

# Why Tanks Are Giant Caterpillars

Armor? The Caterpillar has it. Traveling treads? The Caterpillar has them too. Machine guns? It has a poison squirt-gun

By John Walker Harrington

THE motion of the most formidable and terrifying of modern war machines has often been compared with that of the lowly larva from which comes the radiant butterfly. This famed cruiser of the battlefields might never have been, but for the invention of the farm tractor of Benjamin Holt with its caterpillar tread. Through the courtesy of Captain Haig, of the British Army, who is here demonstrating the pride of the English arms, the writer was permitted to spend nearly an hour within the Britannia, and at every point he was more and more impressed with the idea that not only does the tank resemble the caterpillar in movement, but that there are strange likenesses in structure, in armor, and even in control between the two objects.

The tank is a high-powered, armored automobile differing from the war motorcar in that it moves not on wheels but on two steel belts traveling on the heavy metal frames on either side of its diamond-shaped body. The belts consist of shoes ingeniously linked together in endless chains. Each shoe has a flange, with which the tank can lay a firm hold on the ground. The belts are fitted to heavy sprockets. The rear sprockets are connected by gearing with the powerful engine in the back of the tank. The front sprockets are idlers over which the belts glide. There are also wheels which rest on the upper surfaces of the belts. At the top of the frames are rollers over which the belts pass. The tank is really laying down twin tracks or a railroad of its own.

The body of the average caterpillar consists of thirteen segments, four of which belong to his thorax or, dropping into mechanical terms, his fore compartment, while nine are assigned to the abdominal section. The number of segments varies with the species. The chest portion has three pairs of true legs, so called because they are well jointed, easily controlled and muscular.

They are protected with horny sheaths and are in effect armored. With these true legs the caterpillar can steer himself, help himself along a twig, or seize leaves.

The pro-legs, or false legs, appear on at least five of the segments, duly paired. In their structure they resemble the shoes of the tank belts to some extent and they perform the same functions. They are fleshy unjointed protuberances rather than limbs. At the bottom of each one are minute hooks which are used automatically in giving the animal a hold on the surface he is traversing. They are for clasping, and in fact the rear pair are so modified as to be called claspers. Now, if a caterpillar could keep his pro-legs or shoes moving over his head and over his tail in an endless chain arrangement, his resemblance to the tank as far as the locomotion details are concerned would be perfect.

Some of the caterpillars have such a rapid, undulating movement, that it is hard at first to analyze its elements. The caterpillar actually walks by extending and contracting the fleshy segments of his body, the power being transmitted mostly to his pro-legs.

Any one who has seen the fuzzy larvae of the tussock moth going up a tree trunk will realize that the caterpillar is happy at any angle. The same principle of construction illustrated in that insect permits the tank almost to stand on end without losing balance.

For the sake of simplicity, the wheels at the rear of the tank by which it was once steered have been discarded and the direction is given by running the two belts at different speeds. The landship is rudderless. The caterpillar can twist his segments at the jointures.

The observation facilities and guide centres of both are in their forward compartments. The commander of a tank and the driver sit well forward in the Juggernaut, looking out of very narrow



This comparison shows clearly the resemblance between a tank and a caterpillar. The artist has drawn them to such scale that they are both the same size and the immediate surroundings of each are in proportion. Suppose a caterpillar as big as a tank came marching over our fair country. Suppose he were eight feet wide and twenty feet long—the size of a tank—what a frightful monster he would be! Yet this is approximately the appearance of a tank to the Boches. No wonder that they cause such consternation



slits. When it is necessary to close the slits on account of rifle fire, the pilot gropes his way as best he may. The captain or lieutenant in command is the brains of the steel-clad caterpillar.

Caterpillars have fairly active brains and a good workable ganglia, or nerve center. On either side of the head they have small, shining eyes in rows. They also get good information about the nature of the surface over which they are passing by lowering delicate filaments or sense organs known as papilli.

The British tank is a terror to the Teuton infantry as it starts relentlessly over No Man's Land, crushing everything within its reach and mowing down the enemy. It brushes aside wire entanglements, shatters dugouts and forts of reinforced concrete and slays cowering wretches in the trenches whose cries for mercy the men in the car of death cannot hear. What the tank is to modern battle, the caterpillar may well be in the wars of the insect world.

Imagine what a vision of frightfulness that hideous specimen of the larval state, the hickory-horned devil, would be to the human race, if he were enlarged to tank size, approximately eight feet wide and twenty-eight feet long! What a sight to make men's knees shake with fear, with his waving antennæ, his fierce and gleaming jaws, his towering horns, his beady eyes, and his ponderous bulk! He would ignore all obstacles as he went trampling and devouring over the plain, his vertical mouth opening and shutting meanwhile like a ponderous valve.

In the realm of twigs and leaves, the cry "The Caterpillars are coming!" must mean as much as the alarm "The Tanks!

The Tanks!" means to the Germans. The caterpillar is not the inoffensive slug which he often seems to be as we look down upon him as he bestirs himself across some woodland walk. His hide is very thick, and underneath it is a heavy layer of fat. The doughty warrior ants coming out with their nippers to assail him, do not worry him much. Up goes the tank of the world underfoot, and

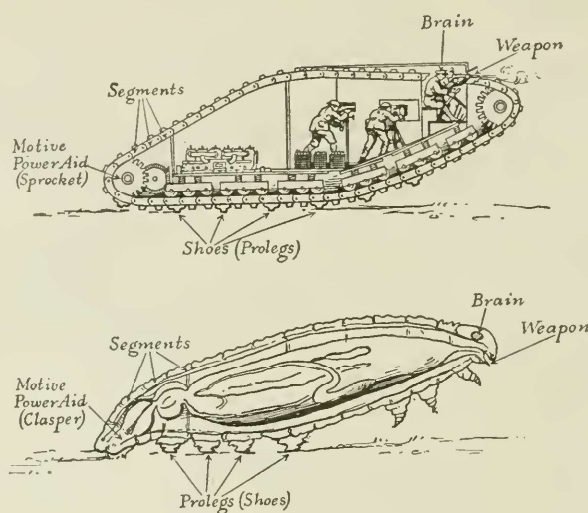
down he comes with a swing of the forward part of his body and a group of his enemies are crushed to extinction. Several varieties of caterpillars have very effective weapons of offense. The species from which comes the swallow-tail butterfly mounts a rapid-fire poison-gas gun. When he is hard pressed by his enemies he will project from his

head a tube which looks not unlike the barrel of a Lewis machine-gun, and discharge an odor so offensive that insects within scent of it curl up and die.

The camouflage of tanks and caterpillars is effective always. "Old Crusty" at the western front and "Old Crawly," of the garden both resort to disguise. The tank is often painted the hue of the mire; the caterpillar assumes the tone of the soil.

There scarcely seems a characteristic, therefore, either of the fuzzy denizens of the foliage or of the monster military mechanisms which may turn the tide of this war, which does not reveal that, after all, the terrors of the terrain are caterpillars titanic.

It seems, after all, as though "there's nothing new under the sun." We copy the fish for submarines, the birds for airplanes, and now the tank is just a glorified caterpillar.



A tank and a caterpillar are first cousins. Notice the wonderful likeness in mechanical detail