Neum Interesting Facts and Science Life 626



Why the BATTLE TANK Is REALLY Right Clearly Show the Resemblance Between a Tank and a

a GIGANTIC CATERPILLAR

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 the size of a battle tank, approximately 8 feet wide and 28 feet long! What a sight to make men's knees shake with fear, with his waving antennae, 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

The caterpillar is not the inoffensive slug which he often seems to be as he is seen bestirring 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

Several varieties of caterpillars have very effective weapons of offence. 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 British tank is a terror to the Teuton in fantry 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 reenforced concrete and slays cowering wretches in the trenches whose cries for mercy the men in the car of death cannot hear.

In this vivid description, in which the motion of one of the most formidable and terrifying of modern war machines is compared with that of the lowly larvae from which comes the radiant butterfly. John Walker Harrington, writing in Popular Science Monthly, shows that the war tank is to modern battle what the caterpillar may well

How SHELLS Are GIVEN

huge quantities of cannon shells shipped to

TAVE you ever stopped to think just how am-

munition experts manage to check up the

tront? Do you know that extremely fine elec-

twical precision apparatus is employed for the pur-

Among such devices is the delicate electric

Aronograph, a highly sensitive and accurate elec-

cal instrument used for recording the speed of

wells in flight. This instrument showed the ord-

Since inspectors of the Russian government that

electric wires, severing one of the wires, which

causes one of the electrically controlled split-sec-

ond chronographs to be immediately actuated. The

shell speeds on for say a thousand yards or so, de-

pending upon the test and size of shell, when it

strikes another network, severs a wire, opens the

circuit of a second split-second chronograph and the deed is done. It is evident that by checking

up the difference in time between the two (or

more) chronographs and knowing the distance the

shell traveled between both clock actuations, that

the velocity of the shell in feet per second is at

have failed to go off when fired. The shells are

steel pit is used for exploding shells that

once determined.

the rate of 1950 feet per second!

insect world. Just as man copied the fish for submarines, the birds for airplanes, he has modelled the battle tank along the

lines of a gigantic caterpillar. So remarkable, in fact, are the numerous points of close resemblance between the battle tank and the caterpillar that it can be said that the idea for this formidable war machine was secured solely from nature. As Mr. Harrington points out, this famed "cruiser" of the battlefields might never have been built, but for the invention of the farm tractor of Benjamin Holt, with its caterpillar tread.

After spending about an hour within a battle tank Mr. Harrington says that 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 like-

A ROCKING CHAIR SEE-SAW

FOW a see-saw easily can be made from a discarded rocking-chair is described as follows in Popular Mechanics:

The pack of the chair is removed, and the long ends of the rockers cut off, or the rockers refitted so that the ends are of equal length from the cen-



tre. The legs can also be braced with boards if

is little danger from a fall.

such straightening is necessary. A suitable board is fastened to the top of the chair with screws and handholds are provided, as shown. The rocker support should be made low enough so that there

that the electric camera was ever used in this

country to determine the velocity of projectiles.

come from Japan, but do not thrive in America. The blackamoor telescope seems made of finest black velvet and lacey crepe. The Paradise fish is remarkable because the female tries to destroy her young while the male cares for them faithfully. At spawning time on an up-to-date goldfish recovered by "shell scouts" on the range and are farm the fish are placed in wooden tanks covered fired off electrically by the officer in charge. with Japanese hyaciaths, on the roots of which Photography played an important part in testthe eggs are deposited. The plants are then cut off ing the 3,000,000 Russian shells at the Lakehurst and put in glass jars, where, in three to five days, proving grounds. It is said to be the first time

nesses in structure, in armor and even in

in his illustrated account, "is a high-

powered, armored automobile differing

"The tank," continues Mr. Harrington

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

In comparing the caterpillar with the tank Mr.

"The body of the average caterpillar consists

of 13 segments, four of which belong to his thorax

or, dropping into mechanical terms, his fore com-

careful attention. Those with protruding eyes,

Of these, the Chinese mottled telephone is gor

A tiny species from Florida goes by the name

of gambusia holbrooki, while the comet is exten-

sively raised in this country. The "lion heads,"

which grow a ferocious mane on head and gills,

the eggs are hatched. The baby fish, hardly vis-

the telescope fish, are most to be desired.

down twin tracks or a railroad of its own."

Harrington describes the former as follows:

control between the two objects.

The Great DIFFICULTY AISING goldfish or the other prettily colored ible to the eye, are nourished for seven days by varieties which spend their lives swimming about small glass bowls would seem to be the yolk sac, after which they are removed to rear ing tanks. the easiest life it is possible to choose, but some species are rare and highly prized and require

Caterpillar, both of Which Are

Here Drawn on the Same Scale.

is rather dirty in appearance, caused by the presence of infusoria, the first food of the infant fish. Afterward the prepared food, on which they have to exist for the rest of their lives, is given. Fantails are produced by inbreeding, and as soon as the newly hatched lot grows large enough to show its characteristics, these are sorted out.

of RAISING GOLDFISH

partment, while nine are assigned to the abdom-

inal 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 pro-

tected with horny sheaths and are in effect arm-

ored. With these true legs the caterpillar can

steer himself, help himself along a twig, or seize

five of the segments, duly paired. In their struct-

ure 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 mov-

"The pro-legs, or false legs, appear on at least

The water in these has been left stagnant and

At the Left Is Shown the Wonderful Likeness in

Mechanical Detail Between a Tank and a Caterpillar.

ing over his head and ever 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 sapid, un-

dulating movement, that it is hard at first to analyze their elements. The caterpillar actually walks by extending and contracting the fleshy segments of his body, the power being transmitted mostly to his pro-legs.

"Anyone 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 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 centre. 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 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, concludes Mr. Harrington, either of the fuzzy denisens 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 titanic caterpillars.

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SPOILED POTATOES Can Be Used to Make BREAD

by were sending shrapnel shells through the air DECAUSE of the scarcity and high price of all A Russian test on American-made ammunition kinds of foods, numerous methods have been conducted at Lakehurst, N. J., where over devised not only to prepare new viands and 2.000,000 shells were tested. Each shell could not, to reduce consumption, but to utilize more comcourse, be tested so the inspectors satisfied pletely some products which were wasted before. emselves with checking up 60 shells from every One of these very interesting methods, just de-\$.000 produced. If one shell when fired failed to vised by a Frenchman, M. Ducomet, a professor of perister properly on the photo taken by the electhe Rennes National Agricultural College, makes trically operated camera, the whole lot of 25,000 possible the saving of potatoes spoiled either by the shells was immediately returned to the manufacphytophtora disease or by frost. This scientist discovered that for months the starch of the potatoes, The electric chronographs or split-second clocks that is to say nine-tenths of its food value, resisted used in timing the velocity of the shells when the action of the different ferments which give the Gred, are connected up to a net-work of electric bad odor and disagreeable appearance to the vires placed at certain predetermined intervals tubers. Then, after many experiments, he devised along the proving range. As axplained in the Electhe following method enabling the farmer to utitrical Experimenter, the operation of the velocity lize the spoiled potatoes which otherwise could not test is as follows: As the build or shell leaves have been used even to feed hogs. the muzzle of the gun it strikes one network of

The tubers, having been washed, are abandoned in piles until completely spoiled. They are then crushed with a little water and the mass put through a sieve. To the pulp obtained in this way

is added twice its volume of water and the mixture is put in an open barrel, stirred and allowed to decant. After a while the liquid is decanted by opening a hole placed at a convenient height. (Each barrel must be punched a vertical series of holes which are corked in order to be easily opened when necessary). Water is added again to the mass, the mixture is stirred, allowed to rest, decanted and so on, until the decanted liquid has not any more its disagreeable odor. Four or six treatments are needed according to the spoiled condition of the tubers. The mass is finally poured on a cotton fabric, and the starch thus obtained used in making bread by kneading with ordinary wheat dough. When it must be conserved, the starch is dried in the bread oven which is found in each old fashioned French peasant house.

A laborer can prepare in a day about 200 pounds of starch, according to the Scientific American. The wages he receives are the total cost of the starch extracted, since the potatoes would have been wasted if not utilized in this way.

AMERICAN MEDAL of HONOR Is RAREST of DECORATIONS

AVAL and military men of America claim that their "Medal of Honor," equivalent to Britain's Victoria Cross, is the hardest to gain, the most rarely awarded, and therefore the most precious and least known of all such decorstions throughout the world. When a man is entitled to wear an inconspicuous bronze star pendant from a blue ribbon on which are 13 white stars, it is certain that he has performed a deed

of almost superhuman fearlessness. The Medal of Honor is a five-pointed star with a medallion in the centre bearing the head of Minerva and around it "United States of America" in relief. On each ray of the star is an oak leaf, and the points themselves are trefoil shape. A laurel wreath in green enamel encircles the whole. and this wreath is surmounted by the word "Valor," which in turn is surmounted by an eagle

that attaches the decoration to its ribbon. The holder of this decoration, if an army man, wears, when in service uniform, a button or badge. six-sided, and made of blue silk with 13 white stars. If in the navy, the decoration is represent-

ed by a small red, white and blue bow knot. The Medal of Honor was first authorized by Congress on March 3, 1862, and was for non-commissioned officers and privates only. But in 1863 it was extended to commissioned officers as well. In the war between the states 1500 Medals of Honor were won, 96 per cent. going to private sol-

not be cured so easily. The pupil involuntarily applies too much force at certain parts of the vocal organs, causing the stuttering and a sputtering with which we all are familiar. One cure is to relieve the overworked parts by distributing the energy evenly. This is learned by pronouncing certain flowing sounds in front of a candle until the flame does not flicker.

Candle Flame.

Science Monthly says that by making the child speak before a mirror the teacher can correct these

Stammerings is a nervous disorder which can-

INFORMATION That Every WOMAN Should HAVE

Enamel baths can be thoroughly cleaned with a fiannel dipped in paraffin and should not be scrubbed with soap, as this cracks the enamel.

Instead of washing combs, clean them by brushing and pulling a piece of cotton through the teeth, always changing it as it gets soiled; then rub with a clean cloth.

Holes in plaster walls may be stopped with a mixture of sand and plaster of paris mixed into a paste with water. When dry cover with a piece of paper to match the wall.

For worm-eaten furniture peroxide of hydrogen is excellent, and should be used without water. As it has no smell, it is more pleasant in use than paraffin and other remedies often used for old furniture, and it does not injure the polish.

Candle Cure for Stammering ISPING and stammering are separate imper-

fections of speech which require entirely different treatment. Lispers, for instance, can be cured in a short

time by tongue and palate gymnastics. They "lithp" simply because they do not work their tongue and palate properly. A writer in Popular

Practising Breath Control with a

the river and plunged in.

. . . Always press silk under a piece of muslin to prevent the silk from becoming hard and crackly. First damp the muslin, and use a moderately hot iron till the muslin is quite dry.

An easy way to skin a beet without bleeding it and causing it to lose color is to put it in cold

To turn a felly out of a mold without breaking

ft, try rubbing a little of the best olive oil on the

shape before pouring in the jelly.

water as soon as it is cooked. Then draw the hand gently down the beet and the skin will drop off without trouble. To clear a house of beetles, put one pound of

powdered borax into a tin with a perforated lid. Dust the borax lightly over the floor, or the walls. and in the cupboards: in fact, every place where the pests are found. They will soon disappear. Silk embroidery may be cleaned with a camel-

hair brush dipped in spirits of wine and rubbed over the embroidery. The brush should be frequently rinsed in some spare spirit to remove the dirt. The embroidery need not be removed from the garment it trims. Stains caused by indelible ink on linen may

with patience be made so faint as to be scarcely perceptible. First of all, moisten the stain with foline, then use hyposulphate of soda. Next rinse in clear water and dry well, and the stain, if a new one, will often entirely disappear and even an old one will grow very faint.

Instinct Stronger Than Reason

MAT even in men instinct is sometimes stronger than reason is illustrated by the following incidents: There had been shipped on a Mississippi river

steamboat a box with a glass cover, containing a very active rattlesnake. Whenever any one approached the box the serpent would strike the cover. The owner of the reptile challenged an? one to hold his finger on the glass and let the rattler strike at it. There was no danger, and it seemed an easy thing to do. First one and then another tried it, but when the snake gave its vicious spring the finger was invariably drawn back with a jerk. Instinct was stronger than reason and will combined.

A young man in Paris had lost his last sou at the gambling table, which included a large sum nging to his employer. He started for the Seine to drown himself. On the way there was a great commotion, caused by the escape of a lion from a strolling menagerie. People fled in all directions. Instantly the man who was seeking death climbed a lamp post and clung to the top of it, trembling in every limb. When the animal wa captured and the danger was over he proceeded

HowMountain LAUREL Showers BEES With POLLEN

TLOP! and away go the little stamens of the mountain laurel and throw pollen over the bee which alights upon them. The naturalist ness here one of the most remarkable devices in all nature for compelling an insect to carry pollen. The lover of nature sees in the mountain laurel one of the most beautiful of the common woodland flowers. And before we scarce realize it we shall again be in the midst of blossoms, says Ed-

ward Bigelow in "Boys' Life." The corolls is saucer-shaped, with 10 little pits mear the edge, and lightly caught in each of these little pits is the anther at the end of the elastic flament. This natural thing seems to grow in an unnatural manner, but do you know of any other plant that actually grows in distorted or strained position, or puts its own self in an uncomfortable and strained position, from which it is glad to be released when the first insect comes along and

The whole mechanism is like a hair trigger. It is so carefully adjusted that even a slight jar will sometimes set it loose. Shaking an entire bush releases great numbers of these flaments, and flop, flop, flop they leap out of the pits and the anthers throw their pollen everywhere. The bee which visits the mountain laurel must feel that the times are prosperous, since he is showered with golden pollen which he carries to the next flower to fertilize the seeds.