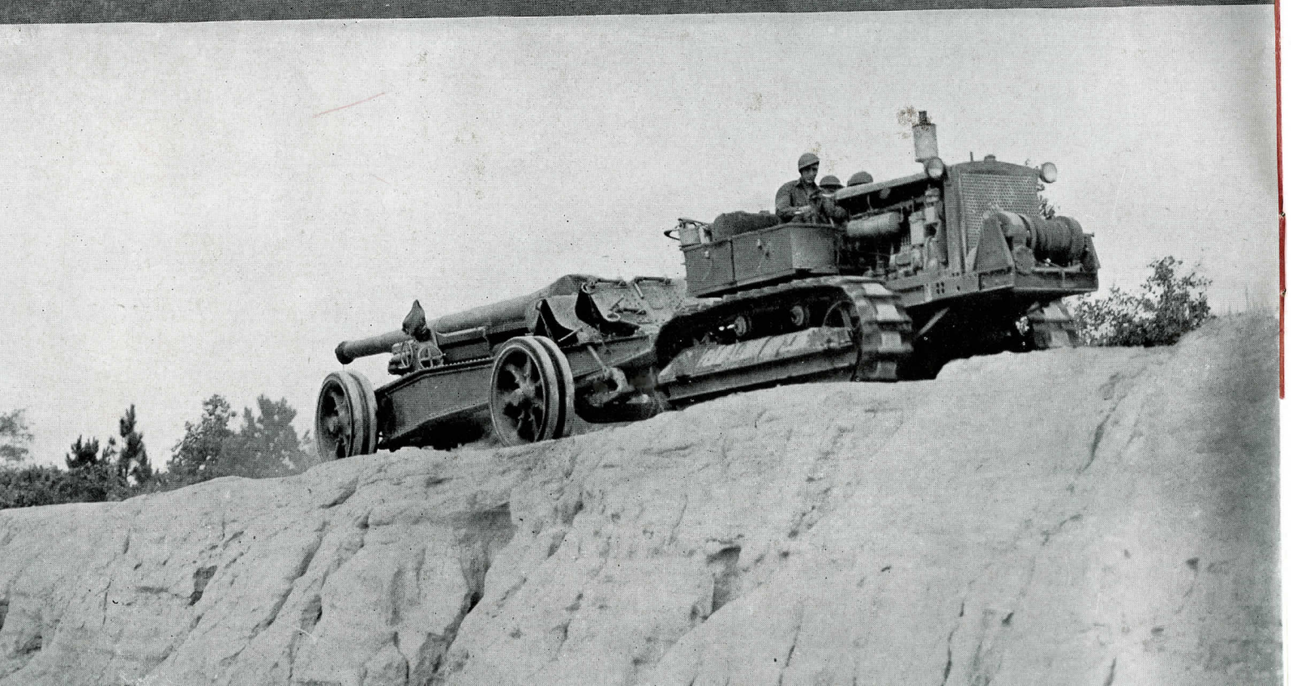
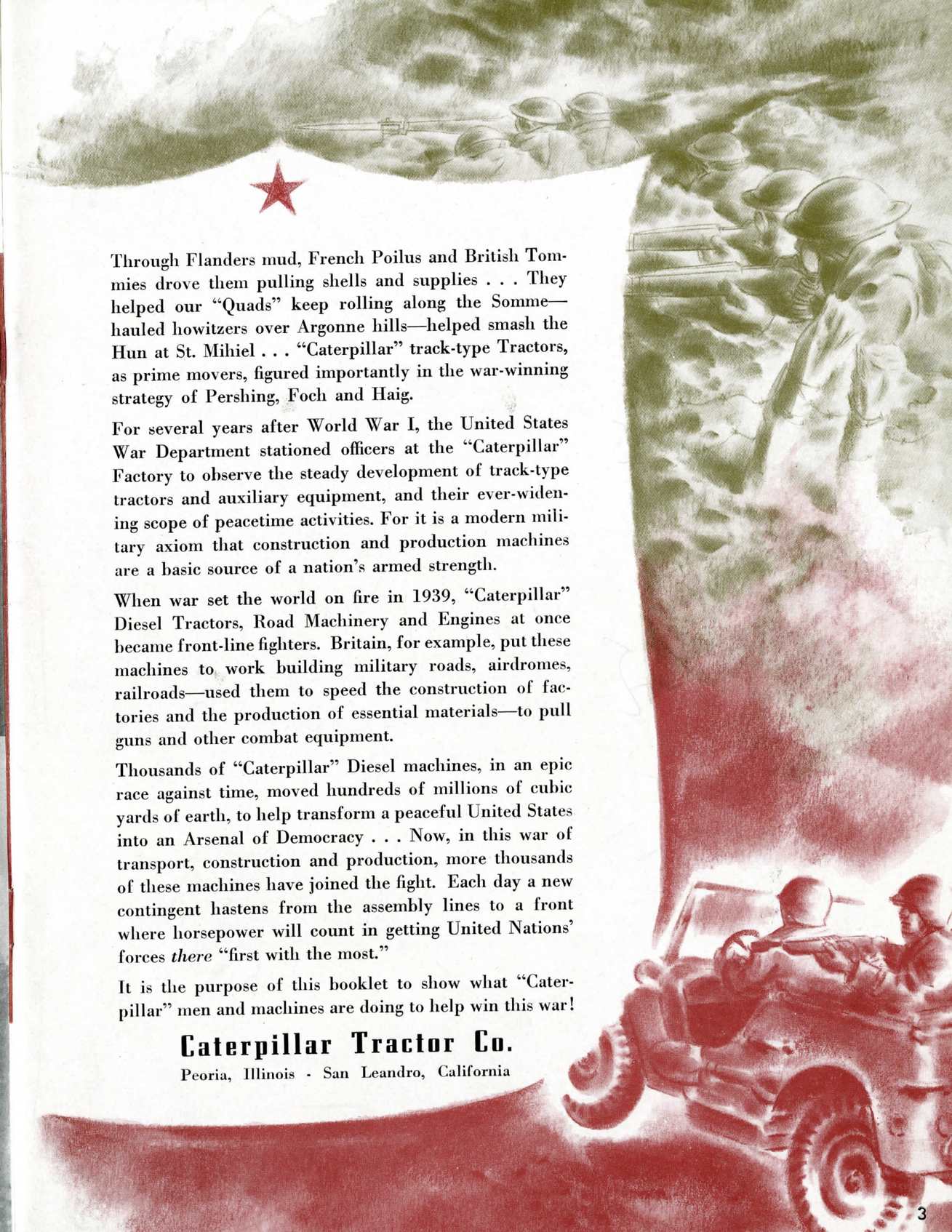

HOW
"Caterpillar" Helps Fight
World War II

In World War I... AND NOW!





Through Flanders mud, French Poilus and British Tommies drove them pulling shells and supplies . . . They helped our "Quads" keep rolling along the Somme—hauled howitzers over Argonne hills—helped smash the Hun at St. Mihiel . . . "Caterpillar" track-type Tractors, as prime movers, figured importantly in the war-winning strategy of Pershing, Foch and Haig.

For several years after World War I, the United States War Department stationed officers at the "Caterpillar" Factory to observe the steady development of track-type tractors and auxiliary equipment, and their ever-widening scope of peacetime activities. For it is a modern military axiom that construction and production machines are a basic source of a nation's armed strength.

When war set the world on fire in 1939, "Caterpillar" Diesel Tractors, Road Machinery and Engines at once became front-line fighters. Britain, for example, put these machines to work building military roads, airdromes, railroads—used them to speed the construction of factories and the production of essential materials—to pull guns and other combat equipment.

Thousands of "Caterpillar" Diesel machines, in an epic race against time, moved hundreds of millions of cubic yards of earth, to help transform a peaceful United States into an Arsenal of Democracy . . . Now, in this war of transport, construction and production, more thousands of these machines have joined the fight. Each day a new contingent hastens from the assembly lines to a front where horsepower will count in getting United Nations' forces *there* "first with the most."

It is the purpose of this booklet to show what "Caterpillar" men and machines are doing to help win this war!

Caterpillar Tractor Co.

Peoria, Illinois - San Leandro, California

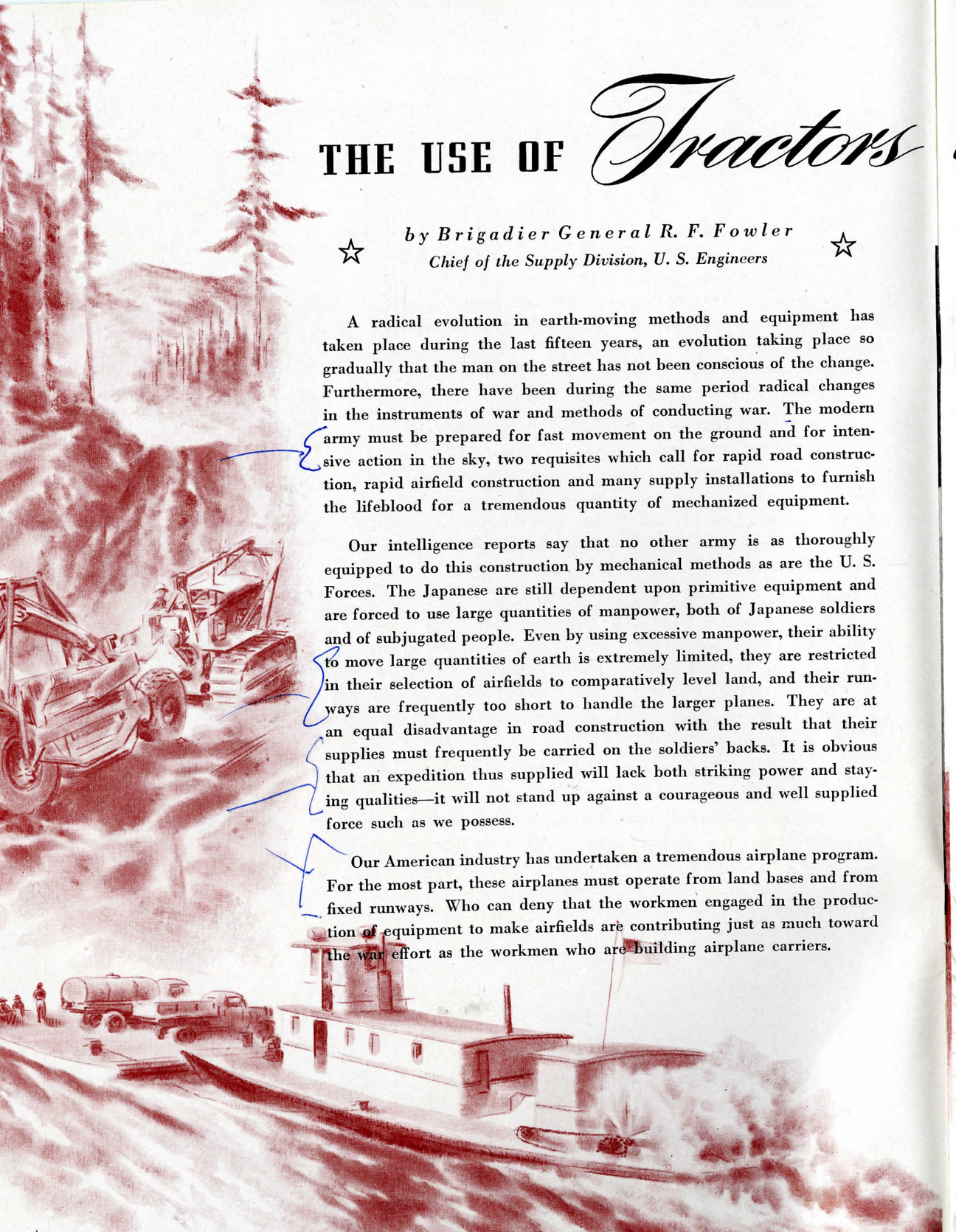
THE USE OF *Tractors in War...*

by Brigadier General R. F. Fowler
Chief of the Supply Division, U. S. Engineers

A radical evolution in earth-moving methods and equipment has taken place during the last fifteen years, an evolution taking place so gradually that the man on the street has not been conscious of the change. Furthermore, there have been during the same period radical changes in the instruments of war and methods of conducting war. The modern army must be prepared for fast movement on the ground and for intensive action in the sky, two requisites which call for rapid road construction, rapid airfield construction and many supply installations to furnish the lifeblood for a tremendous quantity of mechanized equipment.

Our intelligence reports say that no other army is as thoroughly equipped to do this construction by mechanical methods as are the U. S. Forces. The Japanese are still dependent upon primitive equipment and are forced to use large quantities of manpower, both of Japanese soldiers and of subjugated people. Even by using excessive manpower, their ability to move large quantities of earth is extremely limited, they are restricted in their selection of airfields to comparatively level land, and their runways are frequently too short to handle the larger planes. They are at an equal disadvantage in road construction with the result that their supplies must frequently be carried on the soldiers' backs. It is obvious that an expedition thus supplied will lack both striking power and staying qualities—it will not stand up against a courageous and well supplied force such as we possess.

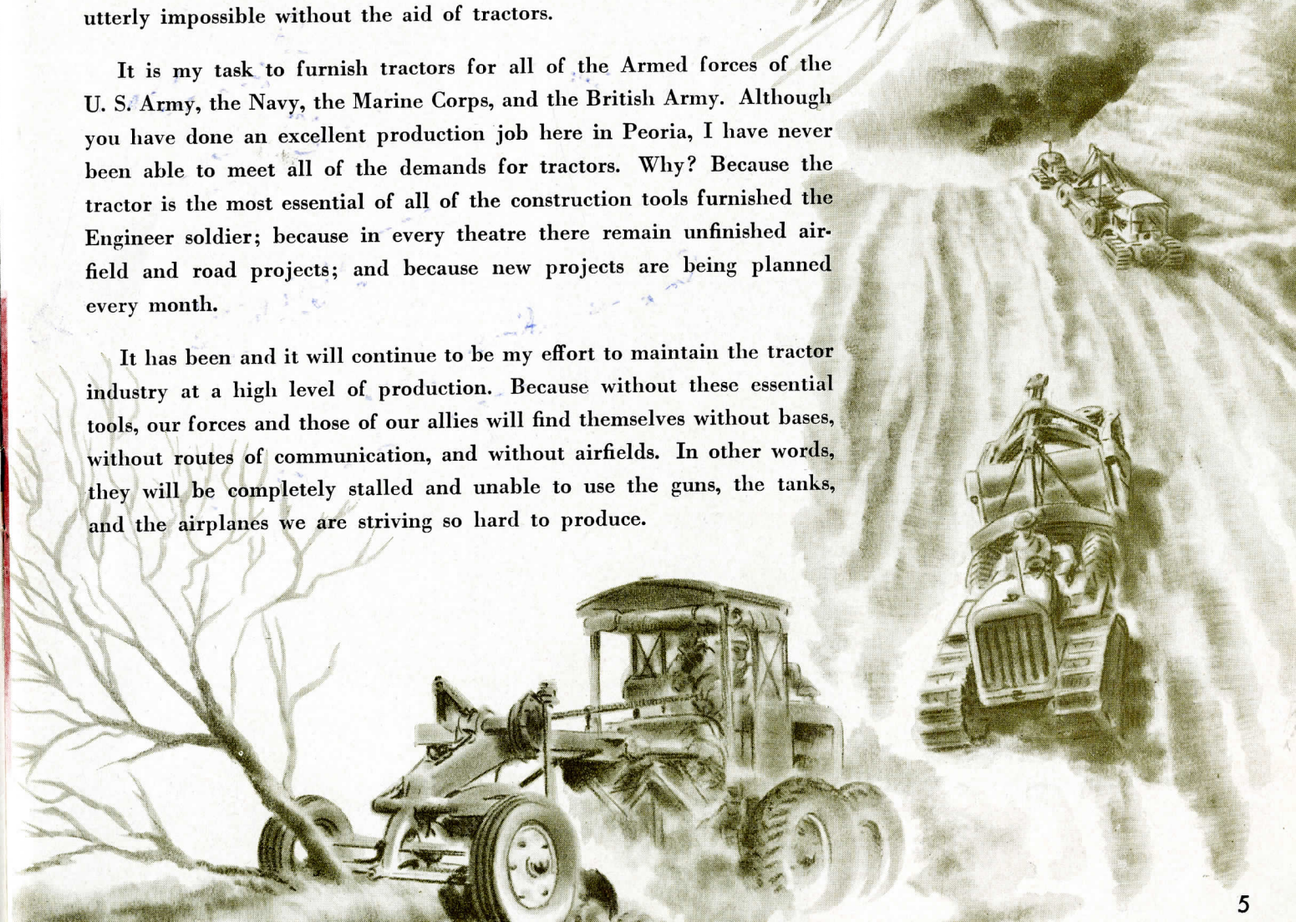
Our American industry has undertaken a tremendous airplane program. For the most part, these airplanes must operate from land bases and from fixed runways. Who can deny that the workmen engaged in the production of equipment to make airfields are contributing just as much toward the war effort as the workmen who are building airplane carriers.

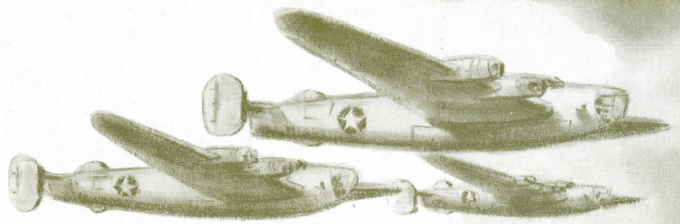


The principal development that has brought about this great improvement in earth moving methods is the tractor with its allied equipment, of scrapers and graders. During the last 18 months the American people have witnessed here in the United States a stupendous airfield program which would have been utterly impossible without the tractor. Our troops are building airfields abroad with identical equipment. They are building sea bases throughout the globe and roads through jungles with this same equipment. As Chief of the Supply Division of the Chief of Engineers, it was my responsibility to equip the Alcan highway, and I had only two weeks' time to assemble the equipment in Canada. This equipment consisted mainly of tractors. The rate of construction was calculated on the amount of road each tractor could clear and grade each day. It can be stated without fear of contradiction that the construction of the Alcan Highway, a distance of 1600 miles through a wilderness, would have been utterly impossible without the aid of tractors.

It is my task to furnish tractors for all of the Armed forces of the U. S. Army, the Navy, the Marine Corps, and the British Army. Although you have done an excellent production job here in Peoria, I have never been able to meet all of the demands for tractors. Why? Because the tractor is the most essential of all of the construction tools furnished the Engineer soldier; because in every theatre there remain unfinished airfield and road projects; and because new projects are being planned every month.

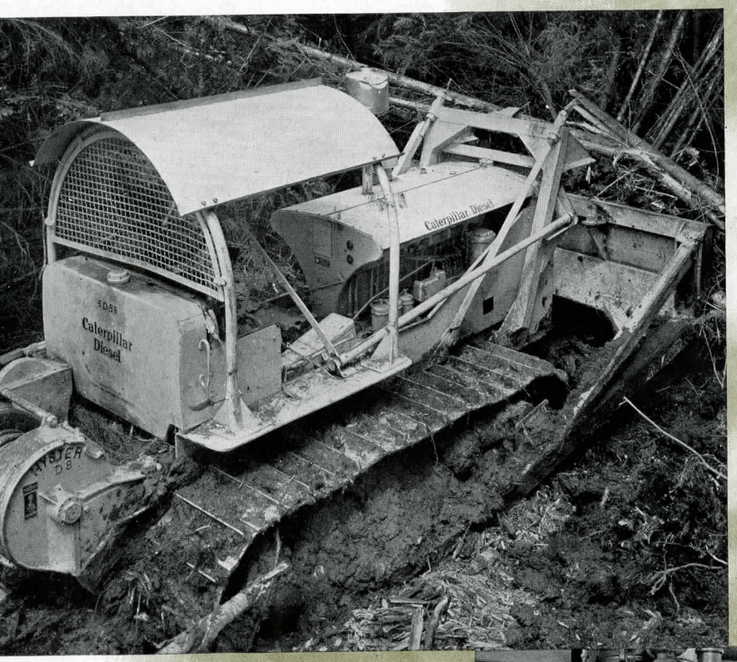
It has been and it will continue to be my effort to maintain the tractor industry at a high level of production. Because without these essential tools, our forces and those of our allies will find themselves without bases, without routes of communication, and without airfields. In other words, they will be completely stalled and unable to use the guns, the tanks, and the airplanes we are striving so hard to produce.





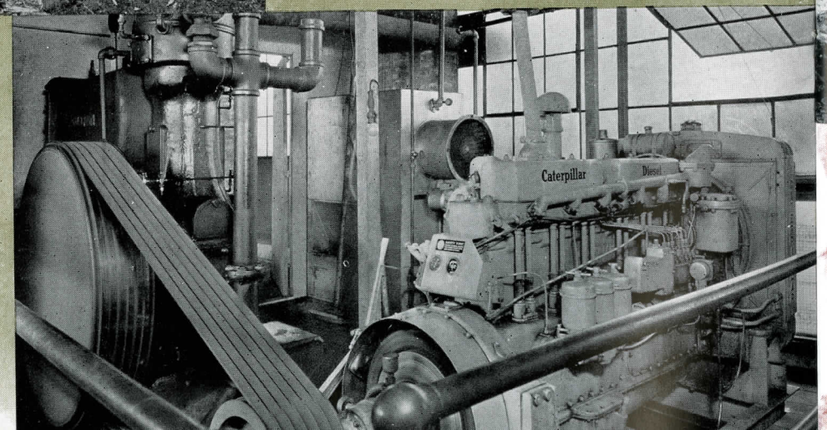
Standard "CATERPILLAR" *machines*

HAVE PROVED *fit to fight* IN THIS TOUGHEST OF ALL WARS!



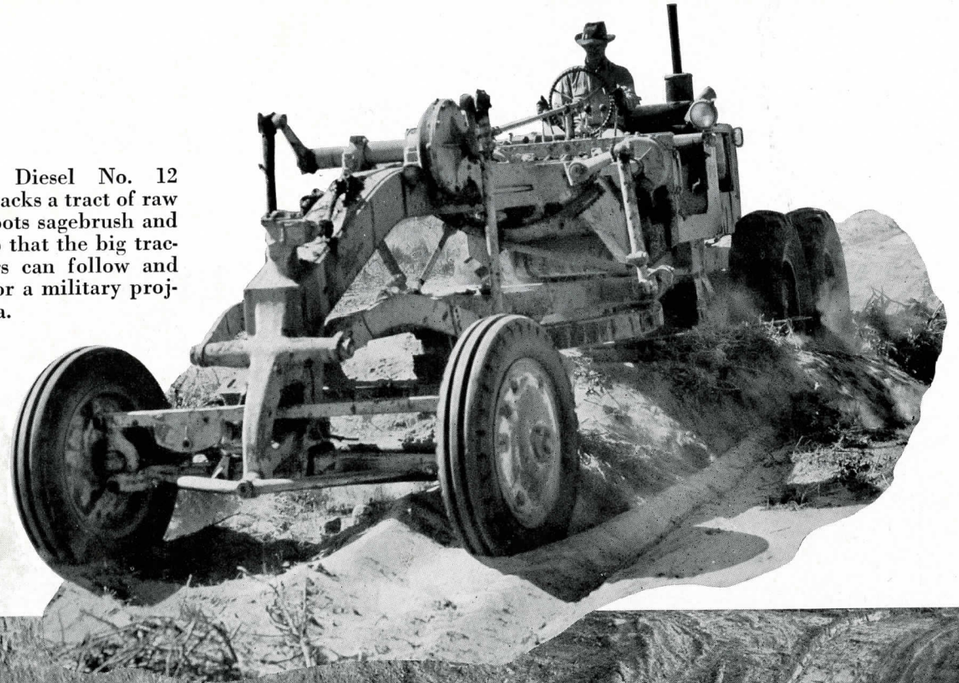
It's as simple as getting a coat of Olive Drab paint instead of Highway Yellow, for standard "Caterpillar" Machines to go to war. These machines have been developed through more than 37 years, to beat jobs as tough as this toughest of wars can muster!

Operating in deep forest mud, this bulldozer equipped Diesel D8 finds the traction to ram a logging road through dense tree and brush growth. Military supply lines are pushed over wooded terrain with this same outfit!



This looks like an ice-plant, for the D13000 engine is powering a compound compressor. Actually it's a forgeshop, making crankshafts and other parts for war machines, in an eastern unit of Democracy's Arsenal.

"Pioneering"—a Diesel No. 12 Motor Grader attacks a tract of raw desert land, uproots sagebrush and other growth—so that the big tractors and scrapers can follow and do the grading for a military project in California.



Stripping rocky overburden from a seam of Pennsylvania coal. It's the same work-toughened equipment team that builds bases in Panama—builds roads in the Near East—builds airports in Australia—a Diesel D8 and large Carryall scraper.

SETTING UP UNITED NATIONS'

Military Supply Lines

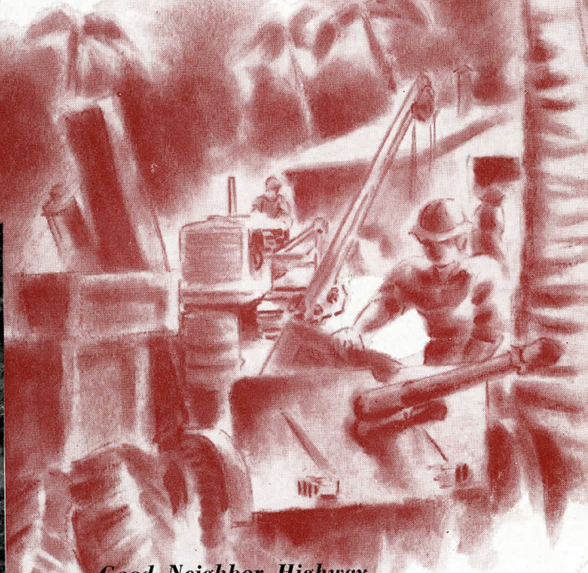
Underground Fuel Transport

A pipeline, from a Texas field to Chicago, will help relieve war-time pressure on land and water transportation facilities—will help keep a large city's factories roaring and its people warm. A fleet of "Caterpillar" Diesel Tractors, with pipelayers, lays the line.

Iron Ore Expediter

Through wet, yellow clay, a Diesel D8, with bulldozer, works 18 hours daily to rush a railroad spur-line to an iron ore mine in the Mesabi range. Iron ore, bauxite, other war ores and minerals in this and other continents, speed to Democracy's Arsenal over roads newly-built by these Diesels.

This is a war of transport—a war of moving men, machines and supplies great distances to overwhelm cunning, well-equipped enemies—a war that necessitates the speedy, steady movement of raw materials to war plants . . . Thousands of "Caterpillar" Diesel Tractors are busy on the huge and vital job of setting up United Nations' supply lines!



Good Neighbor Highway

Built now to provide for the swift transfer of men and materials among our friends and allies in South and Central American Republics—it may serve as a mainline to international good will and better living.

WHERE TROOPS AND SUPPLIES WILL ROLL . . .

Holy Land Railroad
Along a rocky, precipitous coastline near the shrines of Christianity, the grade for a military railroad pushes grimly forward. Here, with "Caterpillar" - built equipment, British Engineers raise the grade to join a tunnel—British Official Photograph.

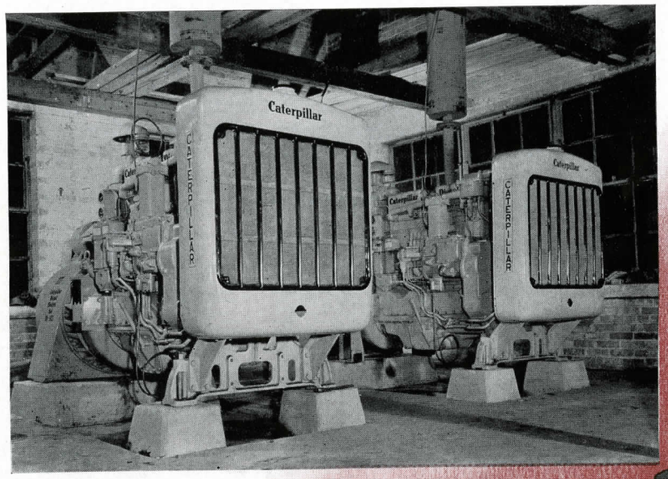
Alaskan Highway
Over a mountain range, across swamps, through dense forests and against time, men of the United Nations are building a 1681-mile military highway to Alaska. These two "Caterpillar" Diesel Tractors are "roughing out" roadbed—the vast majority of tractors on this immense job are "Caterpillar"-built — United States Army Photo.

BACKING THE WAR OF *Production*

Timber for housing — for PT-Boats and Gliders — for warehouses, ship-ways and bridges—for freight cars and barges—for packaging food and ammunition. Timber by the millions of board feet is being logged in Alaska, Canada, Northern, Southern and Western U. S., Australia and England by "Caterpillar" Diesel Tractors. This arch-logging outfit in hilly woods on a 1000-foot haul can bring out 80,000 board feet of timber in 8 hours.

"Caterpillar" Diesels work wherever their power is needed — do their large-capacity pulling under one-man control—and they don't get tired. This war of machines involves moving earth by the millions of cubic yards—mobilizing materials by the millions of tons. Concentration of this proved work-horsepower, in the hands of skilled men, is getting the job done.

POWER FOR



Into warships, submarines, tanks and planes go parts fabricated in a small northern Indiana factory. These two 88-50 Diesel Electric Sets generate the current to power and light the factory for steady, day-and-night operation.

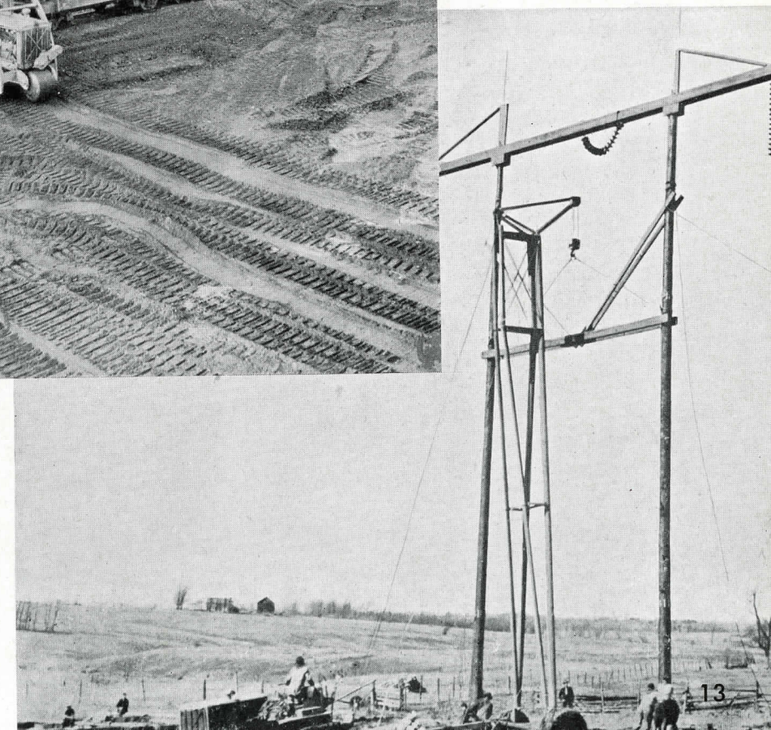
Engines for combat machines today flow in a steady stream from this Illinois plant which "Caterpillar" Diesels helped build in record time. This Diesel D7, equipped with a Traxcavator, did finish-grading inside and out to help beat an urgent deadline.

FOREST, FACTORY, FIELD AND MINE . . .

Vitamins for Victory—Hartnett & Saunders, Brawley, California, farm 6,000 irrigated acres to vegetables, 20,000 acres to field crops, with 7 Diesel D6 tractors for power to do their heavy work. This D6 is deep-plowing for winter carrots. Large scale producers of food, feed and fiber crops are adding to United Nations' resources with this power.

(Left) Iron ore—330 long tons of it per hour—are scooped up from a Mesabi Range stockpile—lifted, carried 80 feet and dumped into rail cars by this Mobiloader-equipped Diesel D8 tractor.

(Right) 78 miles of highline, to supply urgently needed current for an aluminum plant, are erected in double-quick time—cross-country over New York state hills, rocks and swamps. The U. S. Engineers used this Diesel D8 and LeTourneau crane to lift and set the 7500-pound double pole structures.



Dawn Patrol mission—a P-38 Interceptor takes to the skies for a scouting sweep over coastal waters as a precaution against surprise attack. All the groundwork for building its base, somewhere in California, was done with "Caterpillar" Diesel power—as is true of other such bases by the hundreds, in the United Nations' strongholds.

FIGHTING AN AIR WAR

on the Ground

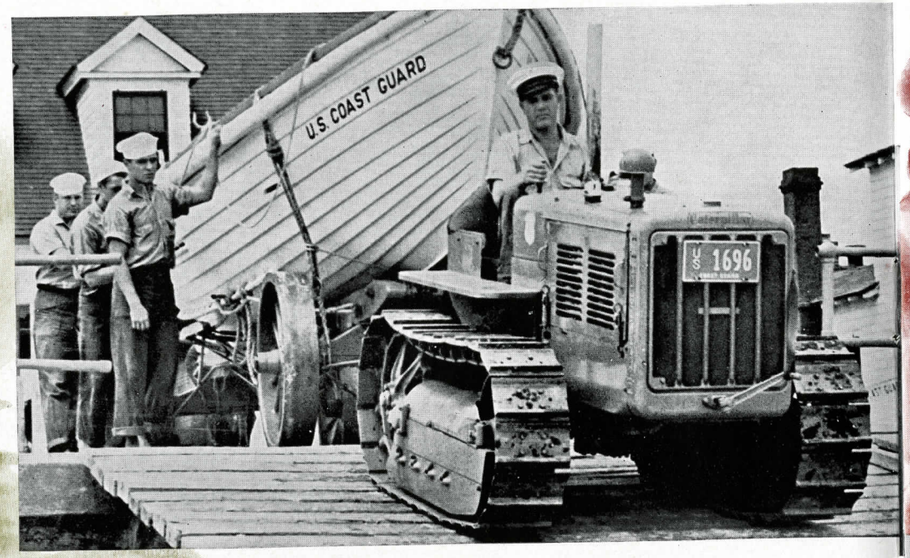
Plane production is multiplying in vast new factories which "Caterpillar" Diesel Tractors and Motor Graders did the groundwork to build. Planes take off to bomb our enemies and defend our homeland from air bases constructed by this equipment. Pilots, bombardiers, aerial gunners and navigators by the tens of thousands develop the skill to meet and beat Hitler's and Tojo's best—on training fields built by machines from "Caterpillar" factories. And where enemy bombs fall, "Caterpillar" Diesels are there to fill the craters, heal the scars so the business of fighting the war can go forward at full speed.

(Left) Our bid for control of the air begins on the ground—on the deep-cushioned seat of big Diesel tractors that have the traction and power to clear forests, fill swamps and move huge yardages of earth so aircraft plants can rise quickly. This scene typifies what happened in rushing a Maryland extension of a Glenn L. Martin Co. factory to early completion. (The Axis already has fitting evidence that this plant is in full production.)

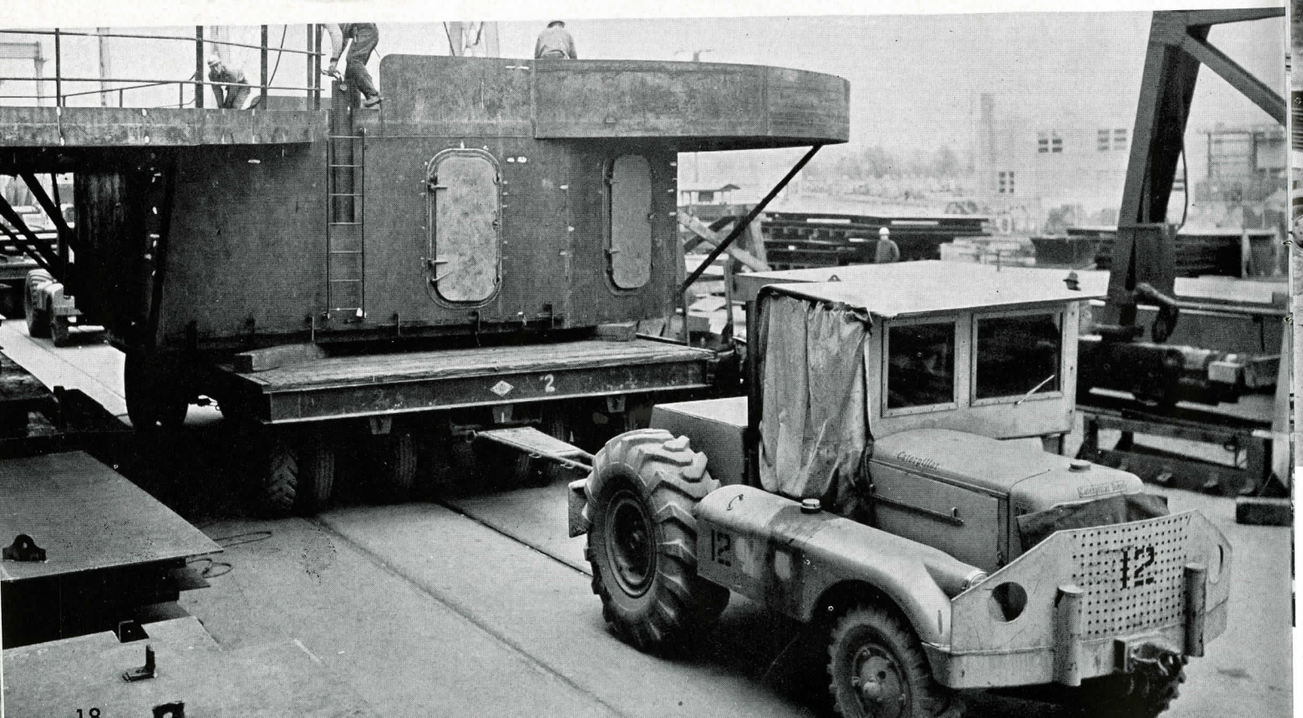
Bulldozing a bomb-crater—a squad of British Engineers quickly heal the scars of a Nazi raid on a West-England airfield. Time and again, "Caterpillar" Diesel Tractors equipped with bulldozers, scrapers and tamping rollers have helped the R.A.F. keep flying—by speedily repairing bomb-battered runways. Our own air-force employs this same method to keep bases and flying fields in combat zones from being put out of action.

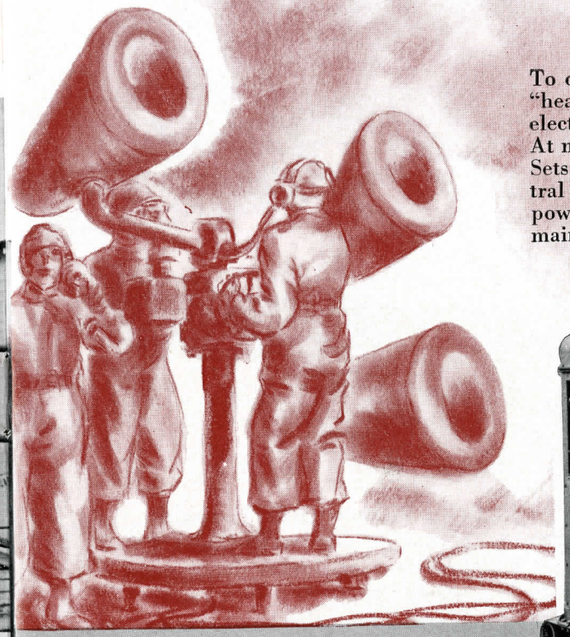
Launching a Lifeboat at a Coast Guard Station on the East Coast—the 25 horsepower tractor pulls the carriage into the surf so that the task of floating the boat is made easy.

—Acme Photo.

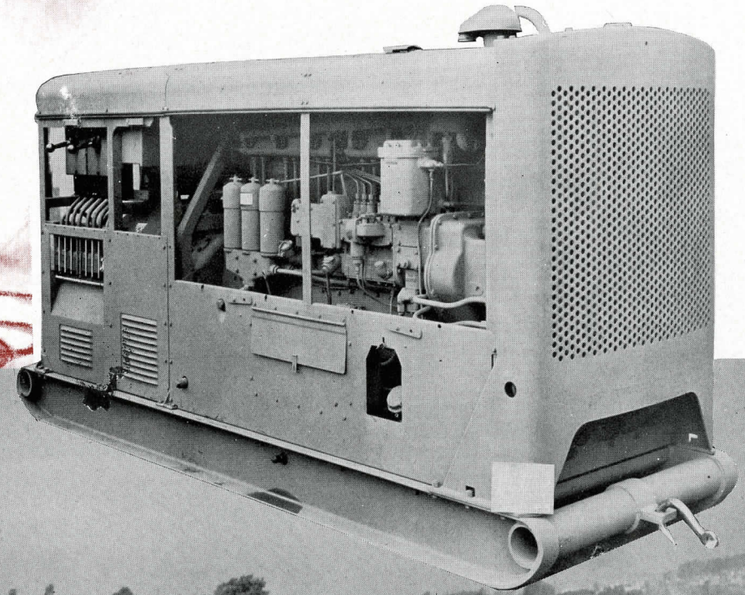


Carriage for ship-sections. "Caterpillar" Diesel DW 10 Tractors pulling specially-designed heavy-duty trailers (like this outfit) whisk sections of merchant ships from fabricating shops to the ways. Average load hauled by one of these units: 70 to 100 tons! Thus does this power aid in mass production of ships.

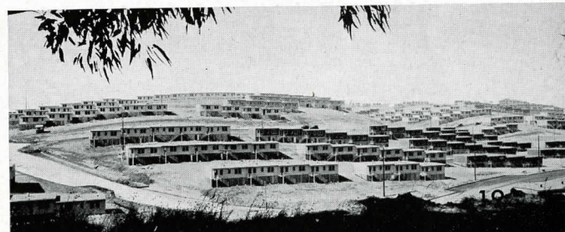




To operate gun-pointing equipment—to power "electric ears" that "hear" far-away planes—for searchlights and other vital units—electric power must be available at all times at certain of our bases. At many advanced Naval Air Bases, "Caterpillar" Diesel Generator Sets are on duty—to provide the main source of power where central station power is not available and to provide emergency standby power that takes over the job in case enemy action disables a main power station.

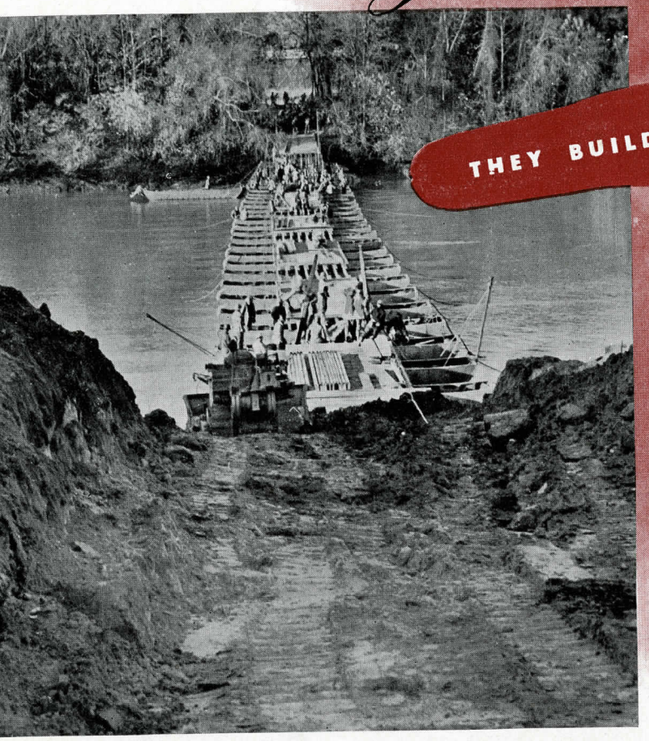


Housing for War-Workers at a West Coast Navy Yard is speedily erected with the help of large Diesel tractors, Carryall scrapers and bulldozers. These outfits grade the tract, build the streets, prepare foundations so that mass-erection can be accomplished to relieve a critical housing shortage. Small view shows one group of houses ready for occupancy.



"CATERPILLAR" DIESELS TAKE

Key Combat Roles

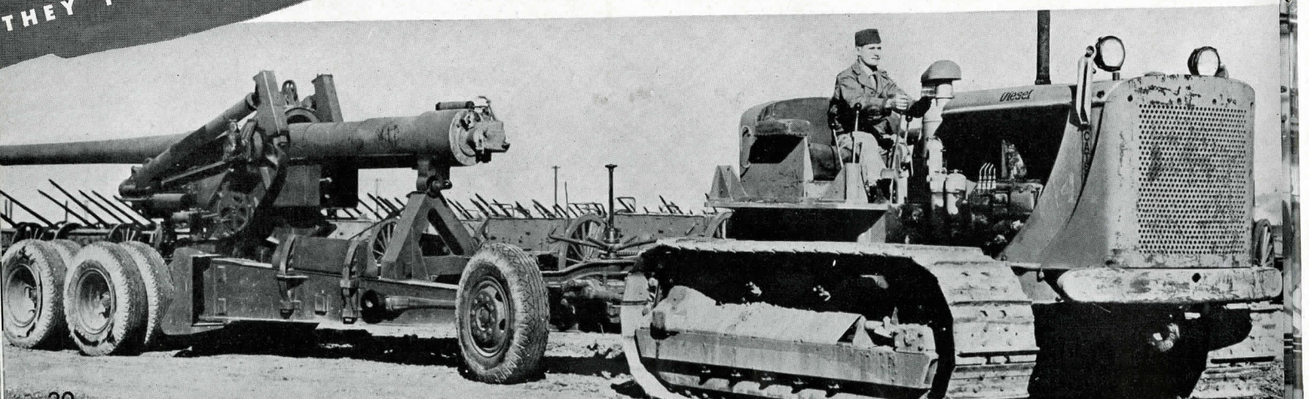


THEY BUILD RAMPS FOR THE PONTOONS!

When the Fighting Engineers need to bridge a stream for advancing troops, bulldozers are busy cutting down the river banks—building earth ramps to permit the rapid crossing and landing of motorized and mechanized equipment. It has happened, more than once in actual combat, too, that these tractors with winches have pulled whole convoys of troop and supply lorries across swamps and sandy stream beds where bridging was not practicable.

THEY PULL MOBILE FIELD ARTILLERY

"Caterpillar" Diesel Tractors of various sizes are used by United Nations' Armies to pull field artillery and supplies—especially over rough, hilly, muddy or sandy terrain that would impede wheel-type prime movers. The Diesel D7 shown here, for example, is pulling a large, heavy artillery piece whose useful firepower depends upon getting to the front, despite tough terrain or weather.



THEY CLEAR THE WAY FOR TANKS AND INFANTRY

Special "work tractors" in the hands of the U. S. Engineers, clear jungle growth, fill gullies, cut down steep spots, push rocks and dead-fall timber aside—to expedite the advance of tanks, infantry and supplies.

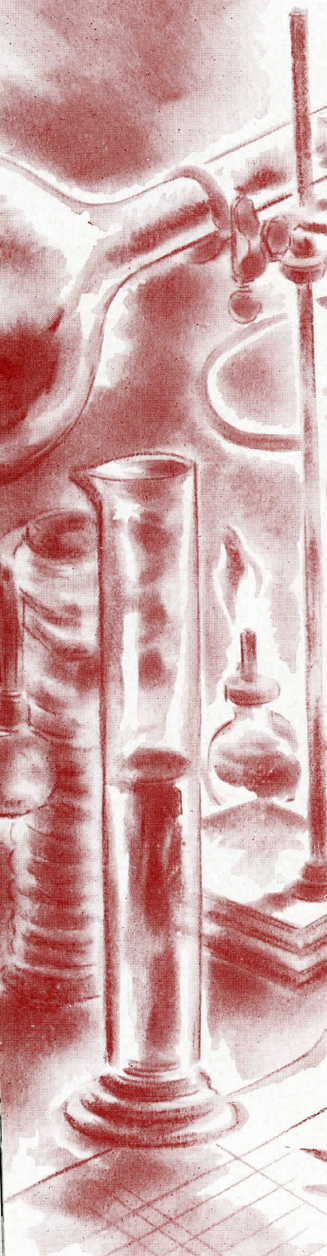
THEY FREIGHT SUPPLIES ACROSS THE SNOW

Wherever our forces are garrisoned, supply routes by land or water must continue to function. "Caterpillar" Diesel Tractors pull "freight trains" of loaded sleighs over roadless snow-bound terrain from supply depots to isolated military outposts. This tractor on duty in the Far North, for example, hauls a 37-ton payload 145 miles from its base—over snow and ice.

And in addition, "Caterpillar" Diesel Power is used by United Nations' combat Forces to:

- Build War-Zone Roads and Airbases.
- Build Tank Traps.
- Build sanitary facilities for troops.
- Help camouflage military positions and installations.
- Provide power for behind-the-lines equipment-repair shops.
- Power small naval craft.
- Operate dock-yard cranes.
- Tow crippled tanks from battlefields.
- Help to dock and launch large seaplanes.
- Generate electric current to refrigerate supplies and operate communications systems in outposts.

Saving Strategic Materials



More than 3,200,000 pounds of strategic materials have been saved by Caterpillar Tractor Co. in 1942. These savings total 489 tons of nickel, 822 tons of copper, 100 tons of aluminum, 87 tons of chromium, 40 tons of crude rubber, 18 tons each of molybdenum and zinc and 55,000 pounds of tin, based on 1941 production levels.

For several years, the company has been doing research and experimental work on alternative materials, in order to be prepared for any emergency. In some instances, shortages of certain materials have speeded adoption of changes in design—in general, however, "Caterpillar" has been well prepared in this direction.

For example, experience in pioneering the Hi-Electro method of hardening steel has enabled "Caterpillar" to extend its use of this process on track pins and cylinder liners to many other parts requiring high surface hardness and wear-resistance. These parts, formerly made of nickel steel and nickel chromium steel, now are made of carbon steel, Hi-Electro hardened.

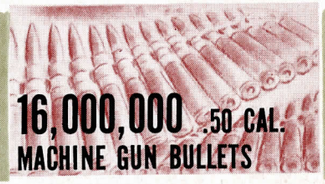
Crude rubber use has been eliminated by the use of reclaimed rubber in fan belts and radiator hose—copper use has dropped 1¼ million pounds by use of an alternate material, steel, in oil cooler tubes, and cooling fins of radiators and oil coolers. In similar ways, tin, aluminum and other critical materials are being conserved.

A hasty switch to unproved, substitute materials could have resulted in shorter machine life. But "Caterpillar" has not improvised. Its studied and tested use of alternative materials, and adaptation of new production methods and facilities are forward engineering steps—to improve the product as well as conserve scarce materials.

What "CATERPILLAR'S" SAVING of strategic materials means in terms of the war effort:

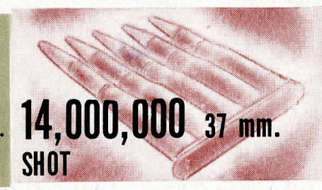
489 TONS of **NICKEL** . . . enough to produce **ARMOR** for. . . . . **6,825 M4 TANKS**

822 TONS of **COPPER** . . . enough to produce **BRASS JACKETS** for. . . . . **16,000,000 .50 CAL. MACHINE GUN BULLETS**



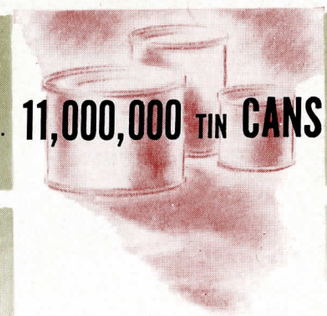
100 TONS of **ALUMINUM** . . . enough to produce **CYLINDER HEADS** for. . . . . **220 P47 FIGHTER PLANES**

87 TONS of **CHROMIUM** . . . enough to furnish **ALLOY** for. . . . . **14,000,000 37 mm. SHOT**



40 TONS of **CRUDE RUBBER** . . . enough to provide. . . . . **20,000 TIRES FOR "JEEPS"**

27½ TONS of **TIN** . . . enough to make. . . . . **11,000,000 TIN CANS**

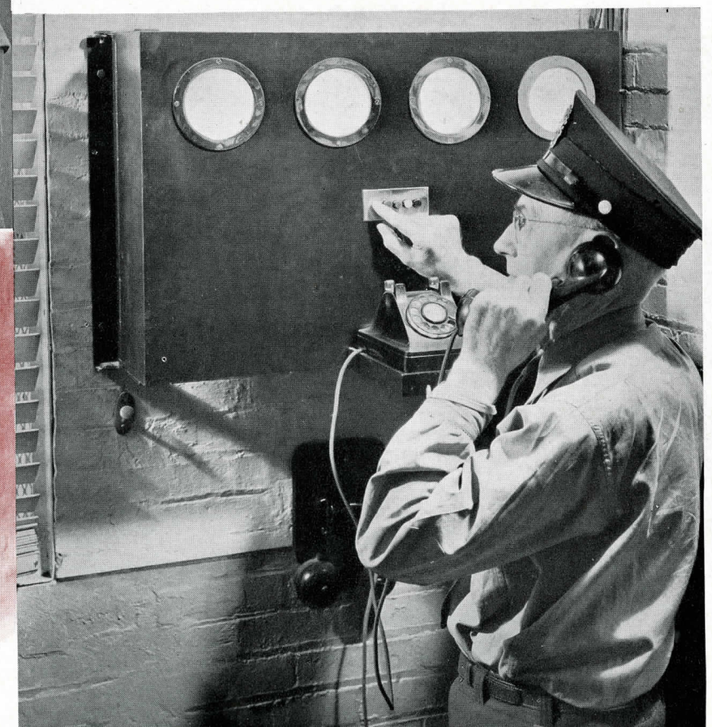


"CATERPILLAR" *Emergency Defense*

ORGANIZES TO MEET THE WORST!

"Caterpillar" Diesel Tractors, Motor Graders and Engines are in the vanguard of United Nations' Forces —building the roads, airbases and other installations which will enable us to get at the enemy. On the Production Front, too, these machines have helped America perform industrial miracles in preparing to fight.

So "Caterpillar" anticipates that its factories are prime Axis objectives for air-raiders and saboteurs and has developed a complete Emergency Defense Organization. For example an auxiliary fire-fighting force of 265, plus 200 auxiliary policemen and 150 roof-watchers all trained for disaster-duty, are prepared to assist the Plant Protection Department.



The Air Raid Warning System (right), and the Plant Blackout Control System (above), are ready to function instantly. Warnings that come in to the Area Control Center are relayed promptly to the "Caterpillar" Control Board. The distance of approaching planes, in terms of minutes, is indicated by one of four colors on the Control Board. The officer on duty has only to punch a button to set off the plant warning system. At once, the Blackout System functions, with trained men, near each of 30 locations, rushing to pull the switches and disconnect all sources of artificial light.

At 32 strategic plant locations, radiating from the Main First Aid Center, "Caterpillar" maintains emergency stocks of First Aid materials. Complete staffs of trained workers are assigned to each station in case of emergency.

To rescue the injured, relieve pain and save lives, 1275 persons are thoroughly trained to staff the 5 main, and 32 emergency, First Aid Stations. Here is a typical group of First Aid Workers receiving instruction.

• • •

The plant is divided into zones and sections so that all emergency group activities can be directed and coordinated according to needs.

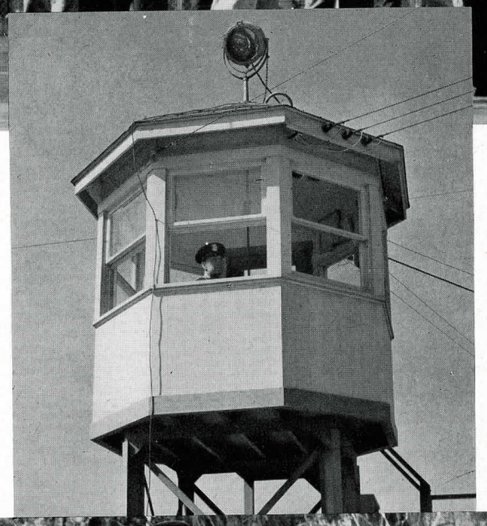
FULL-TIME

Plant Protection

OF LIFE PROPERTY and PRODUCTION!

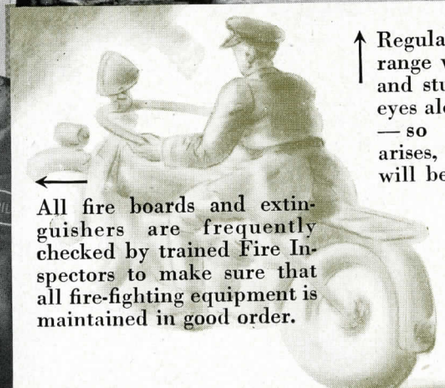
Twenty-four hours daily, 7 days a week, vigilant members of the "Caterpillar" Plant-Protection Department are on guard —to protect workers' lives and the machinery and materials of all-out war production. All men on the Plant-Protection Staff are civilian auxiliaries of the U. S. Military Police. All have been chosen for their special skill, training and temperament to enforce law and order, and the special military rules applying to plants producing war materials for U. S. Armed Forces!

No one enters the "Caterpillar" factory or office unless properly identified. Only an individualized pass, carrying his own photograph, admits an employee. And no visitor is admitted, under war-time regulations, until he is properly identified and the purpose of his visit is proved to be in order.



← Lookout towers, located to give a commanding view of fence-lines, exterior walls and parking lots, permit an officer to observe what goes on, day or night, in his sector.

↑ Traffic control for changing shifts, or when unusual events or conditions cause congestion, is a duty of "Caterpillar" Plant Protection men. They are authorized to control vehicular traffic, public or employee, around the plant—to prevent accidents and injuries.



← All fire boards and extinguishers are frequently checked by trained Fire Inspectors to make sure that all fire-fighting equipment is maintained in good order.

↑ Regular pistol practice, at a range where scores are kept and studied, keeps shooting eyes alert and sharpens skill —so that if emergency arises, "Caterpillar" Police will be ready.

2,975 "CATERPILLAR" MEN *are in the armed forces!*

★By enlistment and Selective Service, more than 2,975 "Caterpillar" Men had become members of the U. S. Armed Forces—early in 1943. (This figure includes 180 from the San Leandro plant, and the "Caterpillar" men of the 497th Heavy Shop Company.)

★They are represented in all branches—in the Infantry, Marine Corps, Navy, Armored Force, Engineers Corps, Para-Troops, Air Force, Coast Guard, Ordnance, Field Artillery, Cavalry, Military Police, Coast Artillery, Signal Corps, and others.

★Backing up the men in uniform, "Caterpillar" Employees, months ago, won the Minute Man Flag for Bond-Buying; and in January, 1943, both the Peoria and San Leandro plants topped the 10%-of-Payroll-Quota set by the U. S. Treasury.

"Caterpillar" Training Accelerates

. . . . TO INCREASE WORKING SKILL

The heavy requirements of the Armed Forces on "Caterpillar" Personnel have come at a time when production schedules are highest and most urgent in the Company's history. To keep up the working force, it has been necessary in many instances to hire unskilled or partly skilled men.

To maintain product quality and factory production, the Factory Training Department has modified all of its courses to fit quickly the new men for their jobs—or to train older men to fill more exacting jobs than their present ones.

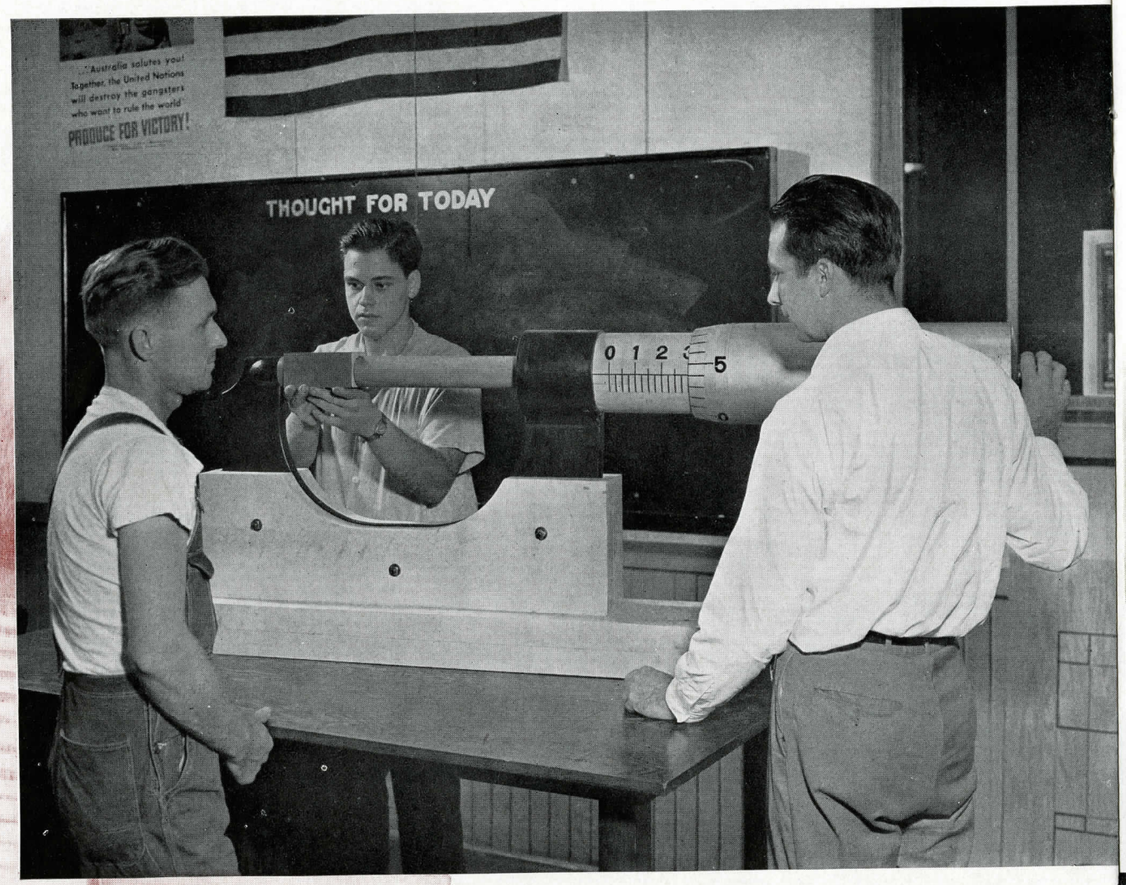
In addition to the comprehensive courses of apprentice training that have been modified for wartime conditions, "Caterpillar" is conducting new types of emergency training.

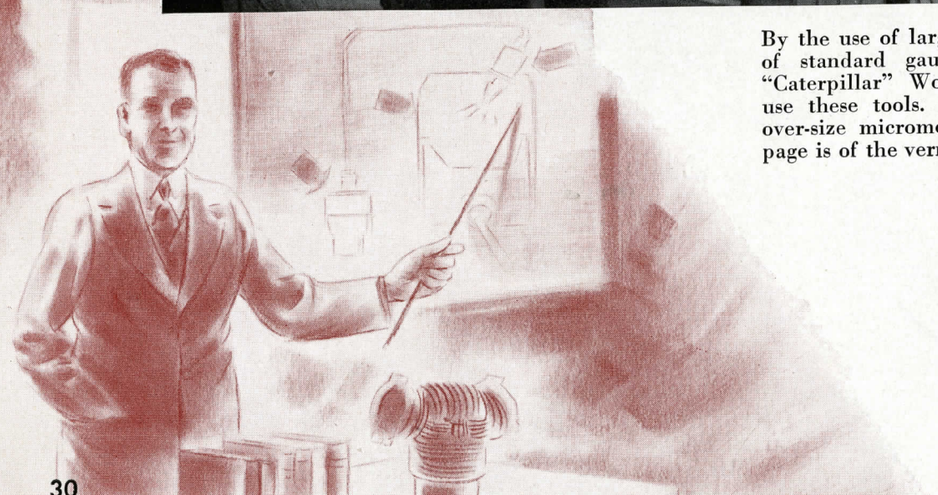
For example, 870 machine operators have voluntarily taken special courses designed for them—consisting of blueprint reading, reading of micrometers, use of the various types of gauges, care and maintenance of jigs and fixtures, and the grinding and proper use of cutting tools.

This course is built around the demonstration method, employing motion pictures, machine parts and special, enlarged equipment for visual instruction. The course is being repeated each five weeks.

A special training course has been formed to instruct women to do tracing in the Engineering Department.

Through the subsidiary, Caterpillar Military Engine Company, a similarly comprehensive program of employee training has been inaugurated at the Victory Ordnance Plant.





By the use of large-scale wooden models of standard gauging tools, classes of "Caterpillar" Workmen are trained to use these tools. Upper view shows an over-size micrometer; view on opposite page is of the vernier calipers.

Warring against Waste...

TO MAKE ALL MATERIALS COUNT!

The "Caterpillar" Reclamation Department, with 4 years of full-time concentration on the job of salvaging and reclaiming the scrap produced in machinery manufacturing, conserves huge amounts of critical materials—which almost directly are returned to needed uses. "Caterpillar's" war against waste is endless and all-embracing. It is so total as to provide 150 loads of kindling per month to be hauled away by employees—from wood unfit for commercial re-use. It provides 1,000 lead hammers monthly, from scrapped pieces of lead, for general factory use. It sends 16,000 worn files, yearly, back to their manufacturers—who return them, good as new, for a fraction of their first cost.

"Caterpillar" reclaims worn or damaged precision gauges by having them reground to new sizes. About 30% of the "casualties in action" of socket-wrenches and similar tools are factory-rebuilt for an extra life of use. An average of 2,000 jigs and fixtures are dismantled yearly; their basic parts saved for re-use; all remaining metal salvaged.

By careful planning, this company's reclamation quadruples the life of certain steel-cutting tools—and enables using over and over again, methodically-reworked grinding wheels. Grey iron borings are reclaimed and briquetted for foundry use at the rate of 33 tons daily. Each month 30,000 feet of reclaimed lumber eases the war-strain of that industry appreciably by being made to do double, or treble duty for "Caterpillar". Half-a-million pounds of metal, collected as by-products of machinery manufacture in "Caterpillar" factories, go to the foundry each week—to emerge in new, useful form.

. . . And thus is "Caterpillar" waging, and winning, the war against waste!

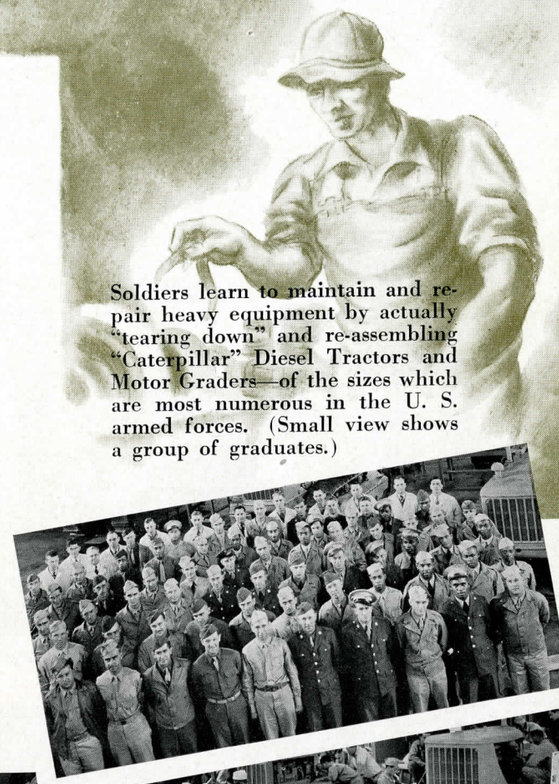
Typifying the purpose of all "Caterpillar" reclamation — the salvaging of useful material for re-use—is this scene of the alligator shears cutting scrap-iron into lengths suitable for charging foundry cupolas.

U. S. Army School

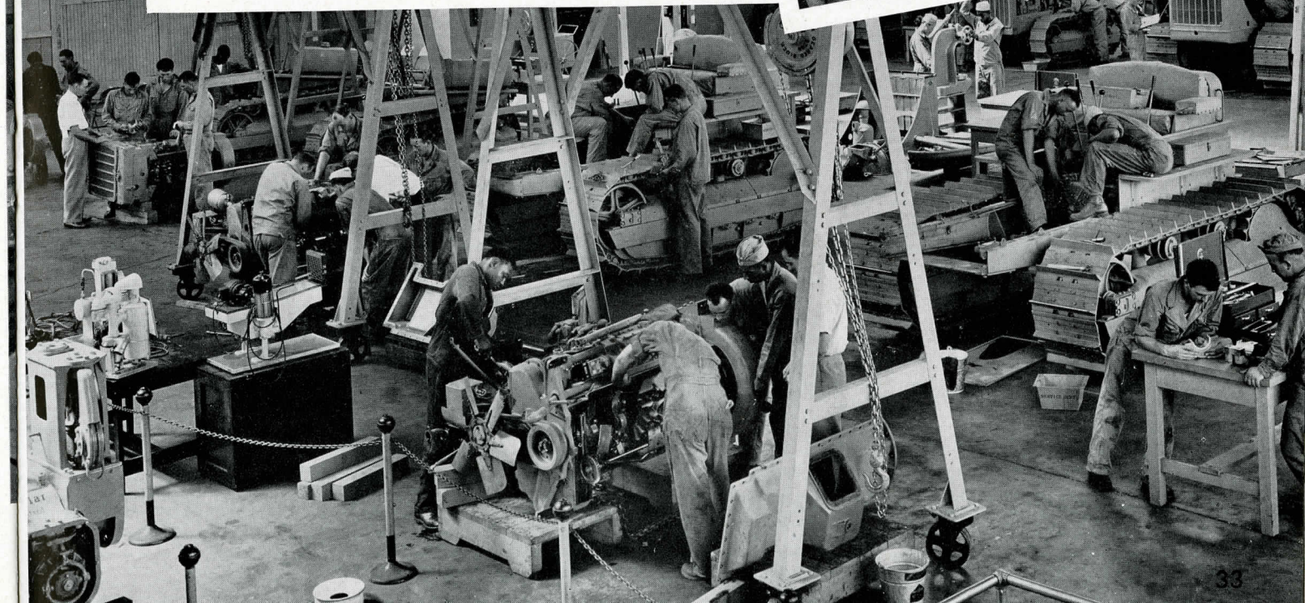
AT "CATERPILLAR" TEACHES MACHINE MAINTENANCE!

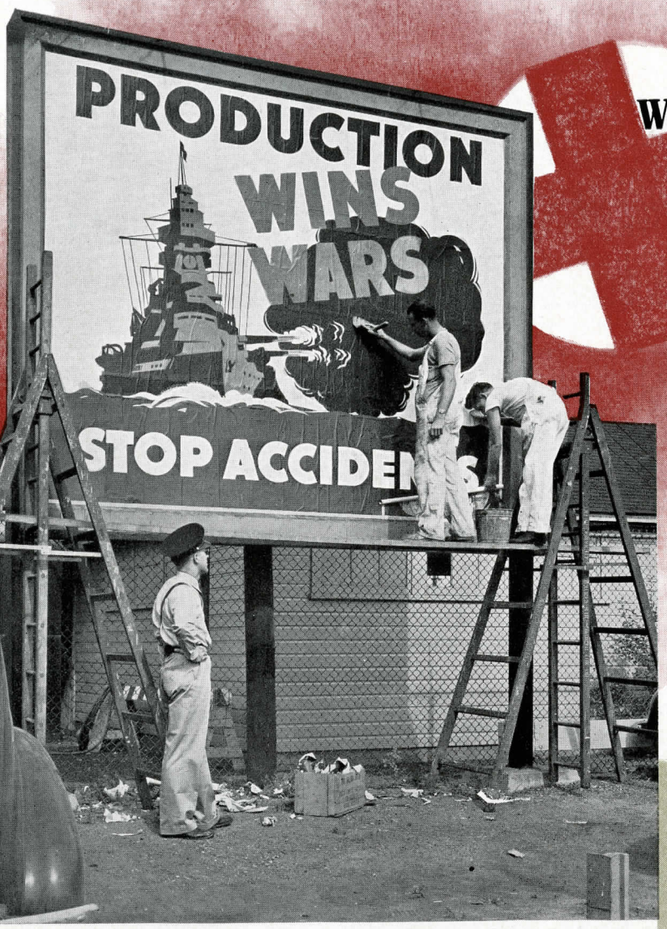
The large numbers of "Caterpillar" Diesel Tractors, Engines and Motor Graders in the hands of our armed forces require proper servicing at regular intervals and prompt repairing if necessary—to be always ready to meet their toughest assignments. Selected men from Maintenance Companies of the U. S. Army Engineers Corps receive special training in maintaining heavy equipment—at a U. S. Army School conducted by the "Caterpillar" Service Department.

Groups of the soldiers, intended for duty with the Air Corps, Heavy Shop or other Maintenance contingents, and from military posts and bases the country over, each attend a 5 weeks' session; receive their instruction from highly-skilled "Caterpillar" Field Engineers . . . Most Engineer Shop Companies to which these soldiers are attached have portable, truck-mounted workshops. These accompany combat forces into action, to keep the machinery going.



Soldiers learn to maintain and repair heavy equipment by actually "tearing down" and re-assembling "Caterpillar" Diesel Tractors and Motor Graders—of the sizes which are most numerous in the U. S. armed forces. (Small view shows a group of graduates.)





WINNING THE BATTLE FOR

The rapidly-rising tempo of war-production plus the influx of new workers into industry have combined to increase, greatly, the accident rate in many war plants. Yet, "Caterpillar", operating on the largest and most urgent production schedules in its history, has reduced its lost-time accident rate in 1942 to only about half the 1941 figure . . . The "Caterpillar" Safety Division supervises a never-ending program to create the proper mental attitude, the working conditions and methods that help prevent industrial casualties and sickness.

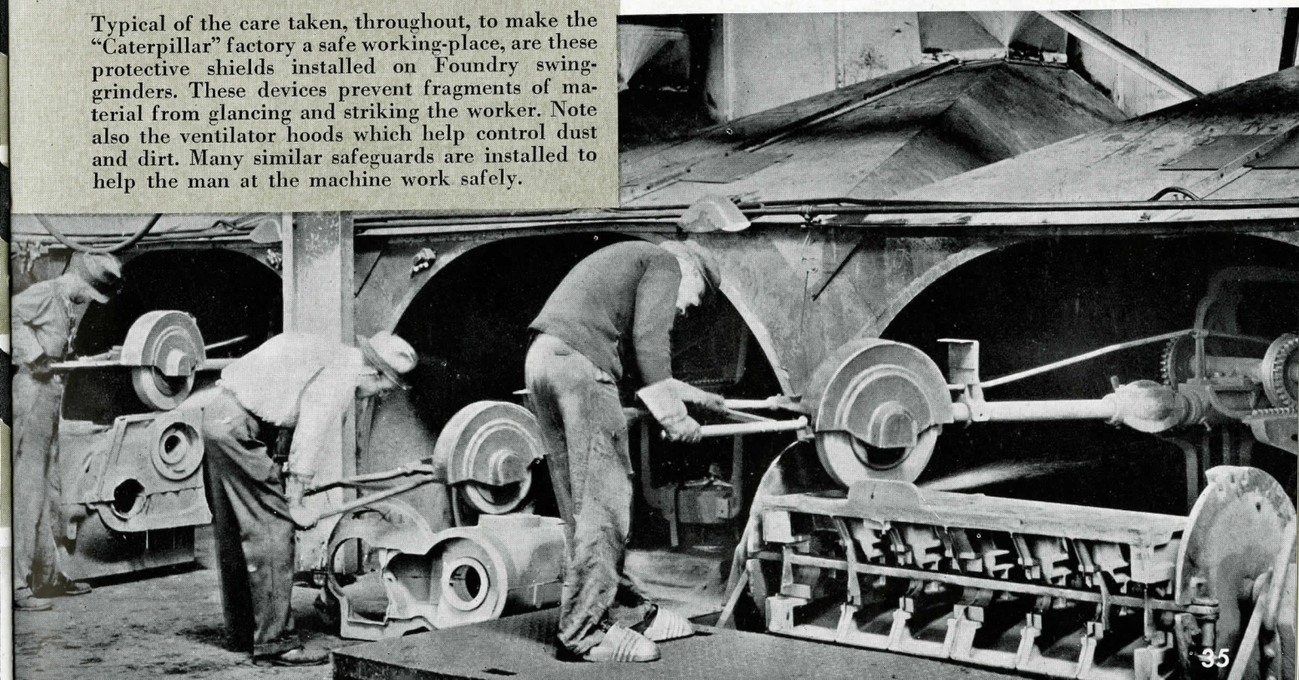
Messages of Safety, on prominently-located outdoor poster boards and inside on factory bulletin boards, drive home the safety gospel in dramatic fashion that no workman can miss.

Selling safety—an employee must be convinced that accident-prevention is largely a matter of individual responsibility. He must be made to realize what the loss of an eye or finger, or even greater disablement will cost him and his country. A feature of the safety program is a series of educational meetings conducted for factory supervisors.

Employee Safety!

Good housekeeping in a large factory means keeping stored or stacked material in methodical arrangement, floors clean, aisles clear. Above is an example of an orderly-kept shop, the Foundry Core Room.

Typical of the care taken, throughout, to make the "Caterpillar" factory a safe working-place, are these protective shields installed on Foundry swing-grinders. These devices prevent fragments of material from glancing and striking the worker. Note also the ventilator hoods which help control dust and dirt. Many similar safeguards are installed to help the man at the machine work safely.

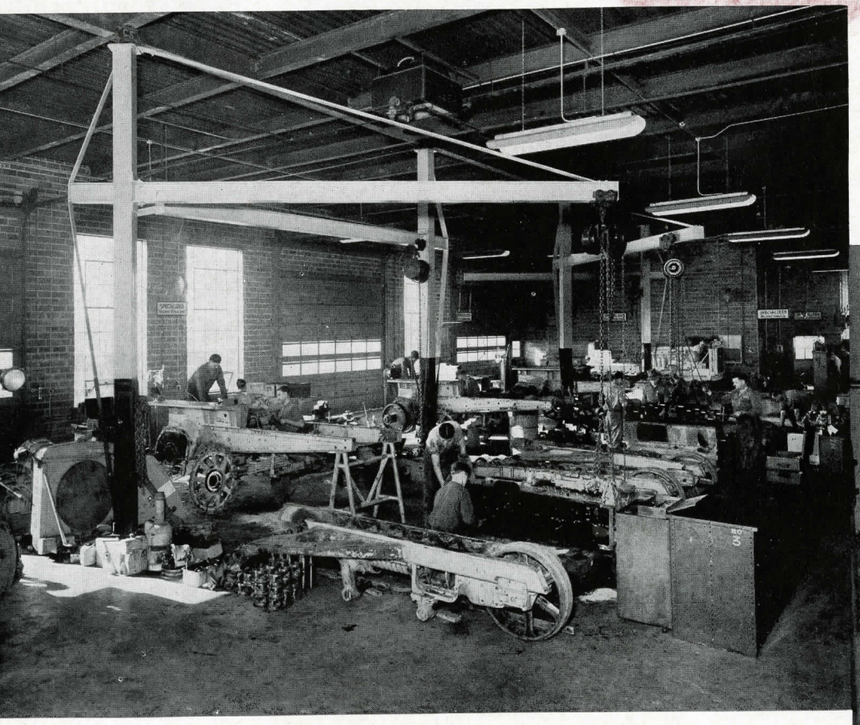


"Caterpillar" Dealers

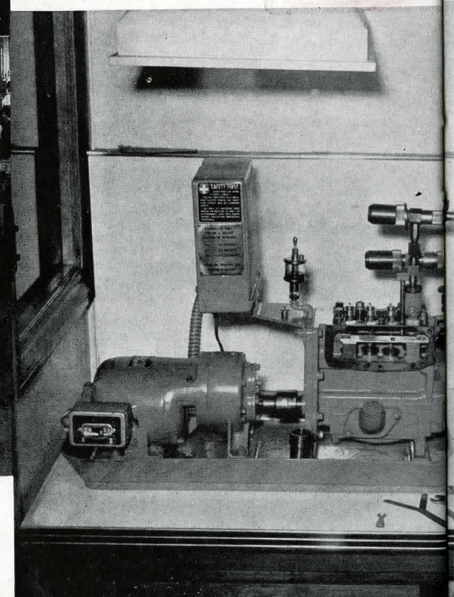
ARE "IN IT" WITH ALL OF THEIR RESOURCES!

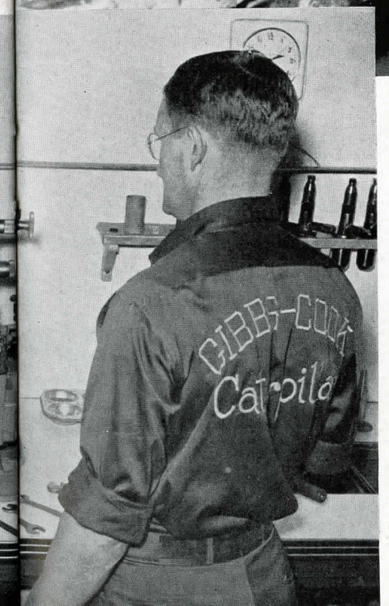
Typical of parts rebuilding in dealers' service departments is this scene. It shows a track roller being ground to size after having had its faces rebuilt by welding. Additional life is also added to track sprockets, cylinder liners and other parts by rebuilding or reconditioning.

With 100% of Caterpillar Tractor Co. production now going directly into the War Effort, "Caterpillar" Dealers are devoting their full resources and facilities to keeping machines in the field working and lasting. The Dealers are helping to meet critical material shortages by rebuilding parts; they are helping to keep rush construction and production jobs going at full speed; their shops and mechanics are available at all times for maintaining mechanized military equipment.



Complete, well-equipped repair shops, staffed by skilled workmen, provide customers a variety of services—save them valuable time—and help keep "Caterpillar" and Allied Equipment working for victory with a minimum of delay. Here, rebuilding four Diesel D8s for the U. S. Engineers. ←





Testing Diesel fuel-injection valves and pumps by comparing their action to master parts. The results indicate if parts are functioning properly and whether minor adjustments or cleaning will put them into condition. Many "Caterpillar" Dealer shops are equipped with one of these precision testing instruments.

Day or night, "Caterpillar" Dealer servicemen do repair work to keep the machines working. Here, a mechanic is "turning" track pins and bushings in a special hydraulic press. This operation practically doubles the life of these vital parts.

. . . A *Heavy Shop Company*

ENLISTS FROM THE "CATERPILLAR" RANKS!

On the morning of October 1, 1942, men of the 497th Heavy Shop Company "fall in" to roll call and are given instructions on checking baggage, participating in the public ceremonies and entraining for camp.

On the front steps of Peoria County Courthouse, the 497th Shop Company lines up for a group photograph. Brief speeches honored the men about to leave.

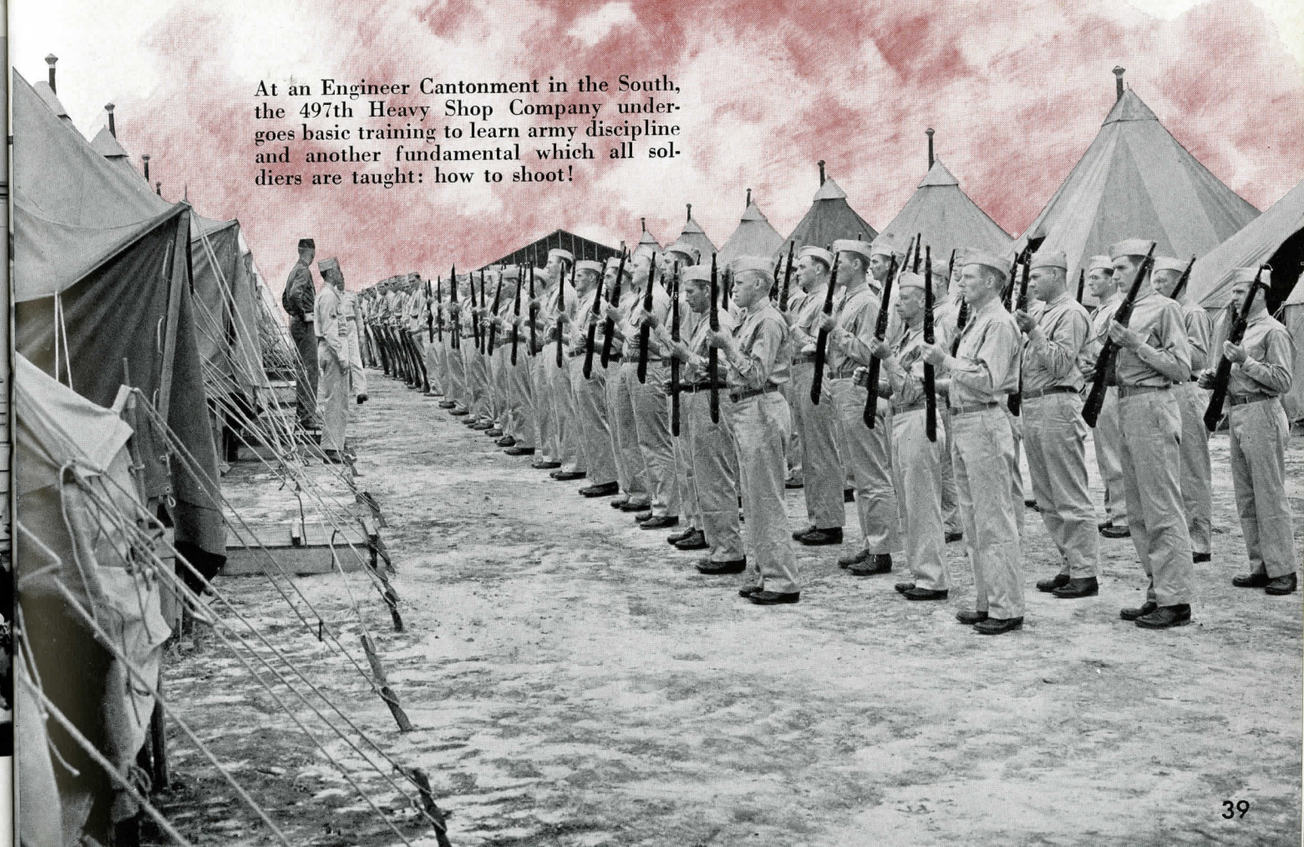
The United States Engineers paid "Caterpillar" Men and Products a high honor by inviting Caterpillar Tractor Co. to sponsor the formation of a Heavy Shop Company—from its own factory and office.

Announcement of the proposed unit was made August 10; on October 1, the outfit composed almost entirely of skilled "Caterpillar" employees, was activated as the 497th Heavy Shop Company and entrained for camp.

Purpose of this Engineers Unit is to do heavy-duty maintenance and repair work—including reconditioning and rebuilding tractors, bulldozers, power shovels, road graders or similar equipment.

Among the skilled "Caterpillar" men who joined the 497th are blacksmiths, electricians, foundrymen, millwrights, patternmakers, carpenters, firemen, tractor mechanics, machinists, lathe operators, tool-makers, office workers and others. They will man motorized shops.

As a Colonel of the U. S. Army Engineers told them: "Remember, our machines are your machines. When you pull down a 'Caterpillar' for an overhaul job, you may even recognize the part on which you skinned your knuckles on the assembly line."



At an Engineer Cantonment in the South, the 497th Heavy Shop Company undergoes basic training to learn army discipline and another fundamental which all soldiers are taught: how to shoot!

"CATERPILLAR" WINS AMERICA'S CITATION FOR

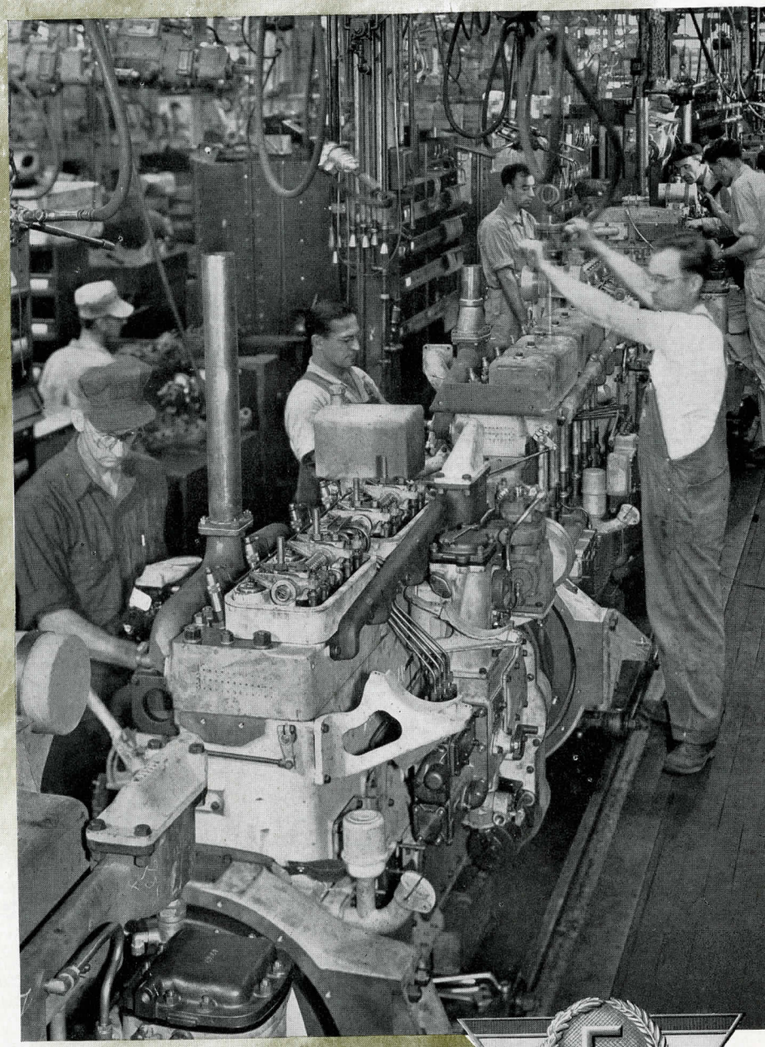
War-Production Achievement

To the men and women of the Peoria plant of Caterpillar Tractor Co., on February 13, 1943, came this citation by Undersecretary of War Robert P. Patterson:

> . . . "the Army and Navy are conferring upon you the Army-Navy Production Award for high achievement in the production of war matériel.
>
> "Your patriotism, as shown by your remarkable production record, is helping our country along the road to Victory. May I extend to you men and women of the East Peoria Plant my congratulations for accomplishing more than seemed reasonable or possible a year ago."

The thousands of Production Soldiers at "Caterpillar" know that the Army-Navy Production Award is not casually bestowed nor lightly held. They know too that the Army-Navy "E" Flag, flying below the Stars and Stripes, is no Victory Symbol — but rather a Battle Decoration.

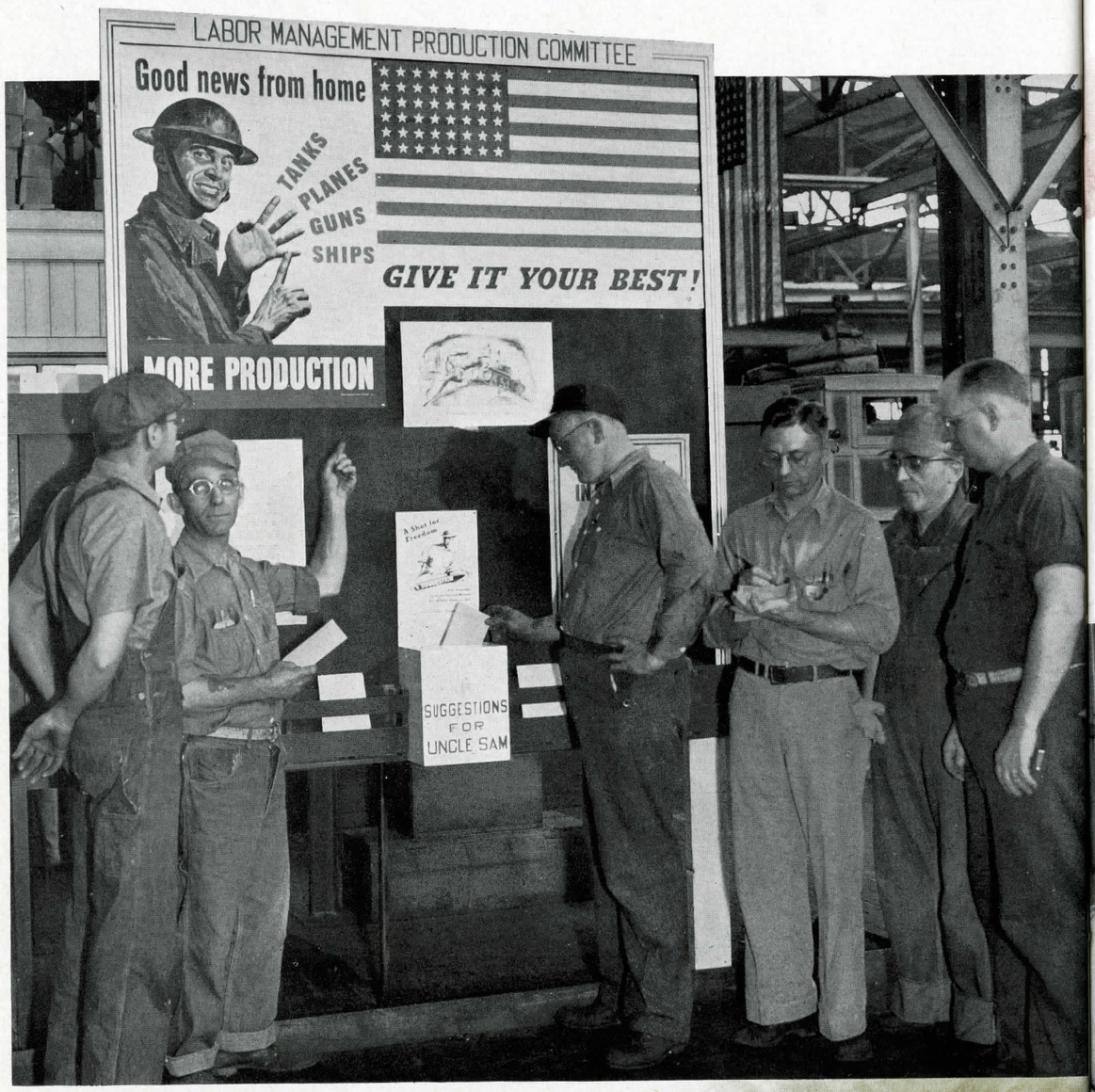
The Army-Navy "E" is a spur to aim higher, fire faster and build better here, to help equip our armies to win an earlier Victory Over There.



Those Who Wear the "E" Pin

The "E" Pin is an insignia of merit "For achieving today what seemed impossible a year ago." It is the "sharpshooter's badge" for the man who fights his war producing the Victory Tools.

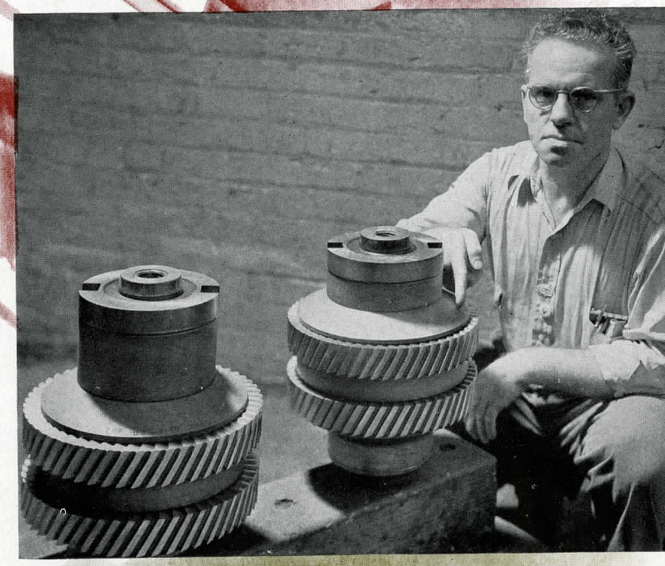
Labor-Management Committee



Suggestion boxes at 29 prominently situated plant locations team with the influence of bulletins and posters—to induce workers in the factory and office to submit ideas for saving materials, increasing production, bettering working conditions. By late 1942, the Labor-Management Committee had awarded certificates of merit for 112 suggestions adjudged worthy of adoption.

BACKS PRODUCTION INCREASE

On invitation of the War Production Board, Caterpillar Tractor Co. was early among industrial concerns to provide for the organizing and functioning of a Labor-Management Production Committee. The Committee has campaigned for the conservation of tools of all kinds, materials and time—has promoted suggestions from employees on ways to increase quality and production—and has backed such projects as increasing the skill of workers.



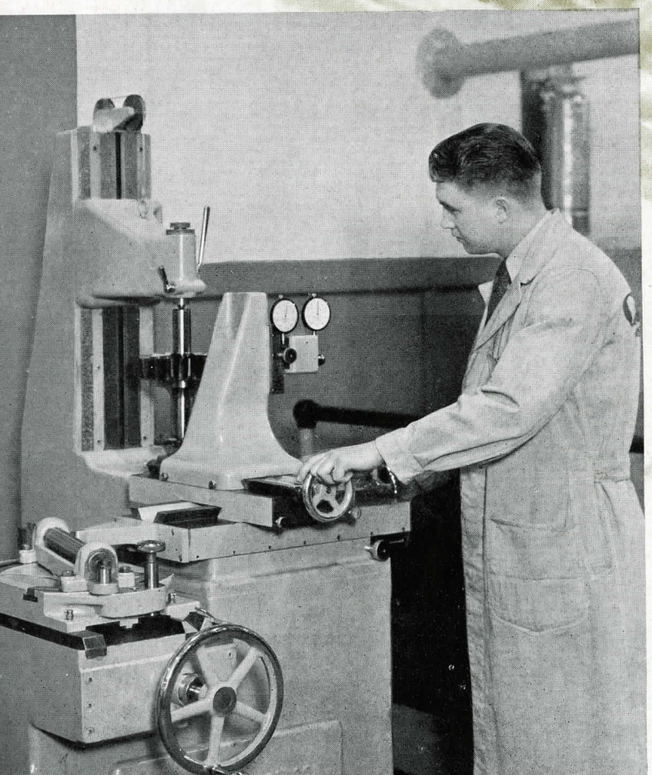
Double tool life for roto mill cutters, by reducing the diameter of three spacers, is the objective of a suggestion submitted by a "Caterpillar" Tool Inspector. The Labor-Management Committee gave an award of Exceptional Merit for this material-saving suggestion.

To eliminate "scrap", or spoilage, of partly finished materials, the Labor-Management Committee conducts a constant campaign. "Scrap" tables display object lessons bearing descriptive cards that drive home the ways to avoid wasting time and materials. The Committee attacks the same problem from a different angle by sponsoring a special training program for machine operators, to increase skill.

"CATERPILLAR" *Gear Accuracy*

. . . . AN EXAMPLE OF PRODUCT INTEGRITY

The accuracy of this involute gear checking machine, with indicators graduated in ten-thousandths of an inch, is assured by the use of Master Gauge Blocks.



A race against time to beat an Arctic winter and rush a military highway to Alaska—or to construct a tank-trap network with the speed that helps stop a Rommel—or to rush heavy artillery over mountains.

Time and again, "Caterpillar" Diesel Tractors have met and passed such crucial physical-fitness tests as these in this fast-moving war!

An example of how this company anticipates such demands on equipment is the way it makes gears. Flow lines of gear forgings in "Caterpillar" transmissions are so controlled as to assure that each tooth is strong; and each succeeding gear is identical to its mates in internal quality.

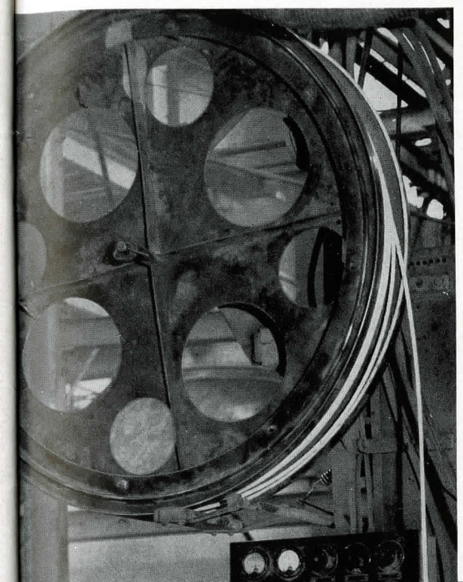
Gear accuracy is proved by precision inspections. With high accuracy, involute testing machines check shaper cutters and gears, both spur and helical type. These instruments determine involute curvature, tooth spacing, pressure angle and finish. Their indicators are graduated in ten-thousandths (tenths of one-thousandth) of an inch—and thus provide the accuracy to meet "Caterpillar's" exacting gear-inspection standards.

Then, all "Caterpillar" transmission and timing gears must establish their accuracy by 100% inspection against hardened and ground masters, known to be accurate within two-tenths of one thousandth of an inch!

Such careful steps to insure product integrity exemplify the way "Caterpillar" builds, in war or peace!

Welding TO EXACTING STANDARDS

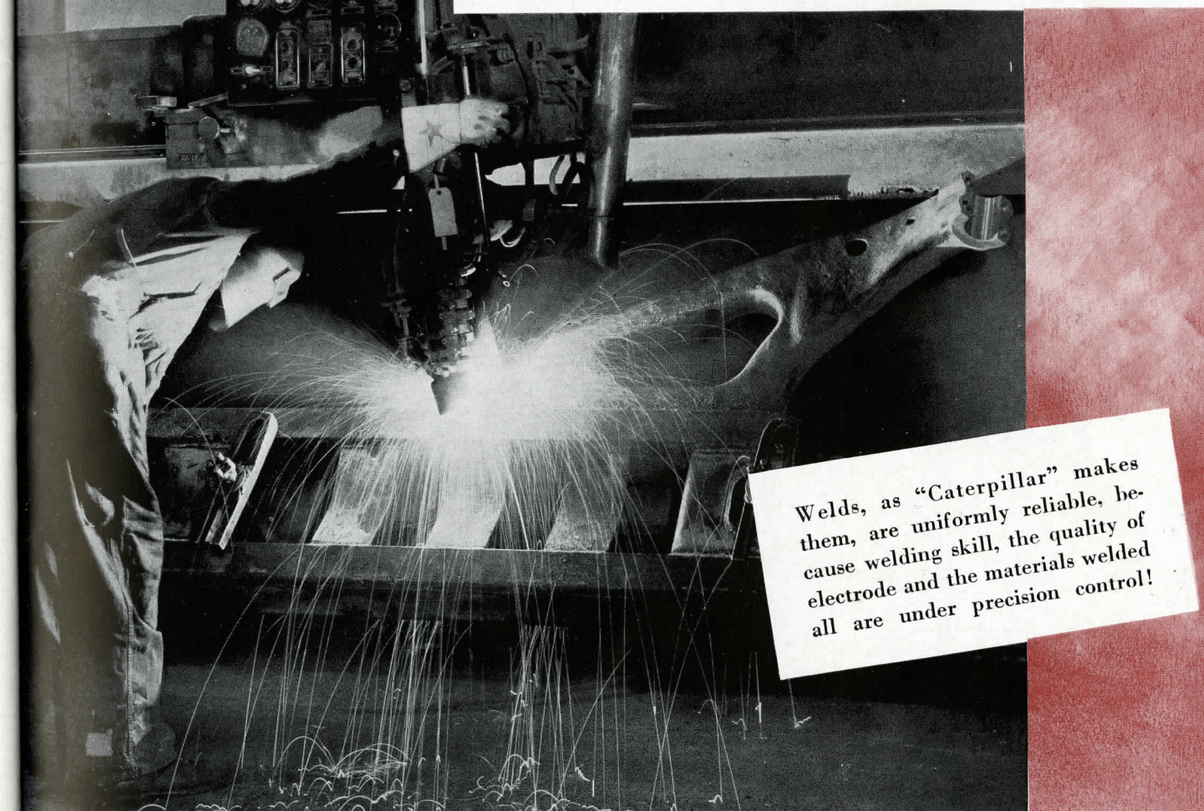
SPEEDS "CATERPILLAR" PRODUCTION



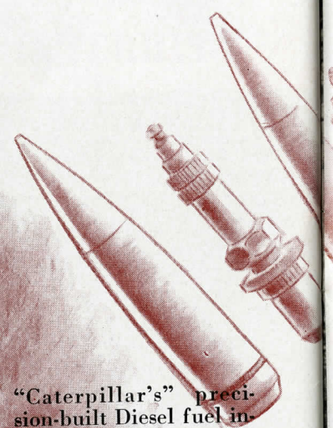
Welding, as performed under the exacting standards of Caterpillar Tractor Co., produces a joint that is far stronger than a hot-riveted or bolted assembly—and saves vital production time.

Each welder selected by this company must prove his skill for the type of welding he is to perform by making sample welds—which must meet American Society for Testing Materials standards.

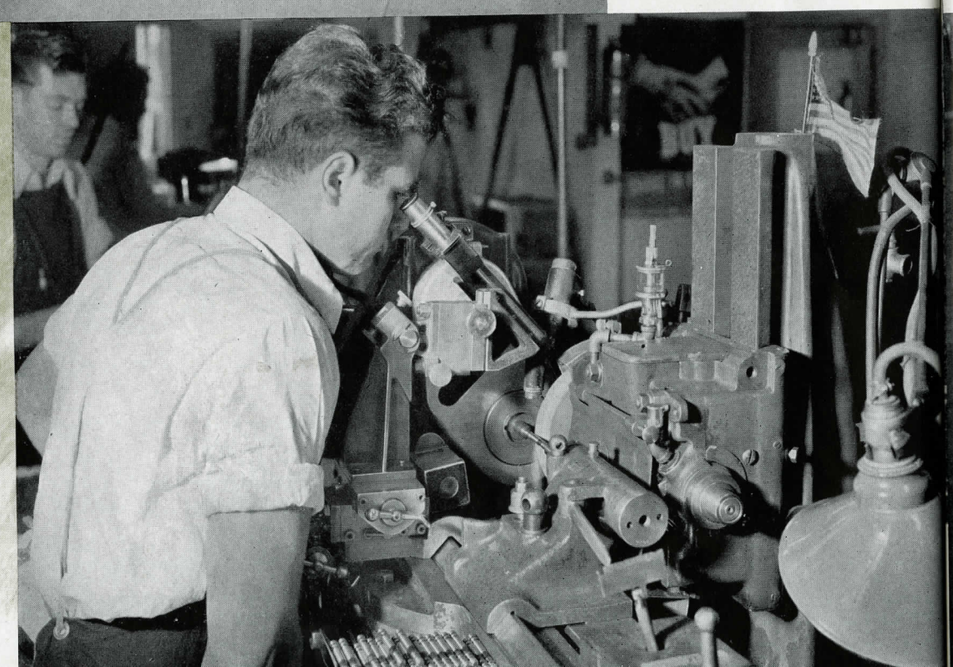
Welding electrode used by "Caterpillar," must first prove its quality under trial. For example, samples of weld metal are deposited in a steel trough and are also used to make fillet test welds. Then specimens must pass the inspector's tests for impact and tension, as well as for weld penetration and fusion.



Welds, as "Caterpillar" makes them, are uniformly reliable, because welding skill, the quality of electrode and the materials welded all are under precision control!

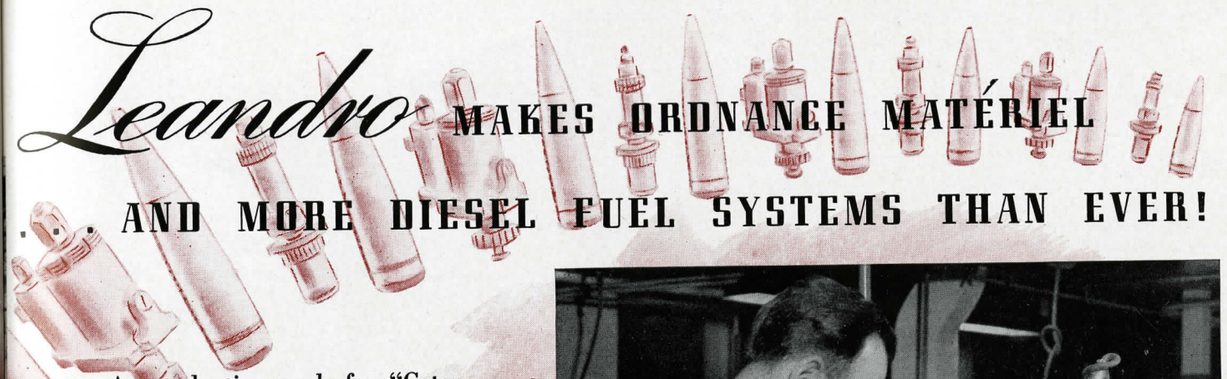


"Caterpillar's" precision-built Diesel fuel injection pumps and valves are operated for several hours at greater-than-engine-speed—on this "running-in" stand in the San Leandro Plant. Thus is each part proved and made ready for Peoria assembly lines and dependable field duty.

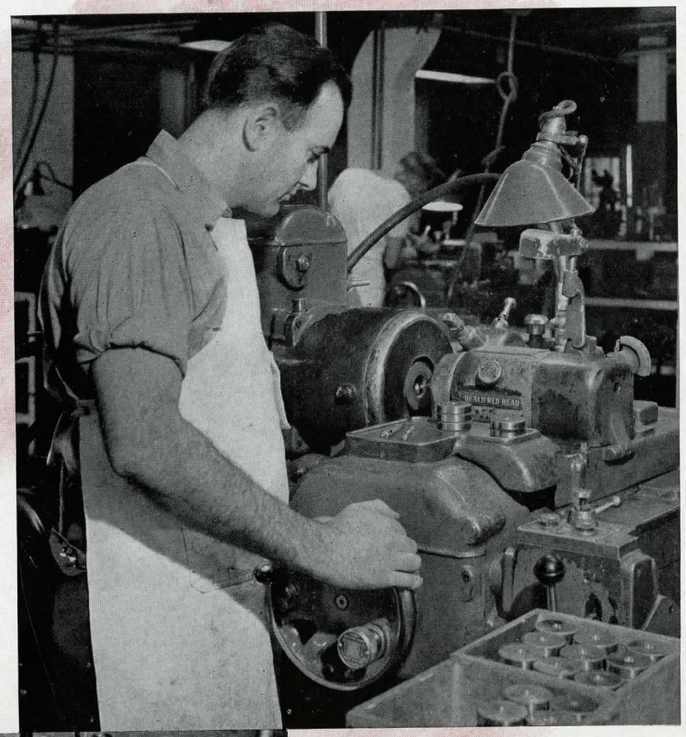


This workman requires a binocular microscope to observe, and keep within the precision limits of his machining operation on a "Caterpillar" Diesel fuel system part.

San Leandro MAKES ORDNANCE MATÉRIEL AND MORE DIESEL FUEL SYSTEMS THAN EVER!



As production goals for "Caterpillar" Diesel Equipment have risen again and again to meet emergency needs, the company's quotas for fuel-injection equipment, of course, had to be increased accordingly. The San Leandro Plant, which makes all "Caterpillar" Diesel fuel systems, has developed the facilities to keep abreast of this extra, wartime demand. In addition, the San Leandro factory is fulfilling subcontracts for parts of Ordnance matériel.



Grinding dies, on an internal grinder, for making .30 caliber cartridges. The dies are to be furnished to an arms manufacturer.

Turning the "rotating-bands" on a 37 mm shell near the end of the manufacturing operation on the shell line at San Leandro, California.

The U. S. Army Recruiting and Induction Service used this illustration in an advertisement. Carriage of the gun firing in the foreground is similar to the one which "Caterpillar" builds. Note also the large track-type tractor in the background pulling another large gun.

U. S. ARMY ARTILLERY PIECES WILL FIGHT ON *"Caterpillar"-built Carriages*

Among the artillery pieces that will help pound Axis armies to defeat will be 155-millimeter Howitzers doing their fighting on carriages built by "Caterpillar" to standard Ordnance Department specifications.

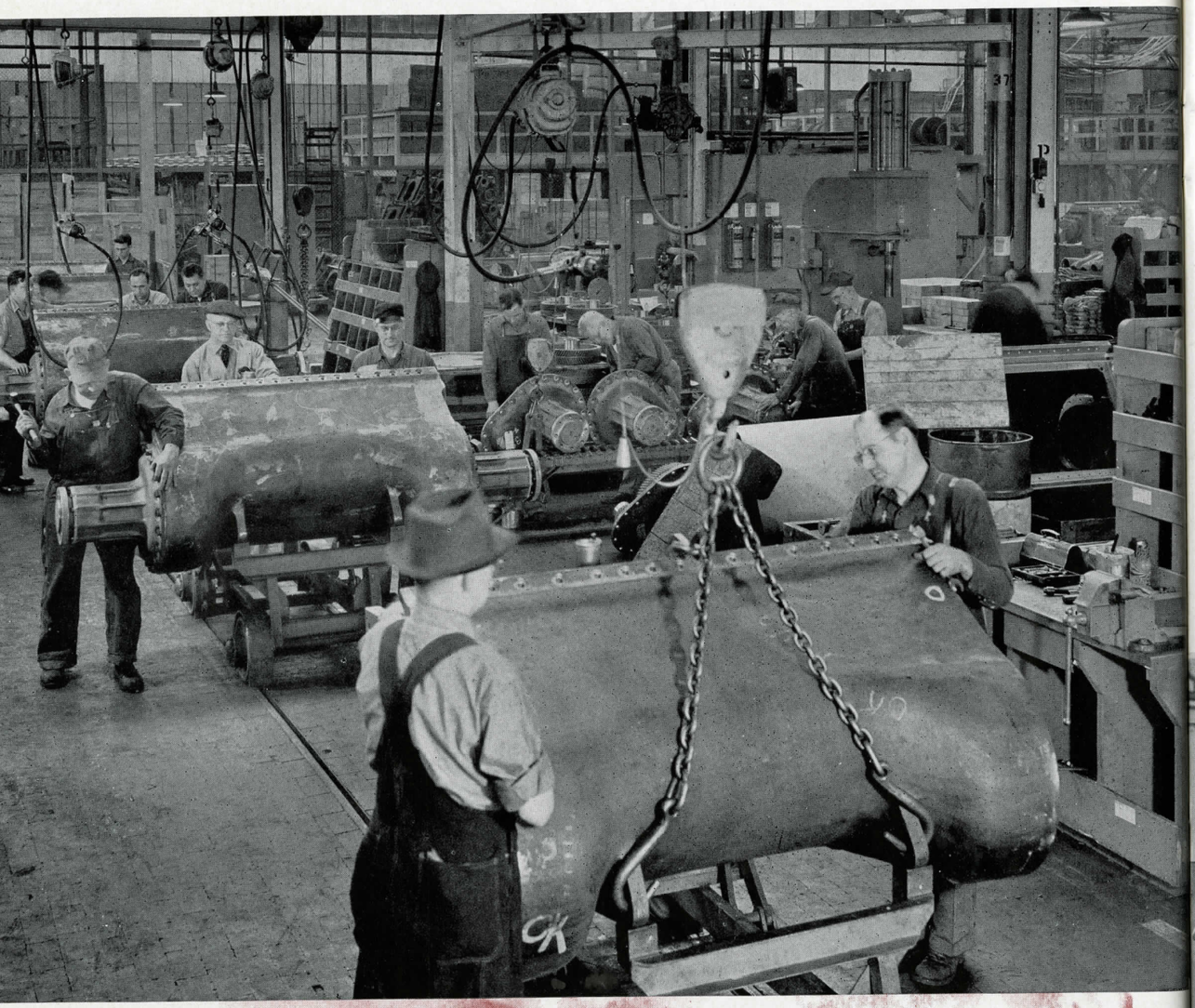
For Caterpillar Tractor Co. is busy on contracts to fabricate a large number of complete carriages for this mobile gun. The same precision manufacture as is employed on "Caterpillar" Diesel Tractors, Engines and Road Machinery, goes into the building of these carriages.

Here is a complete 155-millimeter Howitzer—for which "Caterpillar" is building complete carriages.

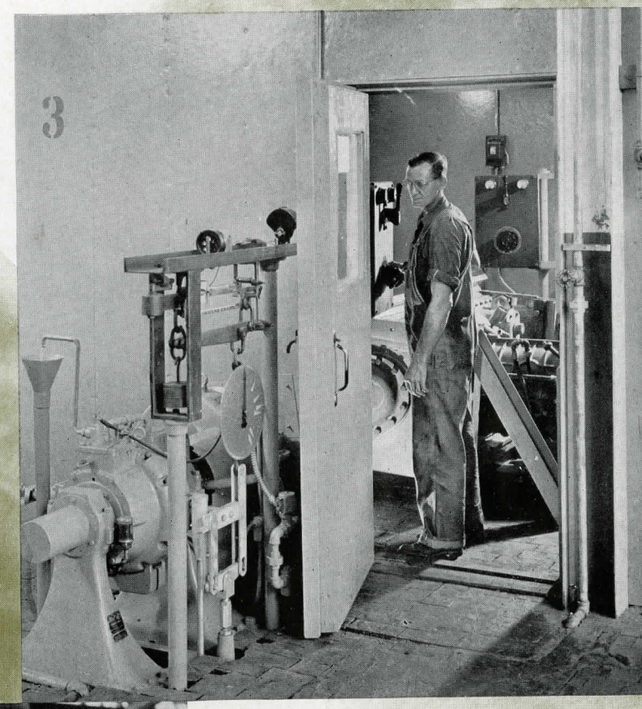
"Caterpillar" Builds Transmissions

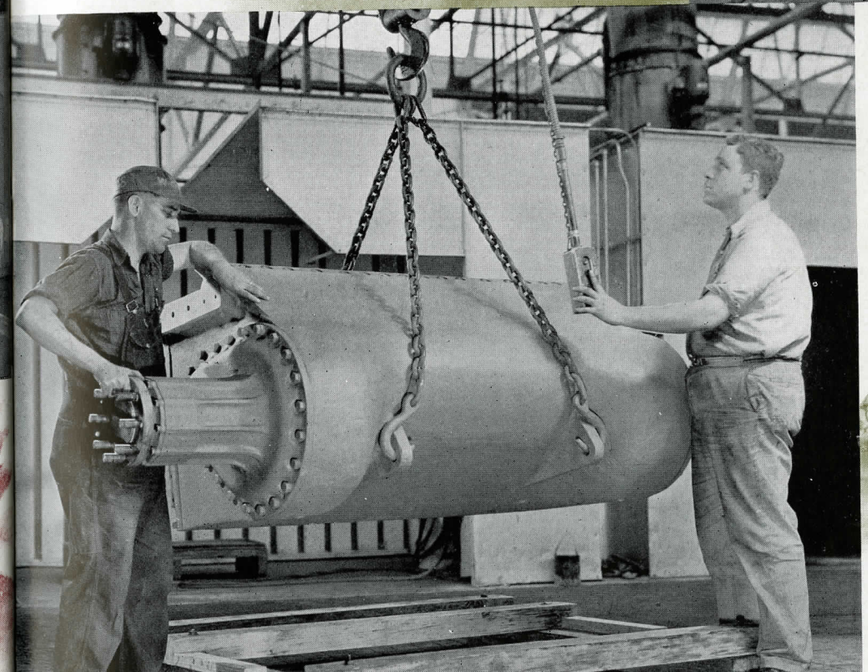
FOR THE MEDIUM TANK M-4

One phase of combat-machine construction which dovetails well with heavy-duty track-type tractor manufacture is the building of tank transmissions . . . So, in a building and with facilities especially provided for this purpose, "Caterpillar" is making complete tank transmissions for a supplier of the U. S. Army—applying the same skill, experience and precision that have put "Caterpillar" Diesel Tractors, Engines and Road Machinery at the Front, the World Over!



Down an assembly line, in a special building erected for this purpose, go tank transmissions. Many of the tools that machine parts for this line are "Caterpillar"-designed and built.



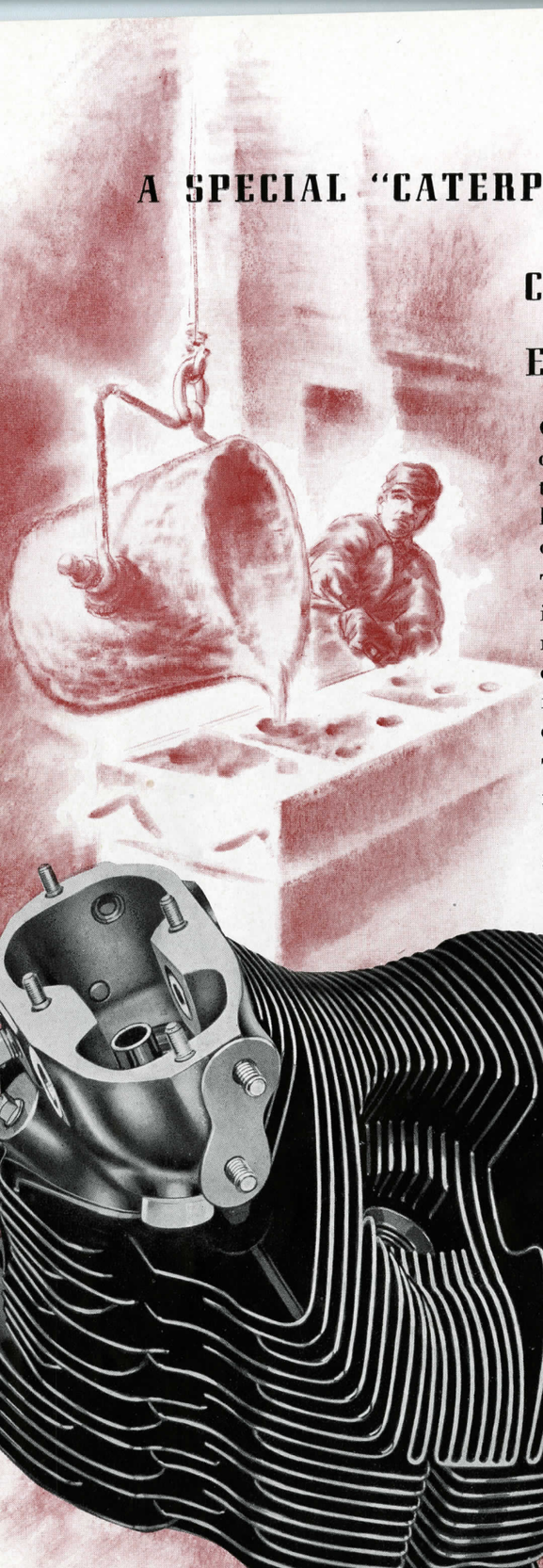


In a sound-proof test booth, the completed tank transmission is tested under power and its operating characteristics are observed with precision gauging instruments—to prove its fitness for tank-duty!

Ready to go to a tank builder, a completed transmission is picked up from the special paint booth and lowered to its shipping frame—a new package of "Caterpillar" Quality, ready for the first leg of its journey to help beat the Axis!

A SPECIAL "CATERPILLAR" *Foundry*

CASTS ALUMINUM, RADIAL ENGINE CYLINDER HEADS..



Only a few foundries in the U. S. A. will undertake to cast, in quantity, aluminum cylinder heads for radial-type engines. This is true because of the special problems involved and the special foundry equipment required.

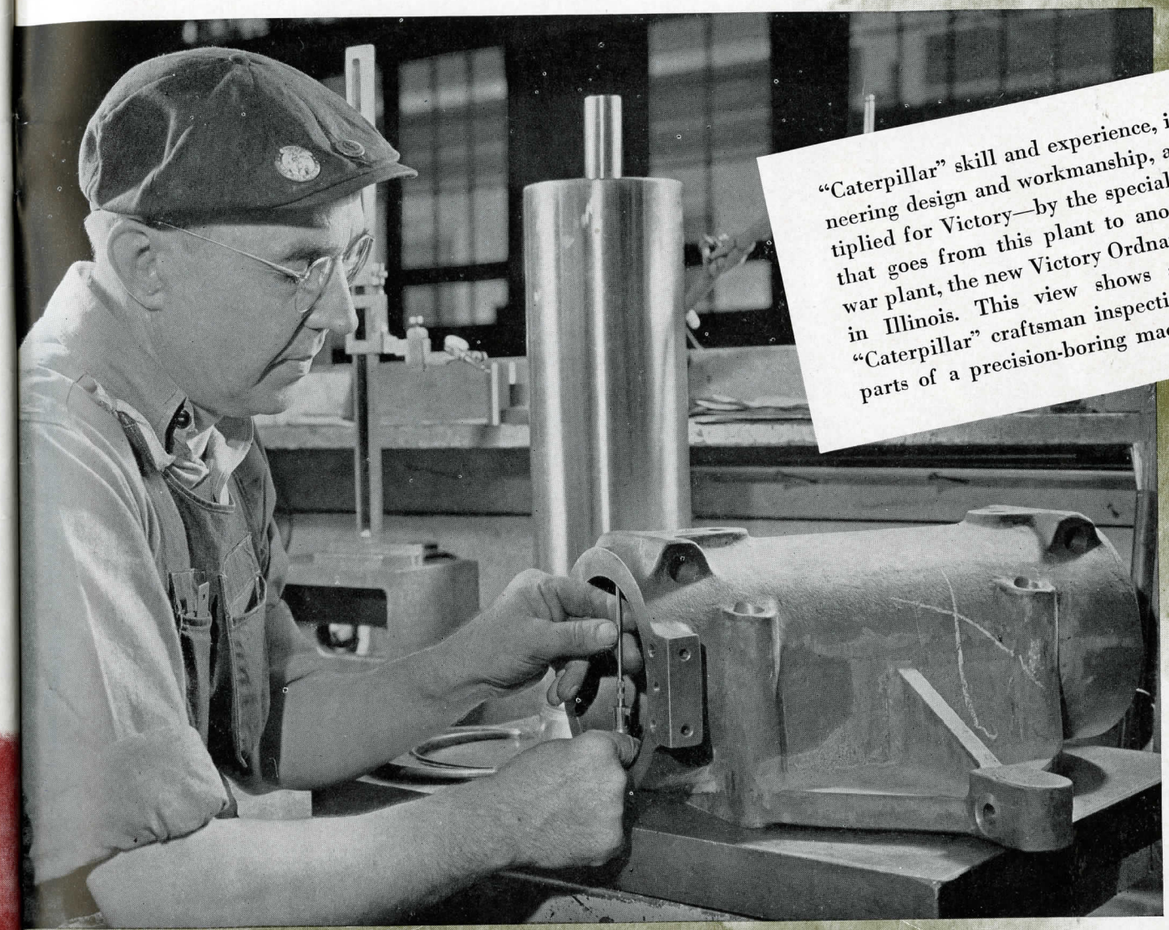
This highly intricate, deep-finned casting must be finished to close tolerances by exacting workmanship. The numerous fins (about five to the inch), which give this cylinder head its large cooling-surface area, vary in depth from three to five inches. So it's a tricky, "headache" casting.

The aluminum alloy used in this cylinder head is melted in small furnaces under precision temperature control. At one stage, the melt is fluxed with chlorine gas. And after the cooled casting is cleaned and buffed, it receives two precision heat-treatments.

Our Army wants Radial Diesel Tank Engines. To build them, "Caterpillar" requires these cylinder heads in quantity. Other foundries, capable of producing this work, are loaded with war orders. Result: a new, specialized "Caterpillar" aluminum foundry—built and equipped to do this one exacting and necessary job! This deep-finned aluminum alloy cylinder head of a radial-type Diesel engine is cast in one piece.

"CATERPILLAR" FORMS A *Subsidiary*

. . . TO HELP BUILD AN ORDNANCE PLANT



"Caterpillar" skill and experience, in engineering design and workmanship, are multiplied for Victory—by the specialized aid that goes from this plant to another key war plant, the new Victory Ordnance Plant in Illinois. This view shows a veteran "Caterpillar" craftsman inspecting spindle parts of a precision-boring machine.

On invitation by the Ordnance Department, U. S. Army, Caterpillar Tractor Co. has provided the management personnel for constructing and equipping an Ordnance plant in Illinois.

A subsidiary, the Caterpillar Military Engine Company was formed for this purpose. To staff the subsidiary company, "Caterpillar" has supplied a considerable number of top-rank junior executives from its own administrative, purchasing, engineering, traffic, personnel, accounting, training and other departments.

Both the Peoria and the San Leandro plants of Caterpillar Tractor Co. have made available appropriate facilities for training supervisory personnel of the subsidiary plant for specialized production jobs.

"Caterpillar" Research transforms ideas

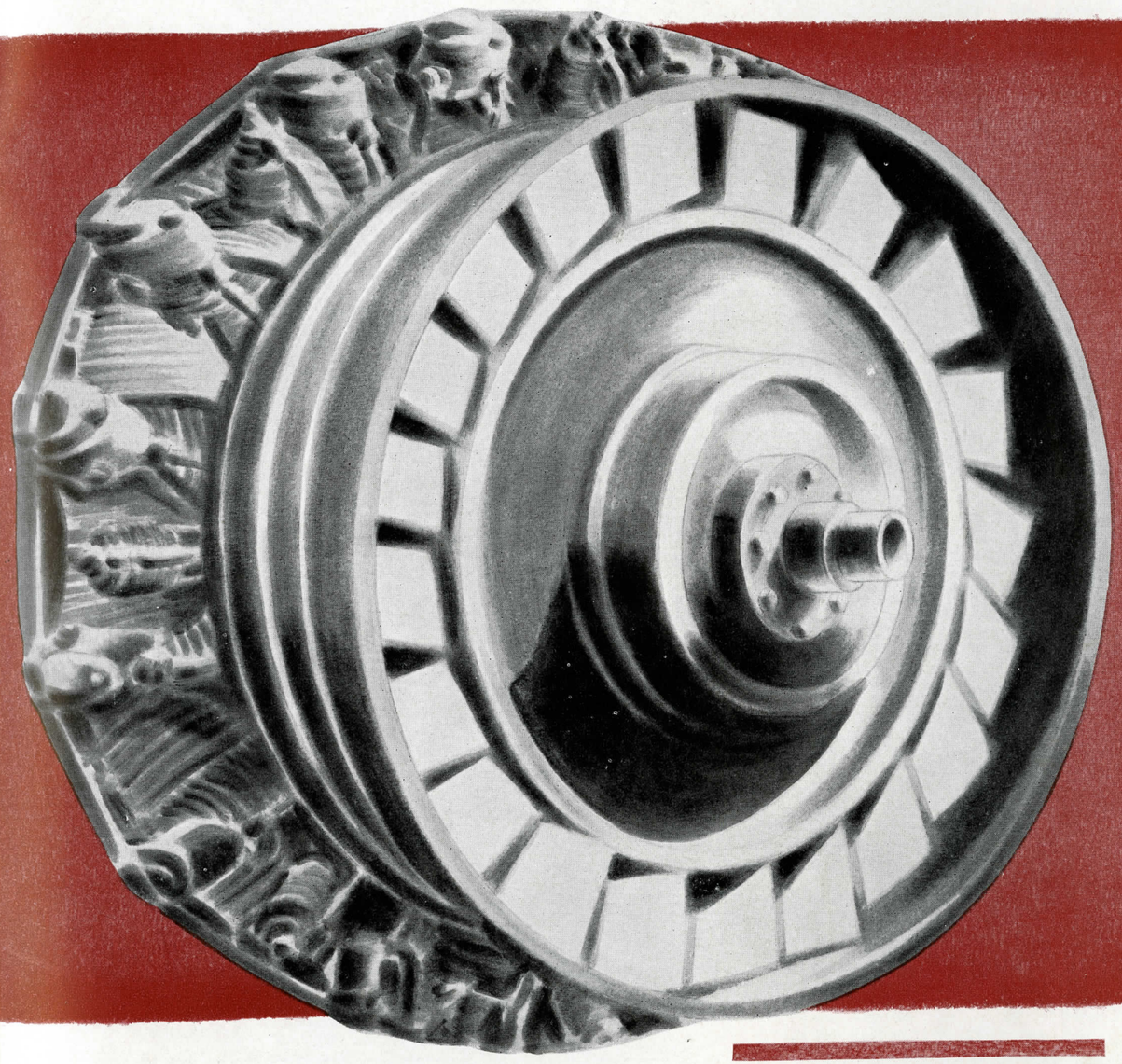
INTO MILITARY RESOURCES

"Caterpillar" Diesel-powered machines by the scores of thousands, tell in their own vigorous way how far "Caterpillar" Research has progressed into the realms of Diesel engine and track-type tractor engineering. And the high standing of "Caterpillar" Diesel Tractors, with users of heavy-duty power the world over, declares the excellence of the Research that developed these machines and the precision-manufacturing means for building in quantity.

. . . Before Pearl Harbor, Caterpillar Tractor Co. contracted with the Ordnance Department to develop, for powering tanks, a Diesel radial engine of greater horsepower and wider adaptability than any then available.

After considerable development and test work, "Caterpillar" has produced this tank engine based on a well-known aircraft engine's design. The Diesel radial engine has proved able to operate on a wide range of fuels, from crude oil to gasoline, without adjustment. The fuel system that has proved so successful for more than a decade in the thousands of "Caterpillar" Diesel Engines, has been adapted for use in this radial engine.

"Caterpillar" engineers have made this new engine battle-worthy—with ample attention to such details as air cleaner and fuel filters, for dependable duty under such dust conditions as African Desert duties would impose; with positive starting to brave a winter in the Arctic; with the reliability to operate for considerable periods of time under adverse conditions; and with the simplicity of adjustment and repair demanded of combat equipment.



DIESEL RADIAL MILITARY ENGINE

. . . "Caterpillar" Research is busy on other engines for war duties on land and water . . . and busy on other ways and means of helping win the war!

#330

CATERPILLAR
11282
TRACTOR CO.

4/8/43

FORM 7767