THIS AUTOIST KNOWS HOW TO SAVE TIRES

Crushed Rock Has No Terrors for Cadillac Owner.

LONG MILEAGE OBTAINED

E. E. Gard, Banker of Glendora, Cal., Portland Visitor in Course of Long Transcontinental Tour.

Owners of large cars who fail to get proper tire mileage would profit from a talk with E. E. Gard of Glendora, Cal., who arrived in Portland last week in his Cadillac Eight, with 12,300 miles and two crossings of the continent behind him. One of the rear tires, a Royal cord, had endured the whole hard journey and was still in good condition after the 12,300 miles of all varieties of road, up hills and down them, with plentiful stretches of crushed rock or worse.

The mileage a good tire gives, says Mr. Gard, depends a whole lot on the driving. He declares that the reason so many drivers come to grief on crushed rock is because they get impatient and take it too fast. While he doesn't recommend crushed rock for tire tonic, he does maintain that by taking it quite slowly very little damage will result to tires, even with a heavy car. He has proved out his own recipe pretty thoroughly, too.

Another of Mr. Gard's pointers in tire conservation has to do with climbing hills. On many a hill which he could easily have made on second by speeding up the car, he has instead dropped into low in order to go at an even rate of speed. Thus he avoids slipping the rear wheels with consequent wear and tear on tires.

Hudson Palisades Not In It.

Mr. Gard is vice-president of the First National bank of Glendora, Cal. Accompanied by Mrs. Gard, he left Glendora and traveled the Santa Fe trail and Old National highway to New York. He took occasion there to motor up the famous Hudson river along the Palisades of that stream, a scenic drive of which he had heard much.

"And it is beautiful," he said, "but you have 'em whipped for scenery. Your Columbia river highway is the grandest scenic drive I have ever seen. Even the drive along the Hudson's famed Palisades cannot compare with it."

Mr. and Mrs. Gard returned west via Yellowstone national park, from there motored to Butte, Mont., thence to Wallace, Idaho, Spokane and Pullman, Wash., Lewiston, Idaho, and from there to Goldendale, White Salmon and Stevenson, Wash., where they ferried across to Cascade Locks and came into Portland on the Columbia river highway.

Mr. Gard met C. C. Hutchins, secretary of the White Salmon commercial club, at White Salmon, and on his recommendation drove down the scenic North Bank highway to Stevenson, instead of ferrying from White Salmon to Hood River. He was warm in his praise of this road and its scenery, and declared his thanks were due to Mr. Hutchins for having routed him over it.

The Son Who Sleeps in France.

A sad purpose brought Mr. and Mrs. Gard to Portland on their way home to Glendora. Their only son, Lieutenant Frank J. Gard, was killed in France. They came here to meet his chum, Cyrus Briggs, who was with him when he fell.

The name of Frank Gard will be recalled by all followers of athletics. He was one of Stanford university's most noted athletes and captained the Stanford football team in 1915.

Mr. Gard is one motorist with no complaints to make about road conditions. He looks upon the torn up roads, now in the throes of new construction, as something that should please the motorist rather than vex him, because they are such certain signs of fine highways soon to come. Oregon's roads, he declared, torn up as they are, are no worse than those to be encountered most of the way across the continent, on any route the tourist may take, better than in most states. All over the country Mr. Gard said, is the same activity in good road building.

Mr. Gard wanted to see some of Oregon's fine timber, so from Portland took the lower Columbia river highway to Astoria and Seaside and from there drove to Tillamook and back through the Grand Ronde to the Pacific highway on his way south.

THIS IS GETTING MILEAGE

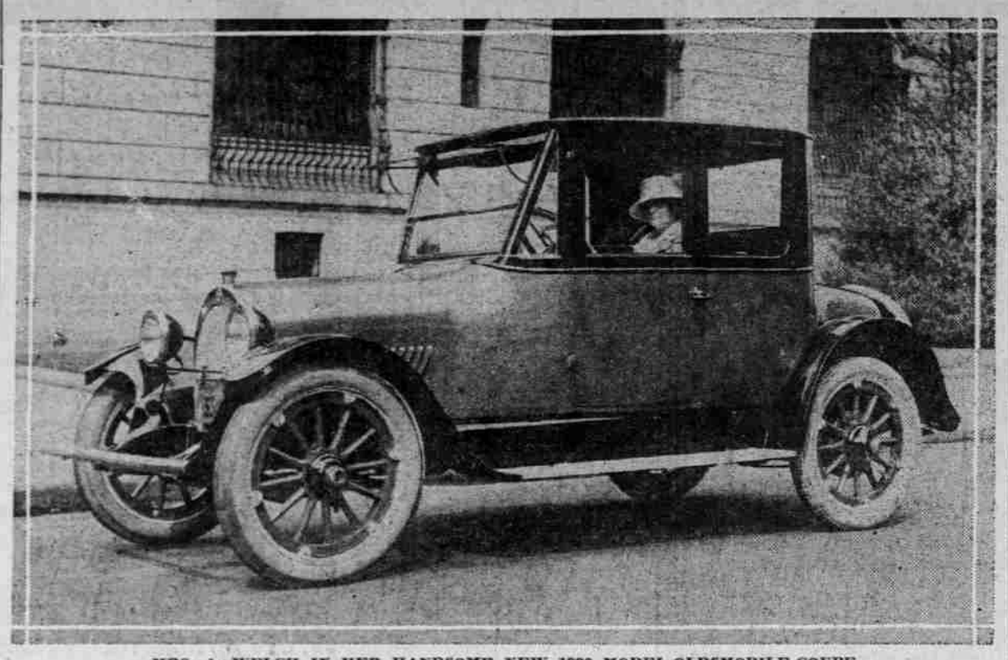
Red Cross Driver Claims He Got 45 Miles to Pint of Gas.

A Red Cross chauffeur in Paris is reported to have driven his car nearly 45 miles on one pint of gasoline, using no carburetor, but condensing and spraying the fuel directly into the cylinders by a method not disclosed. This is at the astonishing rate of 360 miles to the gallon. In the absence of any information as to the weight of car or the nature of the road traversed, comment on this extraordinary figure is more or less futile. . . If the thermal efficiency of a gasoline engine with carburetor is around 20 per cent, this inventor appears to have attained more than 100 per cent, says the Popular Mechanics Magazine for August.

Trailers and Semitrailers.

Trailers are generally classified into two major types, the trailer proper, which has four wheels and the semitrailers, which has only two, the front end resting on the rear of the truck. Each type has distinct superiorities under certain sets of conditions and the intending trailer buyer will do well to study his problems carefully to see which type will work out best in his case.

WIFE OF TRACTION MAGNATE LIKES ENCLOSED CAR.



MRS. A. WELCH IN HER HANDSOME NEW 1920 MODEL OLDSMOBILE COUPE.

This is the third Oldsmobile in the Welch family. Incidentally, it is Mrs. Welch's third enclosed car. This new coupe of the 1920 model is upholstered in velour, has windows that open and close automatically and altogether is a most luxuriously finished car and one particularly suited for the woman who drives herself. It was purchased from the Oldsmobile company of Oregon.

BLACK CAT CHASES LUCK

FELINES BLAMED FOR SPEEDING OF MANY DRIVERS.

Campaign to Extinguish Pests of Road Is Suggested Because of Motorists' Superstitions.

(Continued From First Page.)

and downs besides. A car hits these fence rails and hops, bounces, jazzes and bumps over them. A person of extreme nervous temperament on this detour is more than likely to get up and yell before the finish.

However, there is only a mile and a half to two miles of this really mad going, all told, and the main highway at this point soon will be paved and opened. Otherwise the highway is in very fair to fine condition. At the Astoria end, where seven miles of crushed rock some weeks ago caused so much tire trouble, three miles of pavement have now been laid and more is going down. There is about a mile of crushed rock at the Astoria end, but pretty well worn down now by travel, and there is a detour of about three miles where the going is not especially good. Otherwise, fine and dandy.

Conditions on the main highway have been described first because it is and will continue to be the main traveled route, and many persons are now keeping off it because of bad conditions previously. No need to stay home now for fear of tire trouble, for the crushed rock menace has been largely eliminated.

So much for the lower highway. Now for the Inland route, which is reached from Portland via the Canyon road out Jefferson street to Beaverton, Reedville, Hillsboro and Forest Grove. As remarked a few paragraphs before, this road has long enjoyed from the Multnomah county line to Hillsboro the distinction of being about the roughest in Oregon since the elimination of the old Rex-Tigard stretch.

Joy! Pavement at Reedville.

It still is quite rough as far as Reedville, 13.3 miles from the Oregonian building, though for 4 miles of this, to the Multnomah county line, there is pavement. And at Reedville there suddenly appears to the surprised tourist who has not kept informed of progress, a fine long stretch of brand new concrete pavement, just opened on the new highway grade.

For 3.7 miles, the Chalmers sped along this fine concrete, and then detoured off to the old road for the remaining 1.6 miles into Hillsboro, mileage 18.6. But this 1.6 miles has been paved, and within two or three weeks, maybe sooner, will be opened, the delay being to let the concrete set. Very soon there will be pavement all the way to the Multnomah county line and another road bugaboo will be of the past.

From Forest Grove the Inland highway route heads up the valley of Gales creek, to the town of that name eight miles along, and then into the mountains. All the way to Astoria, nearly 105 miles from Forest Grove as the route now goes, this road is one of beautiful scenery. Not scenery of the wild, craggy type, to be sure, with long vistas of river gorge or rugged mountains. This is the quiet and restful scenery of forests and wooded hills, of great trees, fir, cedar and spruce, towering by the roadside; of silent places deep in the woods; of green meadows along a slowly moving stream, the Nehalem, in its fertile valley.

Everywhere the great woods. Who that has toured much in this state has not learned, if he did not already, to love the forests? Take a tour like this one, with an eye to the wonders of nature as exemplified in the great trees, and every new forest fire becomes a personal sense of loss, wanton cutting of the trees a crime.

Save the Trees!

Save the trees! That was the message brought to Portland the other day by Stephen A. Mather, director of national parks, here on a tour of inspection of Crater lake and Rainier national parks. Save the trees along the roadsides, said Mr. Mather, for they constitute one of our greatest, yet least realize scenic resources. He urged that a stop be put immediately to the thoughtless practice in parts of the state, even on main highways, of cutting down the trees beside the roads.

Save the trees! For 100 miles of its course, this beautiful inland route goes through forests or near them. Even in the wider parts of the Nehalem valley the forests are never far distant, though the lowlands are green and cultivated. In three places along this route, one near the town of Timber, just across the divide of the Coast range, another below Mist in the valley of the Nehalem, and the third between Jewel and Olney, close to Astoria, logging operations have left dreary vistas of desolation in the form of snags and stumps. The contrast is that of passing from a living, breathing land into a country of the dead, each stump a tomb, each snag a monument.

As the country becomes more and more settled, much of this fine timber, most of it perhaps, will have to go. Is it too much to hope that before that time arrangements can be made to preserve the timber along the sides of this road, retaining in perpetuity the beauty of this wooded drive?

The Inland highway route is not on the present highway programme of the state highway commission for permanent improvement. But an Inland highway association has been formed with the purpose of having it made a permanent highway, and a part of the main state system. In course of time this is bound to come, for this road not only taps a rich country in the Nehalem and Gales creek sections, but as it winds its way along their valleys and through the great woods is a route of beauty and delight.

Old Corduroy Gone.

Almost all the way from Forest Grove to Astoria it is in fair to good condition. It had been two years since the writer traveled this highway, and he had visions of very rough going in places, particularly along the old corduroy stretch near the lumber settlement of timber 20 miles from Forest Grove. It was a pleasant surprise to find this old corduroy no more, nor a trace of it left, but in its place a good gravel road.

And between Gales creek and Timber, there has been another great improvement. Two years ago the new highway grade had just been built along here. It had no surfacing, and with the slightest rain became a quagmire of mud and muck. More than anything else this condition of that period has discredited the Inland highway route with motorists, who remembered its bad qualities but had heard nothing of its new.

600.0. Oregonian building, Portland.
3.8. Sylvan.
4.2. Washington county line. End pavement. Very rough to Beaverton.
8.1. Beaverton. Very rough to Reedville.
13.3. Reedville. Here take fine concrete pavement to right, on new grade. Pavement to mileage 17.
17.6. End pavement; take old grade into Hillsboro. New grade paved, but concrete not yet set.
18.6. Hillsboro. First-class oil macadam road to Forest Grove.
21.9. Cornelius.
24.0. Forest Grove. Inquire direction for road to Astoria. Road is good macadam or gravel to Gales Creek.
25.8. Turn left.
28.3. Turn right.
32.2. Gales Creek. Keep to right. Road to left goes over Wilson river pass to Tillamook. Road from Gales creek fair to good, some dirt, mostly gravel.
33.3. Turn left.
37.6. Glenwood. Here about three miles of dirt road, but it is being graveled. At 38.4, cross creek.
41.7. Some corduroy, but not much, and not bad going.
42.6. Up you go, over the divide to Timber. Steady climb, sharp curves, but road very good, grade not especially steep.
44.3. Top of divide. Descent begins to Nehalem valley.
44.8. Town of Timber. Logged-off section here. Road crosses railroad.
52.2. Hamlet of Kist. Beautiful country. Good road. Now in upper Nehalem valley.
57.1. Pleasant high school, in clearing in the deep woods. Road good.
58.1. Turn left.
60.8. Town of Vernonia. Fine farming and dairying country. Road good.
62.6. Cross bridge, take road to left.
77.2. Town of Mist. Junction with road from Columbia River Highway from Clatskanie, ten miles over mountain.
82.4. Town of Birkenfeld. Gasoline, praise heaven! Here comes about a mile of very bad plank, worn out, splintery, rough.
84.8. Town of Vesper. Good plank road. Winds along left bank of Nehalem river.
94.2. Town of Jewel. Nehalem river now left behind. Good macadam.
98.8. Fish Hawk falls. Scenic viewpoint. Road good.
106.6. Lumber camp of California Barrel company.
112.6. Fish hatchery.
114.0. Young's river at Olney. Road from Olney to Astoria now closed, so take road to left instead of crossing bridge. This road goes through timber, mostly somewhat rough but very fair. Passes through fine country. Scenery.
124.9. Strike Seaside-Astoria road at point where road to Seaside turns down toward coast. Turn right. Cross Young's bay on bridge. Either turn right and go up hill into Astoria, which is shorter route, or turn left and follow paved road around bay, interesting view of Astoria waterfront, into town.
129.4. Following latter route, to center of Astoria.

Columbia River Highway.

Portland-Goble section—Paved to Scappoose, then old macadam, somewhat rough, to Houlton (West St. Helens) and on to near Deer Island. Here comes nearly three miles new pavement over old rough Deer Island section. Then three and one-half miles old rough road, some crushed rock for paving, to pavement near Goble. Then pavement all the way to Rainier.

Goble-Rainier-Clatskanie section — Pavement Goble to Rainier. Pavement up hill for three miles out of Rainier, then at sign you take detour road to right. Three-mile detour. Climb over hills and far away. Nearly two miles of the three covered with fence rail corduroy, extremely rough. After three miles rejoin main highway, good macadam most of way into Clatskanie, though there is some crushed rock preliminary to active paving operations on this stretch. Not bad, however. No tire trouble.

Clatskanie-Astoria section — Good. Macadam in good condition. Of former seven miles of crushed rock out of Astoria three miles is now paved. Remainder worn down by travel till not hard on tires. One three-mile detour off highway, quite rough for about a mile, otherwise very fair. No reason for tire trouble on whole Portland-Astoria route.

BEARINGS CARRY THE LOAD

THEIR FUNCTION IN CAR EXPLAINED BY EXPERT.

Different Kinds of Bearings Made to Carry Load or Meet End Thrust Described.

BY A. K. HEBNER.

General Manager Bearing Service Co.

The loads to be carried by bearings, depend entirely upon the location of the bearings in the motor car chassis. Some are subjected to purely radial loads, which are those acting at right angles to the shaft on which the bearing is mounted; others are subject to end thrust, or loads applied parallel with the supporting shaft. At still other points the bearings must resist a resultant angular of combined end thrust and radial load.

In the wheel bearings radial load is simply the weight of the car—empty or loaded—pressing downward. But we cannot use the word "weight" to describe all cases of radial load, because on the pinion shaft, for example, it is not caused by weight, but by the effort of the pinion to climb on the teeth of the big "ring gear."

Again, exactly the same force is felt by the bearings that support the worm in cars in which the power is transmitted to the rear wheels by a worm and worm wheel instead of a pinion and ring gear. On the worm bearings, radial load is caused by the continuous pressure of the curved teeth of the worm as they turn in mesh with the worm wheel. But whether originally due to weight or to the power of the engines, radial load affects all the anti-friction bearings at whatever point they are installed in the car.

This is the second great cause of wear, and by it is meant pressure that comes not at right angles to the axis of the bearing, but directly along the axis. In wheel bearings, end thrust is caused by the tendency of any moving body to follow a straight line. When you round a curve, the entire weight of the car and passengers pushes sidewise against the wheels. You have often felt this force pushing you towards one side of the car, so that you had to lean in the other direction to resist it.

Front axle, spindles, pinion and worm represent the hardest jobs antifriction bearings have to tackle, because at no other places are the two destructive forces so severe. On the pinion or worm we sometimes find a double set of bearings—one to carry the radial load, another to carry the end thrust. At other times a bearing that is capable of meeting both forces simultaneously is used. A discussion of the various types of bearings used to meet these loads will be the subject of the next article of this series.

BIG FACTORY FOR MORELAND

New Plant to Cost $2,000,000 and Be Ready January 1.

LOS ANGELES, Aug. 30.—About $2,000,000 will be spent on the new factory buildings of the Moreland Motor Truck company, at Burbank, Cal., which are to be devoted exclusively to the production of trucks. An area of 27 acres will be utilized by the new buildings and factory grounds, and it is anticipated the buildings will be completed on or before January 1, 1920.

Unit "one," the foundry, has been in operation for over a year. Added to this there will be four new and separated edifices, comprised of the administration building; building "two," which will house the machine shop, storeroom and assembly departments; building "three," taking care of the test department, body building and paint departments; building "four," in which will be located the forge shop, riveting, heat treating and sand blast departments.

READY TO MOVE DEEP INTO GERMANY IF NEEDED.

IT HAPPENED THEY WEREN'T NEEDED, BUT WERE RARIN' TO GO.

These Commerce trucks were at the head of a line of motor trucks 20 miles long held ready to push forward if Germany had not signed the peace treaty. This photograph was taken at Nantershausen, Germany. The trucks were equipped with rapid-fire guns, ready for action, the canvas tops having been removed from the trucks to clear them for action. Commerce trucks took an important part in the Argonne offensive.