

CAREER OF TRACTOR INVENTOR CLOSED

Benjamin Holt Is Dead After
Brief Illness.

END COMES AT STOCKTON

Pioneer Inventor of Caterpillar
Played Important Part in Gas
Engine Development.

STOCKTON, Cal., Dec. 18.—Benjamin Holt, pioneer inventor and manufacturer who died here a few days ago, by his inventive genius and great ability placed agriculture on a higher plane and contributed notably to the success of the allies in the world war. As inventor of the caterpillar tractor Holt engendered the idea which developed into the tanks that were instrumental in the success of the allied armies. The many inventors Holt lived to see the fruition of his dreams and ambitions.

Holt was born in Merrimack county, New Hampshire, the seventh of 11 children of William K. Holt, on January 1, 1849. His primary education was gleaned in the public schools around his boyhood home and in an academy at Tilton, N. H. Later he attended a Baptist institution of learning at New London, Conn. He spent most of his mature life in California as an inventor and manufacturer. The end came after a brief illness.

The tractor is a self-propelled machine for use on roads and in fields. It is designed to draw loaded wagons and implements of different kinds. Like the automobile, to which it is closely related in its theory of operation, it was first propelled by steam. With the introduction of internal combustion engines the tractor made rapid progress in advancement.

The gas tractor is in some respects similar to the steam tractor. It has a strong frame, to which are fastened the bearings for the driving and guiding wheels and carries the engine and its auxiliaries. The greater number of tractors are equipped with gasoline engines and use gasoline for fuel. Those that are built to operate on kerosene and heavier oils are usually fitted with gasoline attachments to be used in starting and warming up the engine.

Development of Tractor.
The horsepower developed by the engine of a tractor, whether driven by steam or liquid fuel, may vary from 10 to 125 or more, according to the size of the tractor and the work it is designed to do. Obviously, part of the effort of the engine must be spent in overcoming the friction of the gears and moving the tractor against the road resistance, so that the drawbar horsepower will be considerably less than the power delivered by the engine.

Gas tractors are made in a great variety of forms, but for the purpose of classification they may be divided into wheeled tractors and crawler or caterpillar tractors. The caterpillar tractor, the tread of which was invented by Holt, has one or two driving members in the form of wide, flexible bands, driven by a driving sprocket and an idler, so that a track is being laid continuously in front of the truck wheels on which the weight of the tractor is being carried and picked up behind them as soon as they have rolled over it.

In any type of tractor the weight of the machine is so distributed as to throw the greater part on the driving members, thus increasing the adhesion and tractive force. Especially in soft ground, the caterpillar tractor at an advantage. Its weight is distributed over a large area so that the pressure per square inch is comparatively small.

Tank War Product.
The military tank is distinctly a product of the world war, in which, for the first time, conditions suitable to its effective use existed. The armored self-propelled car had been tried in several recent wars. The duke of Westminster employed it with success in Egypt. Hitherto, however, such machines were primarily road vehicles, and suitable for the battle line only when the ground was comparatively smooth.

Colonel Swinton of the British army, organized and commanded the first tank unit. The tank was modified in construction and its power greatly increased over the ordinary tractor. The belts over which it traveled had steel lugs or sprockets projecting from their outer surface that were forced into the earth as the weight of the machine passed over them.

An army tank was introduced into battle by the allies at the battle of the Somme, in September, 1916, and the efficiency of the new weapon was fully demonstrated. Their entrance into the battle ushered in a new mode of warfare and sounded the death knell of the enemies' pill-boxes, or machine gun emplacements, and other obstructions, including barbed wire entanglements.

Success of Tank Notable.
The success of the tanks at the Somme led to their more extensive use in 1917. By November a vast number had been constructed and were concentrated along the front near Cambrai. On the morning of November 20 the line of tanks rolled forward in a surprise attack which penetrated miles through the enemies' lines.

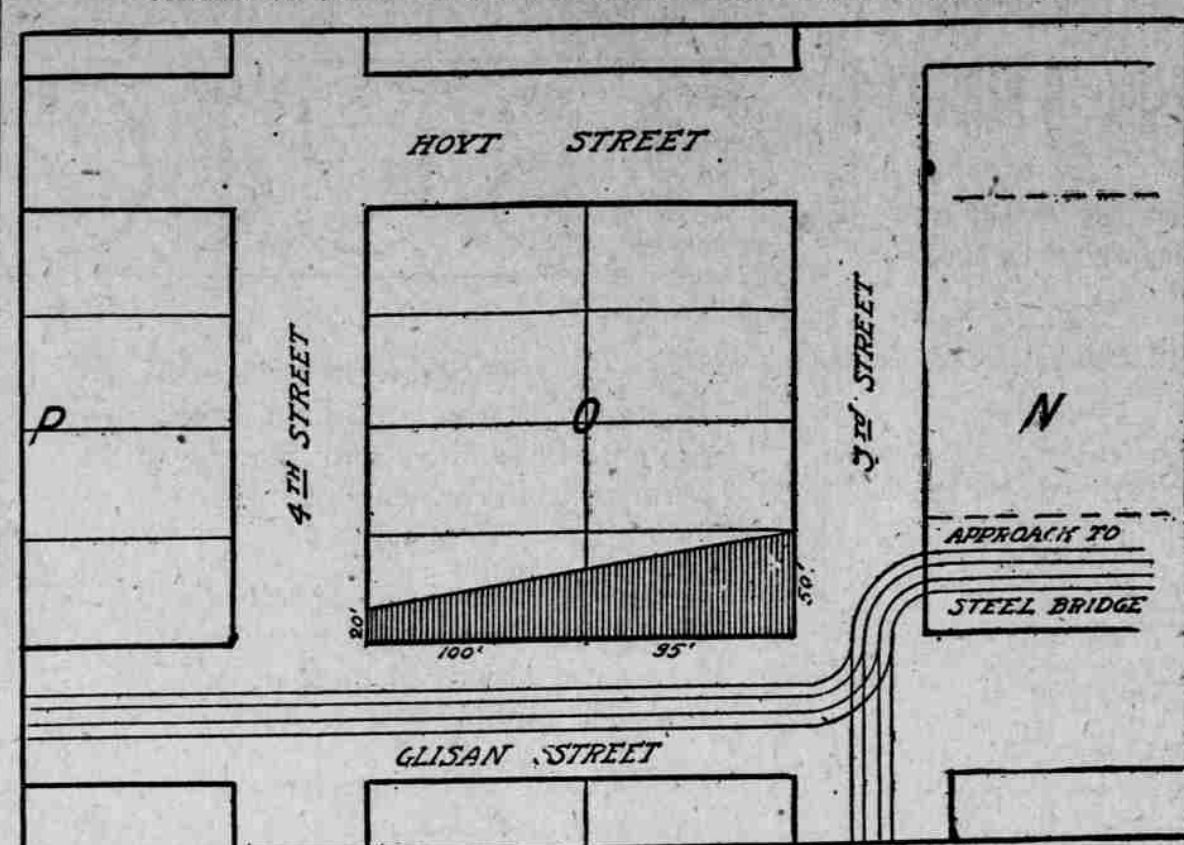
Owing to lack of adequate support and in part to the shape of the salient formed, counterattacks recovered more than half the territory gained. This attack by tanks, without previous artillery preparation, showed the possibilities connected with their use. Whether they can ever be so successful again is uncertain, but it is no doubt that they proved themselves valuable weapons of war when used to the best advantage.

For domestic purposes the tractor finds its principal application in drawing plows and other farm implements in the field. The number of plows varies from two or three up to 14 or more, depending on the power of the tractor. Ordinarily the plowing speed is two and one-half miles an hour.

Cycle Records Broken.

The great cement oval at Brooklands, England, has recently been the scene of repeated attempts to lower existing world's motorcycle records, not all of which have been successful. The track offers possibilities in this direction not to be had on courses in this country, chiefly because of its great size—nearly three miles to the lap. Riding a stock model Indian, H. Le Vack, a prominent British racing driver, set new records for 50 miles and 100 miles on the famous speedway. Le Vack's machine, equipped with a sidecar, was the first of its kind to do 100 miles inside of 100 minutes.

CONGESTION AT HARRIMAN BRIDGE APPROACH MAY BE ELIMINATED.



MAP SHOWING PROPERTY WHICH MAY BE PURCHASED BY CITY IN ORDER TO WIDEN GLISAN STREET BETWEEN THIRD AND FOURTH.

One of the most badly congested corners in Portland is the corner of Third and Glisan streets, where steady streams of automobiles, trucks, heavy wagons and street cars pour north, south and west, in going to or coming from the Harriman bridge. Owing to the fact that the bridge approach does not lead from the bridge directly into Glisan street, but empties traffic a short distance north of Glisan onto Third street, and other traffic is forced to make two sharp turns in succession in going from the bridge down Glisan street. The other day a street car got beyond control coming down the approach and, instead of taking the sharp curve, kept right on going and crashed into a building on the other side of the street.

The city engineering department, after a survey of the entire matter, drew up a report which was presented to the city commissioners last week urging the purchase by condemnation of a strip of property along the north side of Glisan between Third and Fourth streets. This strip is designated by the shaded portion of the map above. It is 50 feet in width at Third and drops diagonally down in a straight line to 20 feet in width at Fourth. By securing this property and tearing down the mill-constructed building now occupying it the property could be made available for traffic, the street correspondingly widened and the difficult reverse curve replaced by an easy curve for a "shoot" for traffic to follow.

A hearing on the proposed improvement will be held in the near future, following which action, either favorable or otherwise, will be taken by the commission. The cost of the property through condemnation is estimated in the report of the engineering department as \$44,400, while it would take another \$1000 to tear down the building, readjust the street and sidewalk grades and lay the pavement. The cost of moving the street car tracks would be borne by the street car company.

UMATILLA AFTER CUT-OFF

COLUMBIA RIVER IS NATURAL AUTO GATEWAY.

Fight May Be Taken to Legislature
If Commission Does Not Act,
Declares Visitor.

People of Umatilla, Echo, Stanfield and the other towns of the lower Umatilla River valley are earnestly desirous of having the proposed Wallula cut-off road constructed and intend to make a fight for the road, either before the state highway commission or in the state legislature, according to D. C. Brownell, resident of Umatilla, who was a business visitor in Portland last week. Brownell was in Portland with the Walla Walla delegation recently when the Washingtonians appeared before the commission to urge for the road. The Umatilla residents, Brownell declared, feel that the Columbia river offers the natural gateway for automobile travel for all the vast inland Empire. Business men and residents of Spokane and vicinity would pour into Portland in great numbers to do wholesale trading and relations between Portland and the eastern Oregon, eastern Washington and northern Idaho towns would be much improved. The Wallula cut-off offers a big saving of distance in travel from the Spokane region to Portland and would link the highway systems of the two states to a greater extent, he contends.

Mr. Brownell declared that Umatilla residents have hopes that the matter will be acted upon favorably by the state highway commission at its meeting in January, but that if no action is taken then the residents of that section may unite to send a delegation to the state legislature and attempt to bring about the authorization of the road by act of that body.

ACCIDENTS ON INCREASE

STREET IS DANGEROUS PLACE, SAYS REPORT.

Federal Bureau Urges That Steps
Be Taken to Curb Number
of Auto Mishaps.

WASHINGTON, D. C., Dec. 18.—Alarming increase in the number of automobile accident fatalities in practically all of the principal cities of the United States during the five years ended with 1919 has moved the bureau of census department of commerce, to send out warning that traffic control must be improved to meet the emergency.

Increase of the number of automobiles is recognized, according to the report, as probably the chief contributing cause of increase in accidents. The only possible offset, it is urged, is stringent laws controlling traffic and rigid enforcement of those laws. "The 1919 rates for Kansas City, Mo., San Antonio and Cleveland—all much lower than for 1918—furnish a ray of hope that we are finally waking up," says the report.

The record of Kansas City, Mo., for the five years shows: For 1918, 42 fatalities; 1918, 64; 1917, 56; 1916, 38; 1915, 22; while the rate per 100,000 population is given for 1919, 1918, 1915, 1917, 18.4; 1916, 12.8; 1915, 10. Youngstown, Pa., shows the highest rate, on a basis of 100,000 population, with 38.5 for 1919; 31.9, 1918; 30, 1917; 23.5, 1916; 12.7, 1915, the actual number of fatalities for the corresponding years being 37, 40, 36, 26 and 14.

"Each year," to quote the report of the census bureau, "the death rates from automobile accidents are higher than the rates of the previous year. Each year it becomes more and more dangerous for a person to walk the streets. The reason usually given, and probably the correct one, is that the number of automobiles in use is constantly increasing. How, then, shall this ever-increasing danger be lessened? The obvious remedy is to improve constantly the traffic regulations to keep pace with the never-increasing number of automobiles.

"This call for better traffic regulations is not a fanciful one. Everyone is familiar with the necessity for slow and orderly progress when a crowd emerges from a circus tent, and similarly, automobile traffic must be slowed down and controlled until it becomes safe.

"All tendency of some writers to exonerate automobile drivers and to place the blame of accidents upon pedestrians indicates lack of a full comprehension of the problems involved.

"The teaching of caution is admirable and in time pedestrians will undoubtedly become more and more

TILLAMOOK ROAD IS OPEN

ROAD INFORMATION GIVEN AT REQUEST OF READERS.

Best Road From Corvallis Through
McMinnville to Portland Is
Told by Engineer.

Requests for information regarding the road to Tillamook have been received here and also requests regarding the road from Corvallis to Portland via Independence and McMinnville. One reader writes:

"Is the road passable for a motor vehicle between Portland and Tillamook, via Sheridan, Grand Ronde route?"

Yes, Auto stages are making the trip every day. Regarding the condition of this road State Division Engineer Clarke who has this section in charge, states that it is such that any careful driver can make it without difficulty. As far as Sheridan the road is excellent pavement all but 10 miles. From Sheridan to Willamina is old gravel road, rough but with solid foundation. About a mile west of Willamina the worst road is encountered. At this point the Spaulding Logging company is constructing a logging railroad around the bluff and bad slides have been frequent. The Spaulding company was granted right of way along the old road, with the understanding that the company would build a new road along the bluff above the railroad tracks. As a result, while this work is in operation the road is bound to be in rough condition. A gang of workmen is on hand all the time, however, and the road is being kept open to travel. From the end of this construction work to Hebo is good macadam and from Hebo to Tillamook is also good macadam, with the exception of a couple of short stretches where Tillamook county is carrying on road work. No detours are necessary on the entire trip.

Another request is for a description of the best road on the west side from Corvallis to Portland, via Independence, McMinnville and Newberg, also Oswego. The advice of highway department engineers is as follows:

From Corvallis out the new macadam at the end of Ninth street, for about 10.4 miles, detour to right to Wellsville and over good macadam road to Independence, thence through Monmouth and Dallas to Perrydale (fair macadam road), turn to right to McCoy and thence to Amity (macadam and pavement). From Amity to McMinnville is good macadam. From McMinnville to Portland the regular road through Dayton and Newberg should be followed, all pavement except ten miles of good macadam. To go to Oswego the engineers advise that the traveler from Corvallis make the trip clear to Portland and then go to Oswego from Portland, as the road across to Oswego direct is in poor shape.

Exhaust Pipe Paint.
To paint the exhaust pipe requires a compound capable of resisting a high degree of heat. Use two parts of black oxide of manganese, three parts of graphite and nine parts of Fuller's earth, thoroughly mixed and added to which is ten quarts of sodium silicate, one part of glucose and four quarts of water, until it is of the consistency that enables it to be applied with a brush.

**Industry Puts Third Largest Sum
Into U. S. Treasury.**
That the automobile industry is the third largest in the country is pretty well known now, but not many people probably know that the motor car was the means for the third largest revenue into Uncle Sam's treasury during the fiscal year which ended July 1, 1920. According to the report of the commissioner of internal revenue, the largest revenue item was the income, war profits and excess profits tax which netted \$3,957,692,870; the next highest revenue came from the sale of cigarettes, which brought in \$1,512,245; from the sale of automobiles the government received \$144,494,448 in taxes; alcoholic beverages are fourth on the list, having netted \$139,853,973; from theaters, \$132,717,760 was derived; from non-alcoholic beverages, \$57,480,266; from musical instruments, \$13,625,671.

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NATION WATCHES OREGON

COUNTRY IS INTERESTED IN ROAD BUILDING HERE.

Plea Made for Highways That Will
Endure; Poor Construction in
California Is Cited.

The state of Oregon has adopted a road improvement policy which, because of the vast mileage and enormous expenditure involved, is receiving attention from those interested in highway construction in all parts of the United States. While there are many angles for the state officials having the highway work in charge to consider, judging from the experience of others, an important factor is in relation to the traffic the roads will be called upon to bear.

It is pointed out by F. C. Atwell, of the Mack-International Motor Truck corporation, distributors for Mack trucks, that hundreds of millions of dollars have been spent on highway improvement in various parts of the country which later was found to have been largely wasted, since the roads proved but temporary expedients. Highway engineers five years ago could not even approximate the traffic of today and it is probably true that today cannot indicate future needs. However, it is advised that the state should be prepared to meet the traffic of the future.

Tire Number of Value.
Motorists have a valuable asset in the serial numbers appearing on the side walls of their automobile casings. Recorded, they enable the owners to trace casings lost or stolen. The repair men are glad to keep these

figures facts for their customers. They are also useful in determining mileage records and service, according to Miller tire officials.

Inspecting Piston Rings.
A good check on the condition of the piston rings may be had by feeling the crank case. If it is hotter than usual, it is probable that there is leakage past the rings which either are worn or stuck in their grooves because of carbon deposits.

The automobile industry in France employs approximately 230,000 people.

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