motor cars, and as an advantage to American users, develops the interesting fact that there has been a steady trend toward smaller motors in American for the past several years.

But if the small, high speed motor as built in Europe is to find general use in the industry in the near future, it will have to come from definite proof of the higher efficiency of this type of power plant.

Racing Car Figures. The most interesting set of figures available at the present time are those relating to racing cars. Using the regulations of the Indianapolis Speedway as a basis, these noteworthy facts are brought out.

In 1911 the Indianapolis race was open to all cars with a piston displacement under 600 cubic inches. The largest motor entered had a displacement of 577.2 cubic inches and achieved a speed average of 71.13 miles per hour for the 500 mile trip. The winner in this race was a car with 447.1 cubic inch displacement, with an average of 142.9 miles an hour.

In 1912, with the same regulations, the largest motor had a displacement of 597.16 cubic inches and averaged 62.2 miles an hour while the winner had a displacement of 499.8 cubic inches and averaged 78.7 miles an hour.

In 1913 the regulations reduced the maximum displacement to 450 cubic inches, the largest car entered having 440 cubic inch displacement and averaging 62.08 miles an hour while the winner, with 448.13 cubic inch dimensions averaged 76.92 miles an hour.

The same regulations prevailed in 1914 and the winner was a car with a displacement of 289.3 cubic

inches which averaged 82.47 miles an hour.

In 1915, 1916 and 1919 the displacement figures were cut to 300 cubic inches, the winner in 1915 averaging 89.54 miles an hour with a motor of 274 cubic inch piston displacement, in 1916, averaging 83.26 miles an hour with a motor of the same dimensions as the winner the year previous and in 1919 the average was 88.06 with a motor of 274.5 cubic inch displacement.

Drastic Cut. A drastic cut was made in 1920 when the maximum displacement allowed was 183 cubic inches and this was continued through 1921 and 1922, the best average speed during these three years being 94.48 miles an hour from a motor with a displacement of 181.44 cubic inches.

In 1923 and 1924 the same kind of a reduction was made and the size of the motors was restricted to below 122 cubic inches. During these two years the maximum average speed was 98.23 miles an hour achieved by a motor with the maximum allowed displacement.

An interesting feature of these figures is that the speed of the cars increased materially with the decrease in piston displacement or, in other words, with the increase in the mechanical efficiency of the power plant. The smaller motors were of the high speed type such as is generally employed in European design.

A decrease of 79 per cent in piston displacement was followed by an increase of 21 per cent in speed capacity. While the decrease in piston displacement of the types of motors commonly used in our passenger cars at the present time has not been commensurate nor on the same plane with the decrease in racing motors, still there has been a marked change in motor sizes with the smaller dimensions, higher speed power plant assuming supremacy.

The adoption of the European type motor in our light cars will show a still more marked reduction. It is not probable that we will see the four-cylinder motor which will continue to mark the small, light car, brought down to 122

(Continued on page 12)

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WHEN BETTER AUTOMOBILES ARE BUILT, BUICK WILL BUILD THEM

Efficiency of Highway Builders Same as Others

WASHINGTON, May 1. (AP)—Although investigations made by the Bureau of Public Roads indicate that the average highway contractor does not operate above fifty per cent efficiency, Thos. H. MacDonald, chief of the bureau, declared recently that the highway builders are no less efficient than other construction operations.

One hundred per cent efficiency, according to Mr. MacDonald, is not obtainable on work of this character, detailed observations indicating from eighty-five to ninety per cent to be the best practicable performance.

The difference between the maximum obtainable efficiency and the average performance results largely from numerous small time losses, the importance of which is not sufficiently appreciated by the foremen and superintendents who direct the labor employed on large construction projects.

By stop-watch studies of operations on actual highway projects the Bureau is seeking to discover the common time losses and bring them to the attention of contractors generally. In this way it hopes to develop a higher average level of efficiency in the conduct of the country's billion dollar program of road construction and maintenance.

In spite of the low average level of efficiency, Mr. MacDonald added, highway contracting has long been looked upon by contractors as an uncertain business, and this belief has been reflected in the rising rates charged by bonding companies. One reason is found in the irresponsible bidding of contractors who have neither the plant, equipment nor financial ability to carry on the work, but who, in order to get the contract, underbid the really responsible bidders.

The bureau's studies have been made with the intention of showing the responsible contractors how costs may be reduced, and of assisting them in that way to meet the competition who have nothing to lose.

So much of the highway is up hill a man lately returned from the mountains says the Ford's nearly all run backwards so that gas will feed.



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