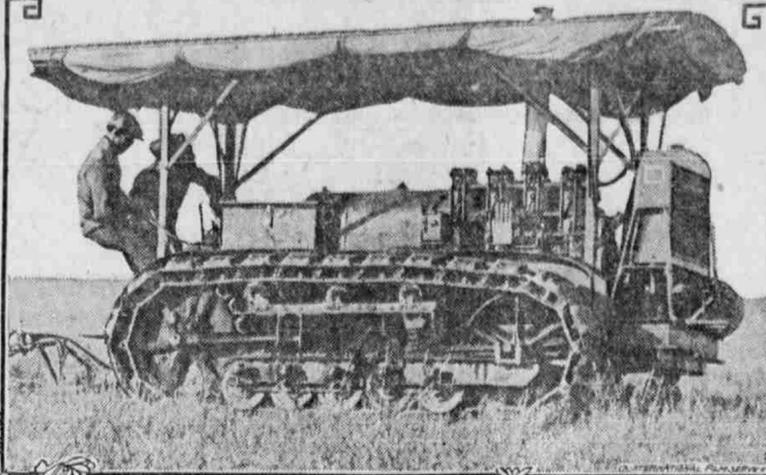


# TANK NOT INVENTED AS WAR MACHINE

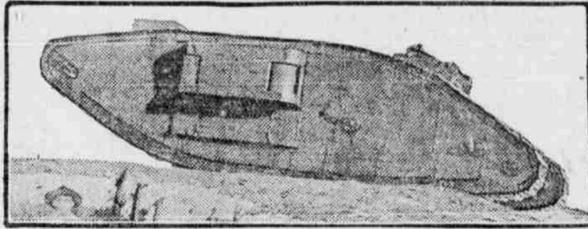
Thousands of Tractors Now in Use on Farms in All Parts of the World



TYPE OF TRACTOR USED ON MANY FARMS



TRACTOR CONVERTED INTO ENGINE OF WAR



MONSTER TANK OF CATERPILLAR TYPE

**T**HOSE who have watched the operation of the tanks at the movies and have marvelled at the lumbering machines that crawl over the face of the earth like prehistoric monsters have gained some idea of the adaptability of the modern tank. No other armored machine that moves upon the ground is so capable of surmounting obstacles.

When the squadron of tanks appeared in the vanguard of Byng's famous drive at Cambrai, its appearance seemed providential, writes Hamilton M. Wright in the New York Sun. The armored levathans pushed through the German barbed wire entanglements as if they were so many cobwebs. They sidestepped deep pockets, stretched their long tracks over miniature chasms, dipped, rose, backed and tipped at dangerous angles as they picked their way forward amid a hail of missiles.

And yet for all its supreme adaptation to the needs of the hour the tank was not invented for war purposes. The first tanks introduced into Europe were used in lumbering operations and in heavy hauling, just as they were in the United States. Rapidly their use was extended to large agricultural works and before the present war broke out the track layers were well-known in every country in the world. Even the prosaic track layer used in farming will, if armored, make a tank for war use. Indeed during the 1917 recruiting season ordinary track layers armored with sheet iron plowed through walls almost as readily as the biggest war tanks yet built.

At the present time track layers are used in plantation work in Cuba, the Philippines, Java, Hawaii, South Africa and so on throughout the world. There are almost one hundred of them at work in Hawaii, taken there from California where the tractor flourishes.

They are hauling logging trains in Maine, Montana, Wisconsin, Minnesota and Canada as efficiently as they are transporting supplies in the mining regions of the West. On the dusty roads of the Panamint range, where the steep grades wear down the spirit of the strongest mule teams and where water stations are few and far between, track layers are as valuable for freighting as they are in the heat and whirling sand clouds of the Mojave Desert.

There are at the present time about fifteen firms engaged in making tractors with the endless belt type of drive. There are between eight and ten thousand tractors of this type of all different makes now in use in the world.

Factories are now speeding the construction of these track-laying tractors for the use of the United States in the field artillery, marine corps, signal corps and other branches of the service. Armored track layers are used in hauling supplies over ground that motortrucks cannot travel on. Today manufacturers of track layers find the war orders tax their facilities to such an extent that they are not able to keep up with the commercial demand.

The advance of the tank over the earth suggests the movement of a living creature. Yet its operation is simple. The track layer lays its track down in front of the frame, rolls over it, picks it up again and repeats the process.

The track consists of a broad-gauged belt or endless chain of flat steel links, which is put in motion by large chain-supporting wheels which fit into the inside of the belt by gears. It thus resembles a belt stretched around the front and rear wheels of an automobile and presenting a flat surface on the ground.

The outside of the belt is comprised of broad links known as track plates which are ridged to prevent their slipping. The inside of the belt contains the twin tracks upon which rest the rollers that support the weight of the tractor.

Nine out of ten persons who watch a tractor demonstration for the first time get the impression that the track itself is moving upon the ground. The illusion is created by the fact that the top of the belt is observed to be going forward. But the forward motion of that part of the belt is taken up by the forward motion of the car. If the car is raised from the ground and the motor set in motion the belt will be seen revolving around the supporting chain wheels. In this case the tank is absolutely at rest.

There are two belts, one on either side of the car. When the car goes straight ahead both belts revolve at even speed. But the right and left hand tracks may be operated independently.

Through the operation of clutches that correspond to those in an automobile one track may be brought to a standstill while the other track continues to move at normal speed. The tank with all its power applied on one side will make a sharp turn. If the right hand track is moving and the left is still the tank will turn to the left.

The weight of the tank is distributed along the whole length of the track. In the crumbling newly reclaimed land of the San Joaquin delta, California, track layers travel on soil that will not support the weight of a man, much less a horse. They will pass over cracks in the crumbling earth that a horse could fall into, dragging harrows over the uneven ground until all crevices are

filled with earth and the new-made fields present a finely mulched even surface.

The tank is not only first in war. It is first in peace. For its weight it has more pulling power than any farm machine made. It is the biggest money saver and time saver ever introduced for power purposes upon the farm. The division of agricultural engineering of the University of California has found that one man with a 45 horsepower tractor on the university farm can do the work of from three to six men with mules. Moreover, the same machine may be kept going day and night, a great advantage in California, where it is necessary to get a large amount of work done in a short time. And it requires no feed or care when not working.

For a varied illustration of what a track layer can do take the case of the L-54, a husky little 45 horsepower tractor which has been out of the shop for eighteen months. The writer watched her working and learned of her career since the day she left the factory.

She was hauling beets when I first saw her. Under the thrust of her powerful engines she went forward in a cloud of dust that hid her from all eyes but her driver's. She mounted the sides of the levee, dragging her own weight of five and one-half tons and two eleven-ton truckloads of beets as easily as if there had been no load at all.

The ground on the island is what ranchers in the delta of the San Joaquin river call peat bottom fluff. It gave under like saw logs in a mill boom as the little L-54 dragged her weight over it, hugging the ground as closely as a badger. When she had reached the top L-54 stopped a moment and the driver got his bearings. Then the gears connected with her right track, her left track remaining stationary, and she swung around from right to left on her own axis quite as rapidly as a lady in the fox trot.

This, however, was nothing for the L-54. She can go backward or forward, up hill or down, and can spin around all day like a dervish if her driver throws in but one clutch. Time and again she has picked her way over the peat bogs of the newly reclaimed land, skirted the edge of big cracks six or eight feet deep, backed and sidestepped and bridged miniature chasms, confident that nothing short of a cave-in of the whole earth could stop her progress and that the harrows, plows or trucks behind were bound to follow wherever she led.

L-54 is a ponderous, deliberate creature with a tremendous grip upon the earth. If covered with sheet iron and armored she could tear her way through wire entanglements as easily as Byng's tanks tore through the German defenses at Cambrai. But more than all things else she is a money saver and a man saver.

This is all in the day's work with L-54, and night's work, too. In fact her driver can remember when she worked all day and then went at it at night with an acetylene lamp, plowing up beets with a subsoil plow 16 inches deep. She has been on the job in one way or another all the time for 18 months.

She had pulled a grader holding five cubic yards of dirt to level the land for irrigation before a single acre had been put into beets. She had been lent to a farmer in the nearby foothills. He had hitched her up to a chisel-shaped subsoiler that would break the hardest ground in the district and she had subsoiled the land to a depth of 20 inches, breaking up the hard-plow pan where ten span of horses had failed. For the first time in 25 years that land had produced 30 bushels of wheat to the acre.

When the L-54 mounted the levee with her two

loads of beets she was doing the work of ten two-horse teams. With hay at \$30 a ton, rolled barley at from \$55 to \$60 a ton and other feed proportionately high, it will keep a farmer busy to feed his work stock, let alone make a profit. The United States department of agriculture once made an estimate that it cost \$121 in feed and time to keep a horse throughout the year. The operation of L-54, which replaces 20 horses, costs as follows: Twenty-five gallons of distillate developing 20 horsepower (the work of 20 horses for ten hours), at 10 cents per gallon, \$2.50; two gallons of cylinder oil at about 55 cents a gallon, \$1.10; track oil, transmission oil and cup grease will probably go from 75 cents to \$1 a day. Total, \$4.60.

If anything in the world could stave off a threatened crisis in the world's food supply it would be the tank in agriculture. If there were a sufficient number of gasoline tractors in the

United States today with men who knew how to operate them and take care of them there would be no question but that we could export to our allies every bushel of wheat they require and still have an abundance for our own use. That is, if old Mother Nature and the weather man did not conspire to turn things topsy-turvy.

The first track layers ever manufactured and put into commercial use were very much like the track layers sent over to the Russian armies before the bolsheviks disturbed our calculations as to the course of the war. They were adapted to haul heavy loads through snow, ice, mud and slush and on uneven roads in the logging woods of Maine. They were invented by A. O. Lombard of Waterville, Me., who is, so far as is known, the inventor of the track layer. He put his first track layer in operation early in 1900 and secured a patent on it on May 21, 1901.

In the six months following our declaration that a state of war existed with Germany an average of two gas tractor companies have been incorporated each day. They are good, indifferent and bad. Some are of the stock-selling, get-rich-quick variety.

There is no way of telling how many gasoline tractors there are in use upon the farms of the United States. An expert in automobile power puts the number at 250,000.

Farm experts already foresee the day when gasoline power will be almost universal in agriculture. The war in a few months has done more to increase the demand for mechanical power on the farm than years of peace would have accomplished. The faithful horse will never leave us, but much of his hardest work will be done by gasoline, even on the smaller farms.

## The Pershing Rifles.

Fifty yellow and blue badges, the insignia of the Pershing Rifles, a cadet military company of the University of Nebraska, are being treasured by as many former students of that institution these days. One of them is William Green of Abilene, Kan.

"It was Pershing's own idea," says Mr. Green. "We had been picked from the military company of which he was instructor after coming from West Point to Lincoln. We met in his room one night to organize and 'The Lieut,' as we familiarly called the instructor—he was a second lieutenant then—asked what colors we wanted on our badges.

"Yellow and blue—cavalry colors!" "I have the very thing," he responded, and went to a chifforon from which he took a brand-new pair of cavalry trousers. With shears he ruthlessly cut them across, making fifty badges, each with a strip of blue and the yellow leg stripe. We called the organization the 'Pershing Rifles' and were very proud of the honor. Pershing took us on long camping trips under strict military regulations, and we felt that he was more of a father than a professor to us.

"He never forgot his boys, as he called us. The night he arrived in San Antonio to take charge of the Southwest division after the death of General Funston, I was at his hotel. Though a score of prominent men and officers were waiting to see him he recognized me and spent five minutes asking after the students and laughing over the university days.

"He was a strict disciplinarian, always wanting things done in a hurry—which makes reasonable his impatience now to get at the Germans—but intensely human. He was the one professor to whom the boys went with their troubles—and that is a good test of the human side of anybody."

**Effect of Cold Weather.**  
"The cold weather seems to give Mrs. Flingit a livelier complexion."  
"Yes," replied Miss Cayenne. "I think she puts on more to keep her face warm."

**A Certain Fact.**  
"Concerning this food shortage, it seems to be there is one argument which covers the ground."  
"What is that?"  
"A good wheat and corn crop."

## ARE YOU WITH OR AGAINST THE HUN?

Buy a Liberty Bond If You Would Show the World Where You Stand.

### YOUR HELP IS NEEDED NOW!

There Can Be No Such Thing as Neutrality on the Part of a True American Citizen in This Great War.

By RENE BACHE.  
"Murder!"  
It is a cry for help. What will you do about it?

There is a kind of man who under such circumstances says: "It is none of my business. I am not called upon to interfere."

"Such a man calls himself a 'peace-loving citizen'—a pacifist, to use a word recently popularized.

But you know, and I know, that he is only a coward. His only anxiety is to keep out of danger, no matter at what sacrifice of his manhood.

Even though he knows that his neighbor's wife or child is being attacked he will not interfere. It is "none of his affair." Besides, he himself might get hurt.

The unprovoked invasion of Belgium by the predatory Huns was exactly analogous to the breaking and entering of a peaceable man's home by armed burglars. There's was a criminal enterprise pure and simple.

Later it became manifest that we were likely to suffer similarly in our turn. In fact, the same criminals began to attack us. They killed our people—even our women and children.

So, much against our will, we were at last compelled to fight. If ever there was a just and righteous fight, it is ours in this war. Will you personally stand aside, playing the coward's part, or will you help?

Buy a Liberty Bond.  
If you cannot do your bit with bomb and bayonet, you can help very importantly by buying a Liberty bond.

Would you prefer to help the kaiser and his gang of professional murderers? You can do so by refusing to help your country with your money.

There can be no such thing as neutrality on the part of an American citizen in this war. Either you are a patriot or you are a traitor. Which of the two shall you choose to be?

If you refuse your help, merely standing aside, you are actually aiding the kaiser. You are the accomplice, at least constructively speaking, of the greatest criminal since Nero. Do you approve of the rape of Belgium and the ruthless slaughter of its inoffensive people?

If not, then show it by buying a Liberty bond.

Do you approve of the wholesale violation of women and the mutilation of little children?

If not, then buy a Liberty bond. Are you in favor of the poisoning of wells, of shelling unarmed and helpless people in open boats, of indiscriminate warfare upon noncombatants?

If not, then buy a Liberty bond. You are For or Against.

You cannot compromise with your conscience in this matter. Either you are for these things, or you are against them.

Civilization is engaged in a desperate struggle against barbarism—nay, indeed, something much worse than barbarism, scientific savagery. It is a fight of right against wrong.

Do you wish to help the right? Then buy a Liberty bond.

The happiness of your children and of your children's children is at stake. For there can be no happiness without liberty, and liberty will cease to exist if Prussian power achieves the objects for which it is now contending.

One word more. Do you believe in a life that is to follow this life? Do you believe that your welfare in the hereafter will be influenced by your conduct in your present state of existence?

Then how can you hope for happiness in the "next world" if, in this struggle between right and wrong, you deliberately choose to stand with the Hun murderers against your God?

You are helping them if you stand "neutral," and fail to help your country. Make your choice. And, having chosen, buy a Liberty bond.

### BECAUSE SHE KNOWS

By AMELIA JOSEPHINE BURR of the Vigilantes.

She is a fragile little elderly gentlewoman, a teacher by profession, an Alsatian by birth. During the summer holidays of 1914 she left her home in Strasburg, and came over to visit her brother, in a suburb of New York. She has been here ever since, too proud to be a tax upon her brother's slender means, and maintaining herself by French lessons here and there, governing, helping mothers, and other work to which she has never been accustomed but which she does with the true spirit of France. I have heard—yes, and felt—complaints trickle out and then dry up entirely at the sight of that gallant little figure plowing indomitably through the snow. Her earnings, it hardly need be said, are not large, yet she has bought a Liberty bond of each issue, and is resolved to keep on as long as the war does.

## Grip Still Hanging On?

Back aches? Stomach sensitive? A little cough? No strength? Tire easily? All after effects of this dread malady. Yes, they are catarrhal. Grip is a catarrhal disease. You can never be well as long as catarrh remains in your system, weakening your whole body with stagnant blood and unhealthy secretions.

### You Need PERUNA

It's the one tonic for the after effects of grip, because it is a catarrhal treatment of proved excellence. Take it to clear away all the effects of grip, to tone the digestion, clear up the inflamed membranes, regulate the bowels, and set you on the highway to complete recovery.

Perhaps one or more of your friends have found it valuable. Thousands of people in every state have, and have told us of it. Many thousands more have been helped at critical times by this reliable family medicine.

Prepared also in tablet form for your convenience. The Peruna Company, Columbus, Ohio

Nobody ever regrets having done the right thing.

Happy is the home where Red Cross Ball Blue is used. Sure to please. All grocers. Adv.

Down deep in his heart the average man is anxious to see some other man get it in the neck.

**Itching Burning Skins.**  
For eczemas, rashes, itchings, irritations, pimples, dandruff, sore hands, and baby humors, Cuticura Soap and Ointment are supremely effective. For free samples address "Cuticura, Dept. X, Boston." At druggists and by mail, Soap 25, Ointment 25 and 50.—Adv.

**Never Satisfied.**  
"They say that mules are coming into their own in this war."  
"Yes, and I bet they're kicking about it."

**Used to 'Em.**  
"Do you suppose we'll ever have gas attacks in this country?"  
"Good heavens, man, aren't we accustomed to congress and legislatures in session?"

**Parable.**  
Autocracy and his pal, Militarism, had been away on a long fishing trip, and were returning home.  
"Where are the fish?" asked Herr Deutschland, who had remained at home cutting bait and renewing the fishing outfit at intervals.  
"They got away," said Autocracy and Militarism.  
"Frau!en!" said Herr Deutschland, "fetch me the axe, the double-bladed one."

**Making Bread of Peanut Flour.**  
A baking company in Gainesville, Fla., working in co-operation with B. F. Williamson, a chemist of that city, has put peanut bread upon the market, and is securing wide distribution for it in that locality. The peanut flour used is made from peanut cake left after oil extraction. It contains a satisfactory percentage of fat and is said to have almost twice the nitrogenous food value of dried beef—44 per cent for peanut flour against 25 per cent for dried beef. One-fifth peanut flour to four-fifths wheat flour produces a balanced ration, supplying necessary ingredients furnished by bread and meat in human diet.—Scientific American.

**A Package of Grape-Nuts teaches food conservation. Saves FUEL SUGAR TIME WHEAT AND WASTE. SOLD BY GROCERS.**