



Guide's page in  
the history of  
American  
Industry  
at War

*Guide*



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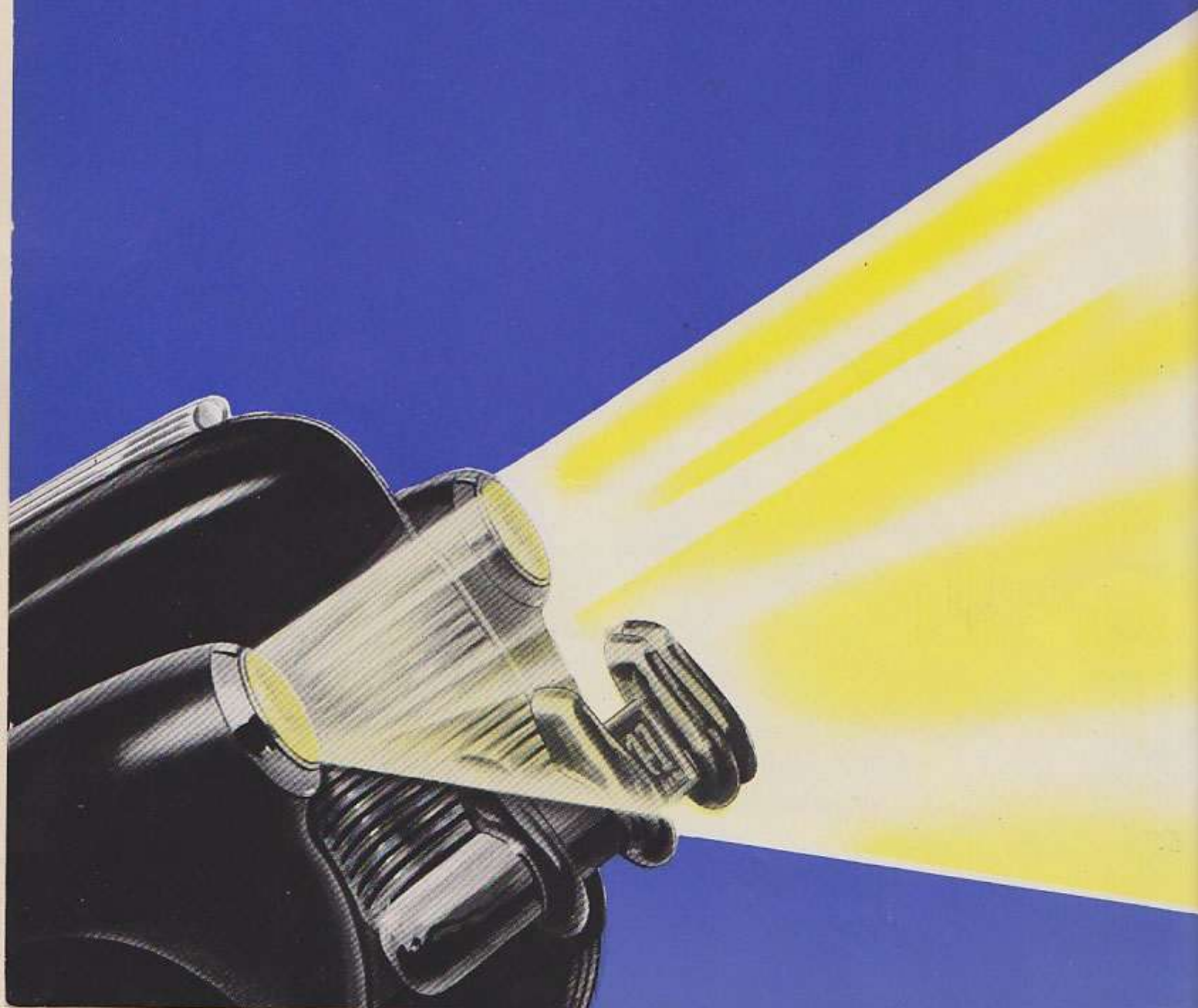
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**GUIDE LAMP HISTORY BOOK**  
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*More than a thousand men, at this date, have gone from the Guide Lamp Division to the uniform of their country's service. They, like the weapons they once helped to build, are now in all parts of the world. It is to them that Guide folks dedicate this story. And there is a heaviness of heart in our memory of nine men who have given all—who won't return.*



# A FOREWORD FROM OUR GENERAL MANAGER



**T**his is the story of Guide Lamp through the years of war. As a part of the bigger story of American Industry as a whole, it becomes a page of history in the making.

Our story is told as one of our own men might tell it to his son when the little fellow asks the inevitable question: "Dad, what did you do in the war?" But it is not the story of one individual. It is the story of all of us—whether we are tool makers, supervision, assemblers, accountants, draftsmen, maintenancemen, engineers—or, for that matter, even soldiers, sailors or marines who have laid aside their working clothes to don uniforms and carry guns.

All of us have the right to take pride in our products and our achievements. We have a proud story to preserve—and, to preserve it, we tell it now. Today we can capture some of the atmosphere that will be lost forever when the end of the war comes.

However, victory isn't ours as yet—and, so, our task is incomplete. This is our story of the beginning. And it is a good beginning. While we can pause a moment now to reflect on our past performance, the work that lies before us is much more important—the completion of the story. The work of the immediate future, to the day when our enemies submit to unconditional surrender, is the final chapter yet to be written.

*L. G. Michel.*

GENERAL MANAGER



## "WHAT DID YOU DO IN THE WAR?"

**S**on, this is the answer to a question you are going to ask me maybe ten years from now. It's the same question that I asked my Dad about fifteen years ago.

Today, you are almost five years old. You're too young to understand much about the war. You know it's going on—because you play at being a combat flyer—and you can hardly wait until I come home in the evening to tell me about your latest pretended "missions."

But that is the reason for this story. Now you only know there is a war going on. You don't know what it is about—or what it means—or how tremendous it is. But someday, you will—when you are studying the events of these days in your high school history book.

Then you will ask me the question I am answering right now: "Dad, what did you do in the war?"

I'm putting the answer down now—with pictures, too—because it is all fresh in my mind. If I wait until you ask me, I may have forgotten many interesting things.

I'm not a soldier or a sailor. My part in the war is on the production lines of the Guide Lamp Division of General Motors. We make the weapons that the soldiers, sailors and marines use—machine gun barrels, submachine guns, big-gun cartridge cases, aircraft parts and thousands and thousands of specialized lamps for military vehicles.

My story is much the same as that of another person. Some of us will go right on making weapons until the day of victory. Some others of us have fin-

ished our work here — about 1,000 of us — and joined up with the Army, the Navy, the Marines or the Coast Guard. Your history book will tell about the battles. This little book will give you a personal look at the vital work that goes on behind the fighting lines.





## THE STORY BEGAN THIRTY YEARS AGO

**T**he ground work for our war production at Guide Lamp was laid about 30 years ago when The Guide Motor Lamp Manufacturing Company went into business in Cleveland, Ohio. At that time, it was making lamps for carriages. It became the first company to produce an electric lamp for automobiles. From that time to the present, Guide has maintained a position of leadership in the automotive lighting field.

After it became a part of General Motors and was moved to Anderson in 1930, there were five buildings which comprised the entire plant. When the first war contracts came along, in 1940, there were 17 buildings being used — and a fine new one in the process of erection. The 18th building was completed and ready for use before Pearl Harbor.

Business was at its all-time peak at Guide just at the time

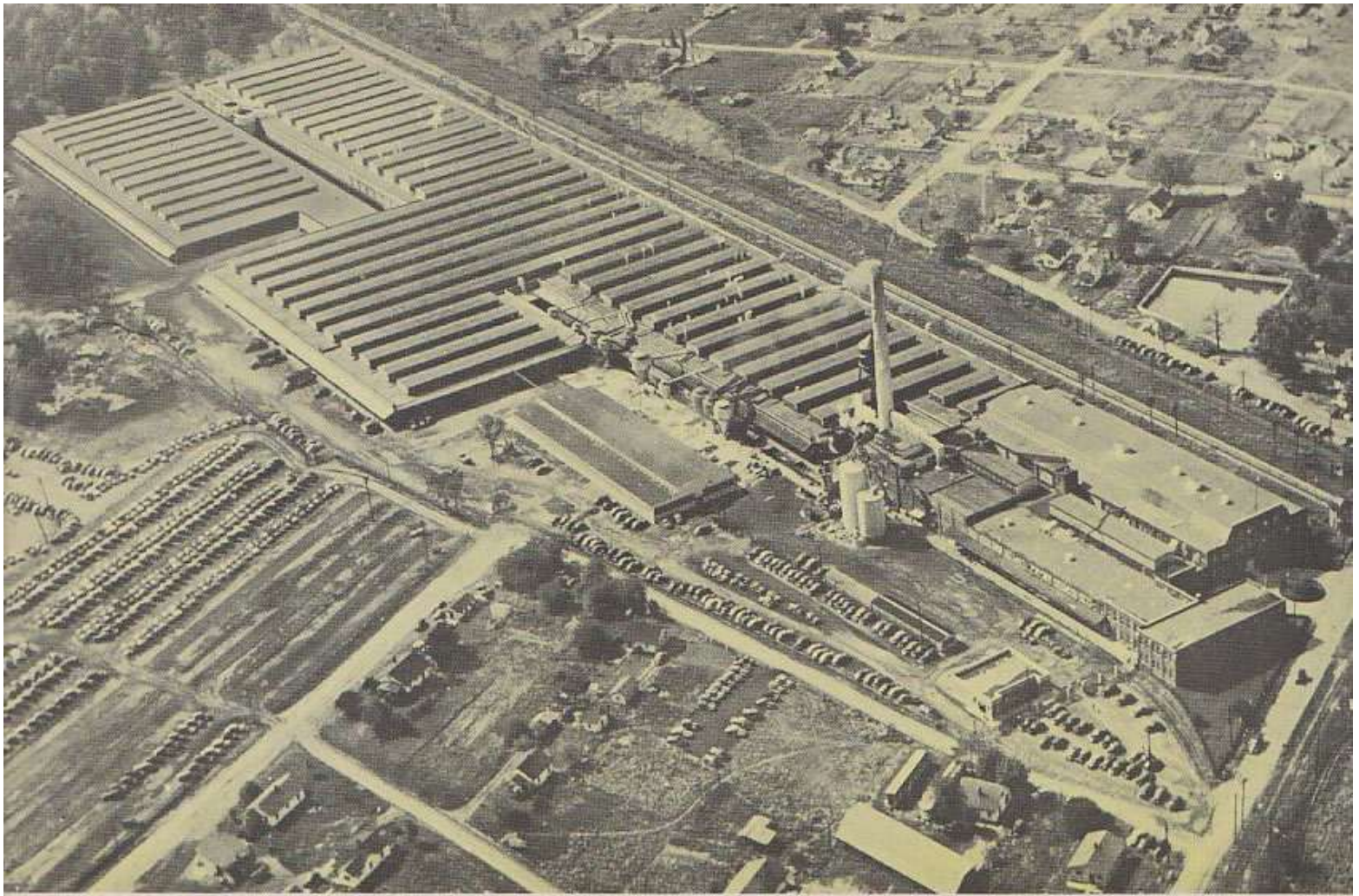
The original Cleveland plant.



The original Anderson plant.







The present day Anderson plant.

war broke over Europe. The Division was the nation's—and the world's—greatest producer of automotive lamps—and was also the manufacturer of hub caps, bumper guards and decorative metal stampings and die castings for General Motors cars—and others.

That's all background—as a sort of “prelude to war.” It gave us some assets—valuable ones: eighteen buildings, something like 2,200 trained workers—and a lot of that intangible something known as “Yankee ingenuity” and “know-how.”



# OUR LAMPS WENT TO WAR IN A BIG WAY

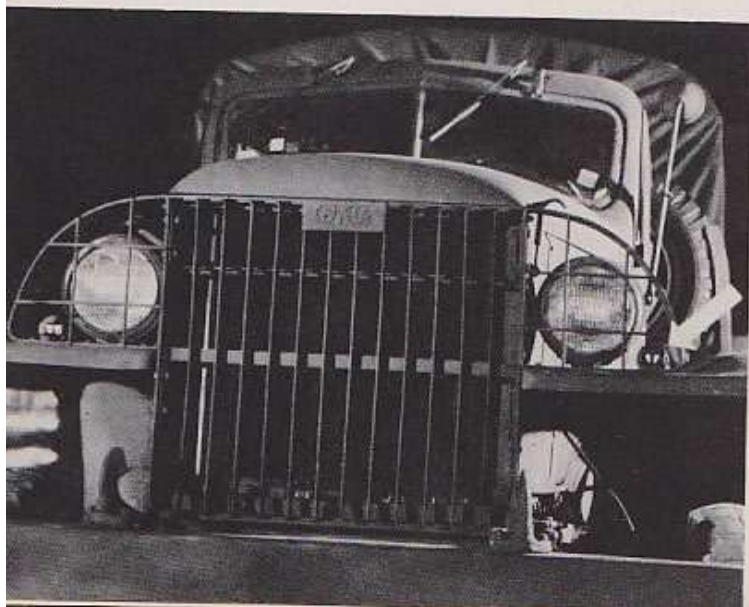
**P**erhaps it would be better if I told you something about our war products before I go on with the story.

It seems natural to say, "Of course, we made lamps for military vehicles," for building lamps was our business. But the "of course" is misleading. Army Ordnance soon found that civilian auto and truck lamps were not fitted for war—and that there were many kinds of lamps to be designed and produced which bore little, if any, resemblance to peacetime products.

We are naturally proud of the work we have done on military lighting equipment. In this field, our achievement for war becomes a further support to our reputation as master-builders of lamps. We were the biggest manufacturers of them in peacetime—and are likewise in war. Moreover, we have worked hand-in-hand with the Ordnance Department in designing and developing lamps to fill specific needs.

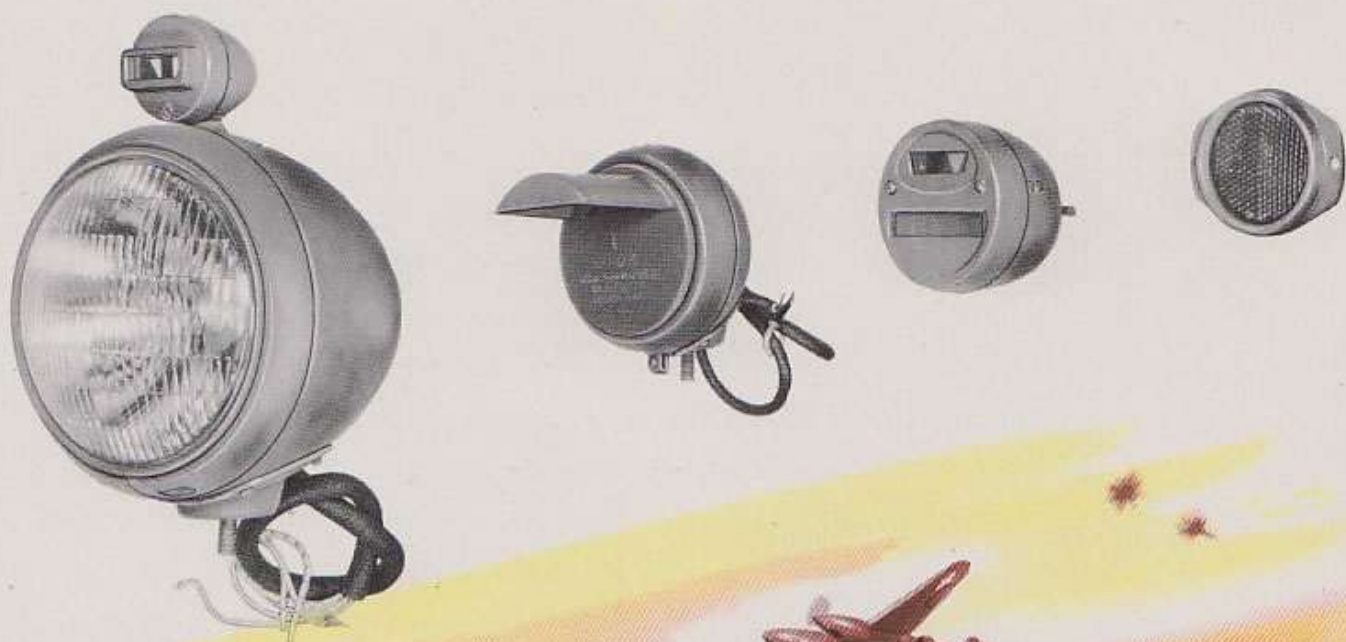
We designed and built blackout lamps for front and rear installation on trucks, jeeps, combat cars, command cars, tanks, half-tracks and amphibious trucks. They were not only invisible from the air—as required for blackout driving—but they had a visual pattern that aided drivers to maintain proper distances between vehicles in night operations. We built special hooded blackout lamps which allowed enough light to make driving possible—but still offered

control to the point that enemy eyes would not be attracted. We designed and produced the tank dome lamp—a scientifically engineered lamp for either normal or blackout operations.



⤵ This is a typical arrangement of driving lights and front marker lamps on a General Motors army truck.







**O**ur Lamp Plant turned out thousands of the special spotlights which were used on tanks—both as probing, brilliant beams for searching shadow-shrouded objects on reconnaissance—and as signal lights by which a message could be blinked to watching eyes far away. A long hood shielded the beam from the enemy. And the entire lamp could be removed from the tank if required. A spring-tension spool of wire connected it to its power supply in the tank.

Many of our lamps were so constructed that they could be used even if they had been completely immersed in water. Some of them were mounted in new and special ways so that they would give the utmost in service without being impaired by jolts of vehicles on rough terrain—vibration of straining engines.

Besides these lamps, we also provided millions of Stimsonite reflectors for use as markers on all kinds of vehicles. There are pictures of our many kinds of lamps on these pages. Later on there will be more to say about lamps in detail—including the production barriers we had to get around when certain normally used materials became scarce.

A lamp doesn't seem as deadly as a gun—or as glamorous as an airplane. But there is no doubt but that lamps have played nothing less than a major role in the war. They bear the responsibility of guiding supply convoys through strange lands at night—without tipping off the enemy by a misdirected beam. Auto and truck headlamps have served as makeshift floodlights for equally

makeshift advance airbases. In all, they have given cat's eyes to a 24-hour fighting army that dared not be blind after sundown.



◁ The various parts of our thousands of military lamps are assembled on conveyor belts such as this. They're on their way—to the front.







# CARTRIDGE CASES BY THE MILLION

**W**e made millions upon millions of cartridge cases—part of the ammunition for heavy guns. Some of them were brass and some were steel. There were five sizes in all. Let's take them one at a time.

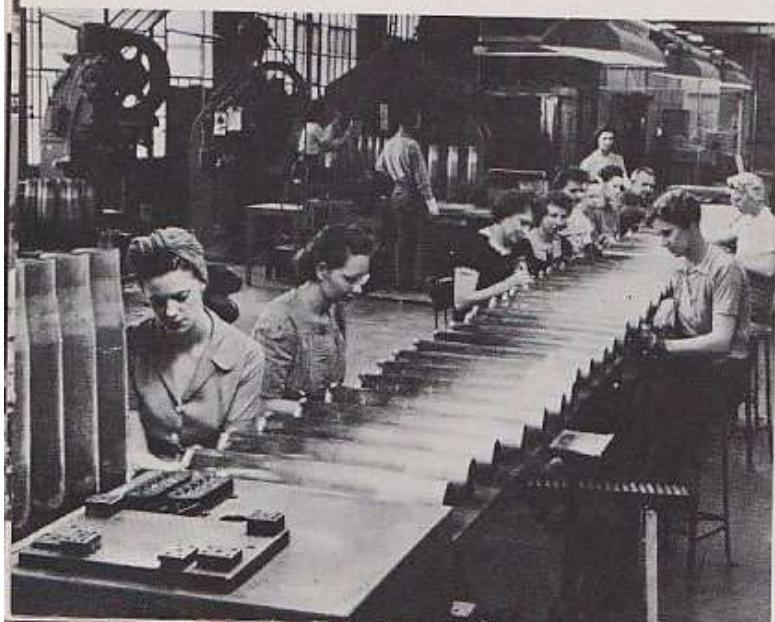
One was for the 105 millimeter howitzer—slightly over four inches in diameter and about 15 inches long. The gun it fed was a "whopper"—a snub-nosed squatty field piece designed to point its muzzle to the sky and lob big, high explosive shells over a woods, a ridge or a hill to smash up enemy gun emplacements, entrenchments, fortifications and the like. It did its job so well that many an enemy soldier was half-crazed by fear of its accuracy when later taken prisoner.

Another was the 90 millimeter case for the long-range anti-aircraft rifles. This was the "long-boy"—more than 23 inches long and about five inches in diameter. It contained enough powder to drive a shell eight miles straight up into enemy aircraft formations.

Then there was the 40 millimeter—for use in medium range anti-aircraft rifles on ships and around vital military establishments. Its function was the same as that of the 90—but its range shorter and its explosive charge smaller.

The "mighty-mites" were the 37 millimeter cases for anti-aircraft and anti-

tank batteries. Tank armor outgrew the penetrating power of the 37—but the little gun continued to do masterful and vitally important work against low flying planes and overly brave enemy armored cars.



These cartridge cases, destined to feed 90 mm. anti-aircraft guns, are complete—ready for ordnance inspection and shipment.







## BARRELS FOR THE DEADLY BROWNING

**A**ny worker would be proud to have had something to do with the manufacture of the Browning machine gun. Probably no gun had ever been so versatile—or so deadly. Guide men machined, drilled and rifled the barrels for the Browning—at more than 2,000 per day. The job also required a heat-treating process—something entirely new to Guide folks.

This snarling weapon was the chief armament for all kinds of planes in our air forces—from the sleekest of the fighters to the mauling heavyweight bombers. In mountings of two to a turret—the Browning was one of the biggest reasons our Fortresses and Liberators travelled so far without escort to do their bombing—and lived to fight another day. It was also the biggest reason that bombers ran up a bigger record of downed enemy fighters than even the experts would have believed.

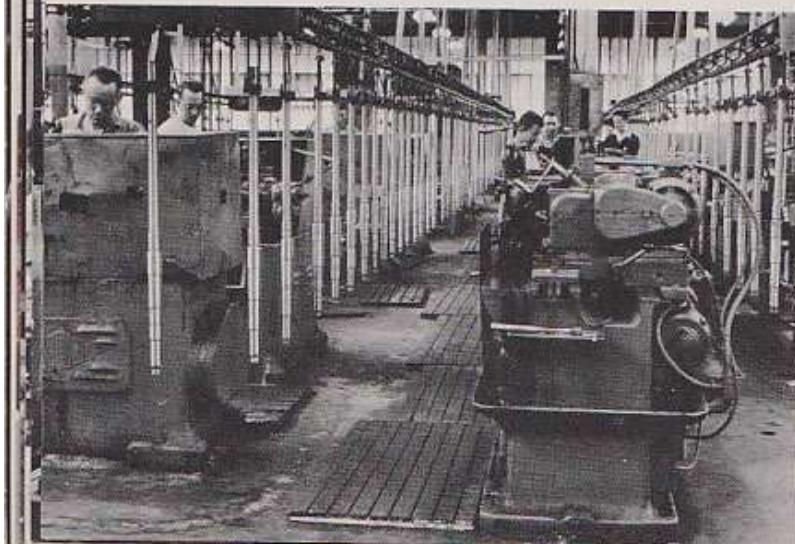
And the Browning fought on the ground, too—both as an anti-aircraft weapon and as a vicious “persuader” against enemy attacks and counter-attacks. Its armor-piercing caliber .50 slugs could smash up trucks with the facility of a pile-driver—turn a locomotive into riddled uselessness—or shatter a plane completely with a two-second burst of fire. Odd as it might sound, the Browning actually had an effective range beyond that of the enemy’s 20 millimeter cannon.

There was a lighter Browning gun, too—with a caliber .30 barrel. It was an infantry support weapon in every engagement of more than minor proportions.

Guide men machined that gun barrel, too.

The records show that the Guide Lamp plant was the biggest producer of barrels for the Browning heavy gun.

◀ Little is yet to be done to the barrels shown here. After inspection, proof firing and lubrifying, they’ll be sent to active duty.









## WE MADE A NEW SUBMACHINE GUN, TOO

Only a few of us ever got to try a few bursts with the M-3 submachine gun first hand—or even to see it fired. But we knew what a grand gun it was from the letters we got from the boys “over there.”

It weighed only ten pounds—would fit in a businessman’s briefcase without making a bulge. That’s why the soldiers were so happy with it. The M-3 was little more trouble to carry than a pistol—and plenty of ammunition, in slim magazines of 30 rounds each, wasn’t too burdensome a load. The gun may also be converted for 9 millimeter ammunition—used by some of our allies—by substituting a new barrel, bolt and magazine.

Soldiers used it for close-in fighting—like in the jungles of the South Pacific—and in the rocky, rugged hills of Italy. It was also a favorite weapon for street fighting in the Italian campaign. Mostly, it was fired from the hip—pouring a murderous stream of .45 caliber slugs in short, deadly bursts. It became extra popular because it could be held on target so easily—didn’t “climb” as had earlier submachine guns.

Though equipped with a steel bracket as a stock for use in firing from the shoulder—the M-3 was never intended for long-range. It served better

in the running attack—throwing its heavy bullets with impact force enough to put enemy soldiers down and out of the fight—if not out of the world.



Beyond this assembly conveyor, the M-3 is tested, targeted and shipped. Then comes action on the battle-front.







# NOSES FOR AIRACOBRAS

## ...and parts for the Allison engine

**W**e made three parts for the Bell Airacobra — popularly known as the "cannon on wings." They were the spinner-nose and adapter and the coolant sleeve which was part of the famous Allison aircraft engine.

The spinner-nose was a shell of relatively thin-gauge metal which completed the streamline design of the nose of the Airacobra. It covered the hub of the propeller, serving to protect it from dirt and the like as well as making a smooth airfoil. It rested on the heavier metal adapter which was fastened directly to

the propeller hub and served as a sleeve for the muzzle of the 37 mm. cannon which fired through the hollow propeller shaft. Both the spinner-nose and the adapter were deep-drawn metal parts.

The Allison sleeve was a thin-gauge piece of sheet metal, formed into a cylinder and making up a part of the engine's cooling system.

The spinner-nose and adapter fought with the 'Cobra in the skies from Russia's windy steppes to the coast of France and from the South Pacific atolls to the fog-shrouded Aleutians.

The Allison sleeve rode with the 'Cobra, of course, but also with other Allison-powered fighters. It was with the P-51 Mustangs in their low-flying sorties over the European channel coast; with the P-38 Lightnings over France, Germany, Italy and the Pacific; with the P-40 Kittyhawks in the South Pacific and the Tunisian campaign.



The Spinner-Nose



The Spinner-Nose  
Adapter



The Allison Engine  
Coolant Sleeve







## WAR ONCE SEEMED FAR AWAY

**T**hough there were some dark clouds on the horizon in 1939—and war had actually broken over Europe—still it seemed a long, long way from booming, peacetime America.

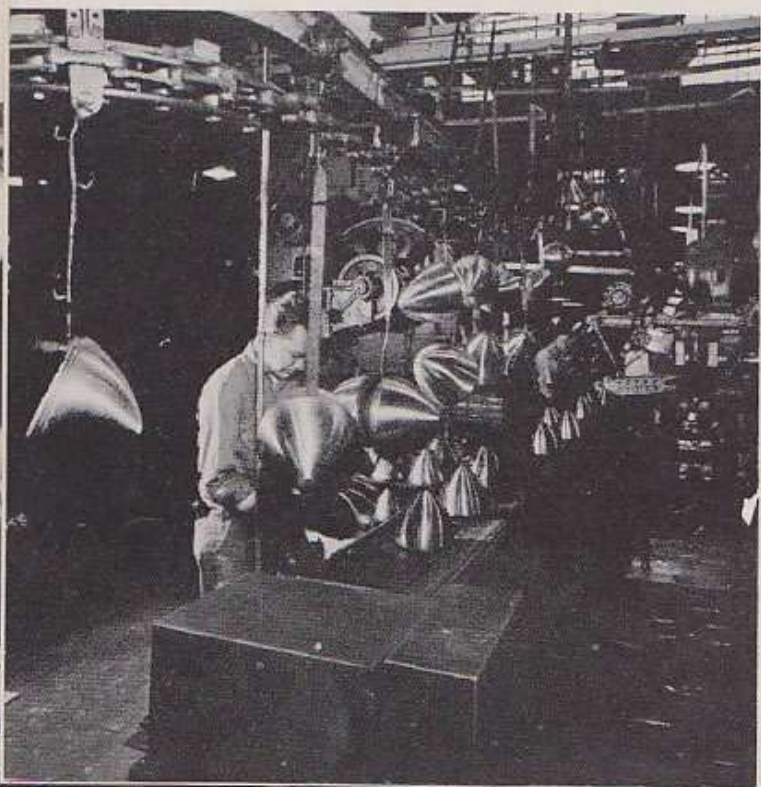
We were making more lamps for cars, trucks, buses, tractors and locomotives than we had ever made before. We were running a tremendous schedule of bumper-guards, hub-caps and metal stampings, too. Most of us were still sure that the desultory fighting along the Maginot Line on the French frontier would soon die away.

But the thunder of guns came closer with the lightning advances of the German blitzkrieg and the bombing of England. It came closer to us when the United States began a preparedness program and a plan for "defense" weapons production.

It was early in 1940 that Guide Lamp Division was first approached to become a part of the "arsenal of democracy." Major (now Colonel) F. A. McMahon and Captain (now Colonel) J. B. Medaris, of the Cincinnati

Ordnance District, called at the plant in April of that year—following a survey by letter and questionnaire in February.

At their request, Guide Lamp made a bid on manufacture of brass cartridge cases for the three-inch anti-aircraft gun. It was a job that required deep-drawing of brass. We had worked with brass in making lamp reflectors



◀ We were making more lamps than ever before. Here are some lamp bodies coming down a conveyor line for inspection.



—and that was probably one of the reasons we were approached for cartridge cases. We began operations on our first contract—10,000 three-inch cases—in June, 1940.

But cartridge cases was only the start—for only little more than a year after we began on them, the nation was thrown headlong into a two-front war by the Japanese attack on Pearl Harbor. We went all-out for war production. Also, in 1940, we designed and built our first military lamps. And in the next year, we took on manufacture of the three aircraft parts. Early 1942 brought us the job of producing barrels for the Browning caliber .50 machine gun. Then, at the beginning of 1943, we utilized the last foot of available space to put in the production lines of the M-3 submachine gun.



Col. F. A. McMahon, then a Major of Ordnance, Cincinnati Dist., was instrumental in getting us into war production.

The Japs bombed American hearts when they struck at Pearl Harbor. It was one of history's gravest mistakes.



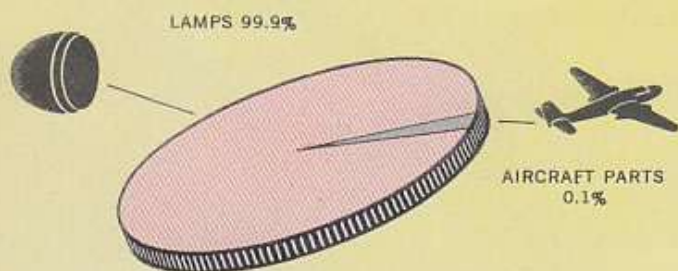


# EVERYTHING HAD TO BE CHANGED

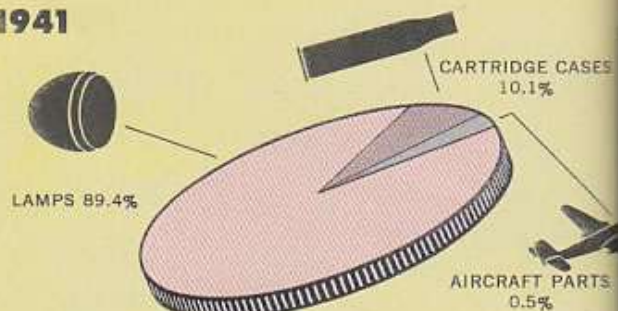
It would be wonderful if we could say that we shut down our peacetime products lines one night and began turning out guns and cartridge cases the next morning. But it didn't happen that way. We had to revamp the production layout in more than half a million square feet of floor space. We had to change almost every machine we had—or replace it with another. It was a matter of squeezing down our great lamp production lines to accommodate new products. But we did it. By the end of 1943, only 38% of the entire plant was still producing lamps—and they were not more than shirt-tail relation to the peacetime products. In the remainder of our space, 29% was making cartridge cases, 17% was producing machine gun barrels and 16% was occupied with the M-3 processes.

## CONVERSION OF BUSINESS — PERCENTAGE OF DOLLAR SALE

**1940**

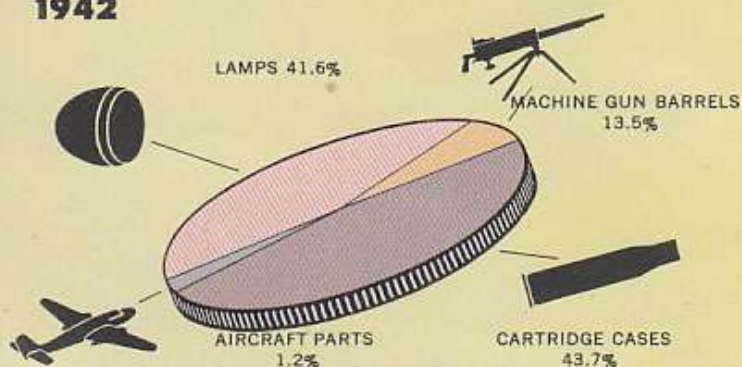


**1941**

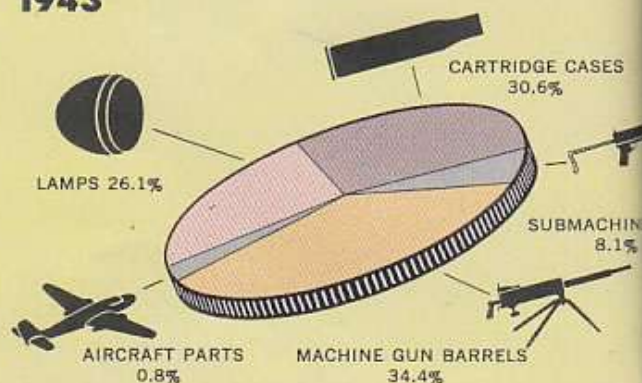


\*The lamp symbol in 1940 and 1941 represents our commercial production of bumper-guards, hub-caps, stampings and die-castings as well as the various automotive lamps.

**1942**



**1943**





We had to grow from about 2,200 trained workers to more than 5,000—of whom a full third were women—with little or no factory experience. We lost more than 1,000 workers to the armed forces and they had to be replaced. We all had to be trained to do new types of work. It has been estimated that, in all, more than 10,000 people were trained or retrained for jobs in three years. It meant everybody — from supervision right through to the newest worker on an assembly line. Our system worked. The supervisors and staff heads had training courses—as did our foremen. Everybody, in turn, was trained—and then trained someone else. Some of the training was done in other plants which were already doing the jobs Guide Lamp was slated for.

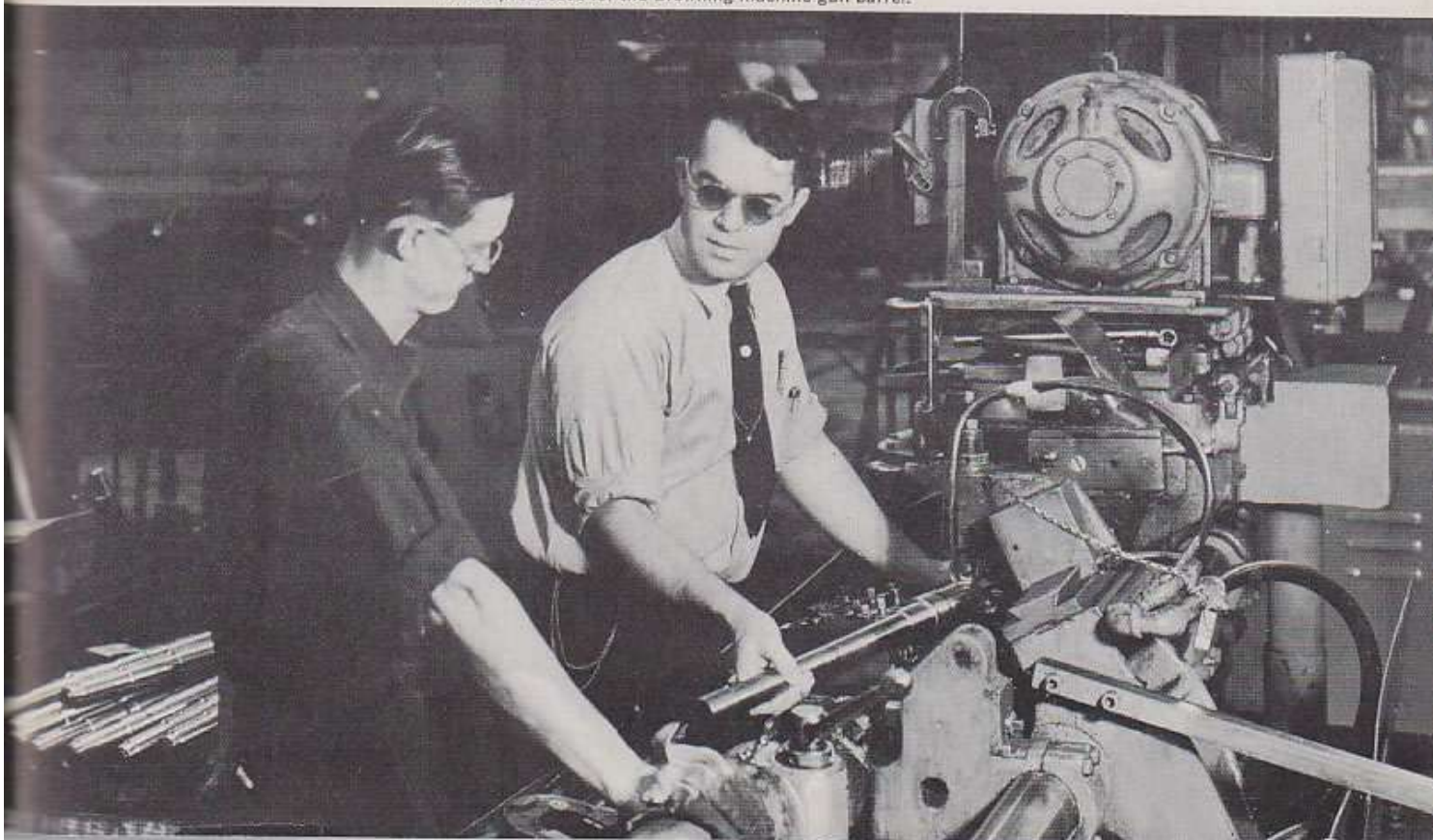


ABOVE—All of us had to be fingerprinted and photographed. It was part of the plant protection program.

BELOW—Everyone had to be trained. Here is part of supervision in a classroom. They passed their training on to us.



BELOW—Foremen and fellow workers trained us right on the job. Here, a new man is learning to operate a machine in one of the processes for the Browning machine gun barrel.



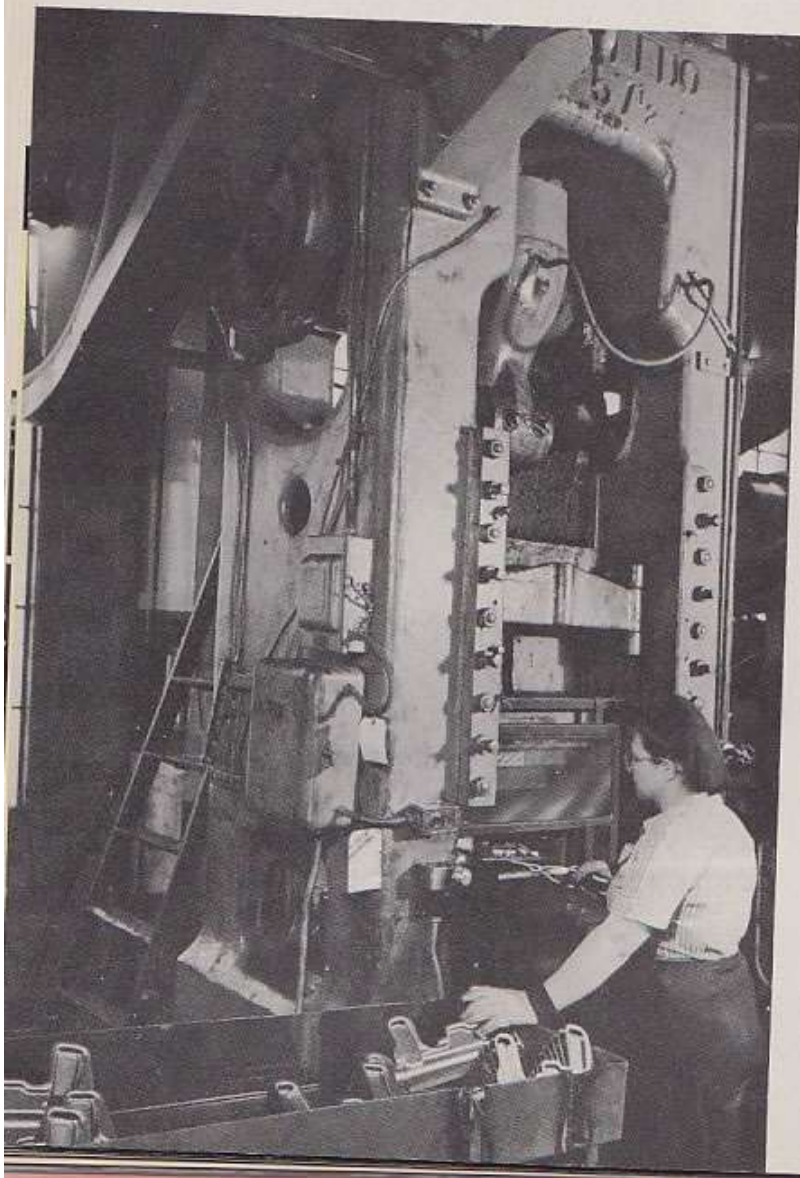


# NEW PEOPLE + NEW MACHINES = NEW SAFETY PROBLEMS

**B**esides learning to operate new machines, we had to learn to be careful, too. Many of our people were new to any sort of machinery—and few of us had had any experience with equipment of such tremendous power as that required for war.

It took full-time work on the part of 15 men to keep us fully safety conscious. One of the biggest jobs was the continual development of new safety guards for those which we learned to "beat." Because "beating" a safety guard was often easier, we had to be shown that "easier" work would not pay off in the

long run. And the Safety Department saw to it that not a day went by without a pep-talk on safety. Everybody was made conscious of the need for safety—from top supervision right on down.



ABOVE—In many departments and in many jobs, we wore safety glasses—either tinted or clear lens.

LEFT—Note the safety guards on this machine—and the pliers used for loading and unloading the press.

BELOW—Safety shoes with steel toe-caps saved many of us from injured feet.





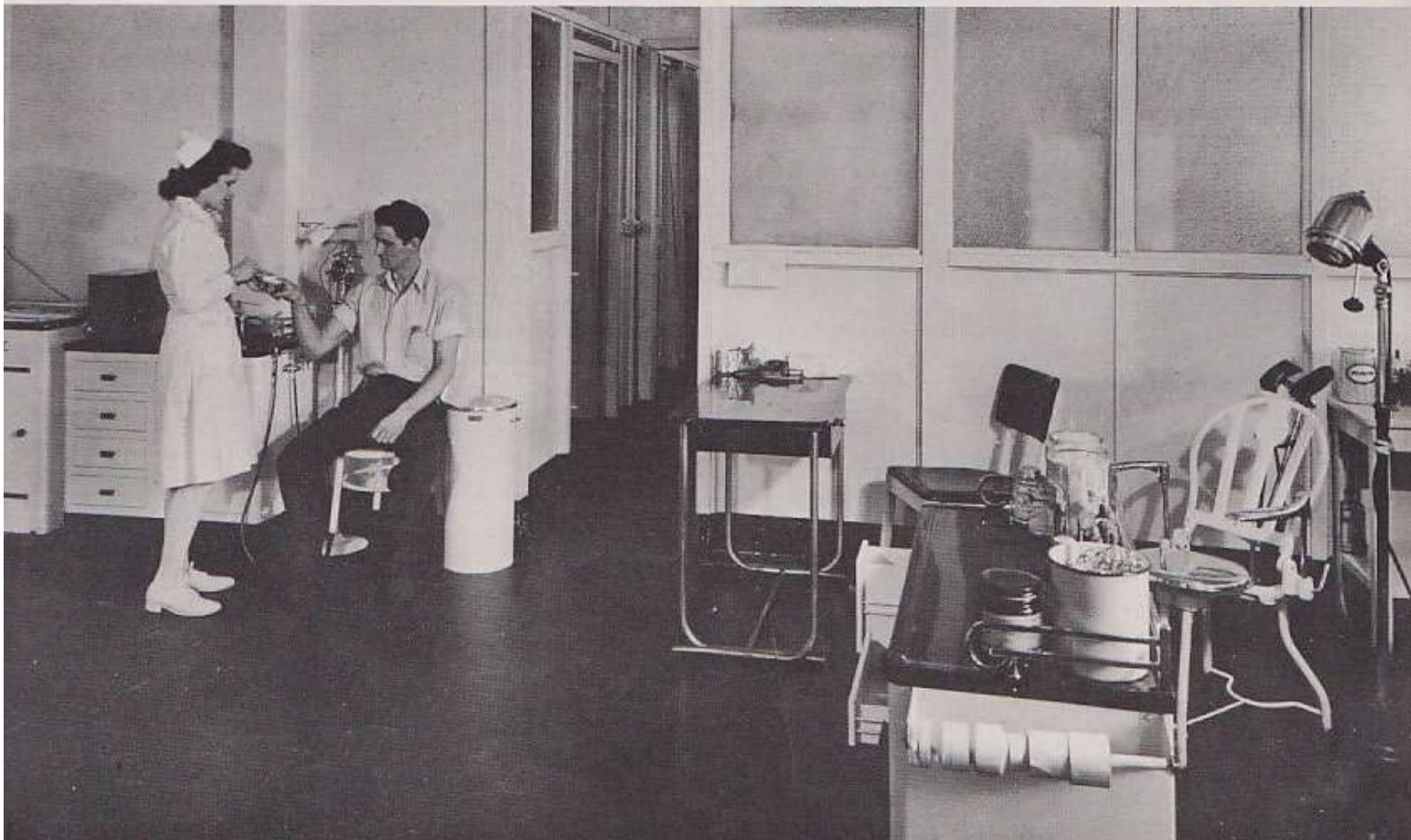
Along with the safety program, we were urged to have even the most minor injuries treated at our complete plant hospital. That ruled out many a possibly serious case of infection. But it made a lot of work for the hospital, too.

The hospital was under the direction of a full-time physician and eleven registered nurses. Most of the calls were for redressing of injuries and the like—but if need be, the hospital could take care of minor surgery. Besides regular equipment to take care of injuries, there was x-ray, also. One of the big jobs of the hospital staff was that of examining every new worker—and re-examining every person returning to work after an extended lay-off or sick-leave. After the war brought on a shortage of civilian doctors, the hospital also frequently gave diagnosis and first treatment of common illnesses.



ABOVE—Our hospital's x-ray equipment served both for examination of injuries and for chest check-ups of new workers.

BELOW—We took no chances on injuries. Everything got prompt and expert attention at the hospital.





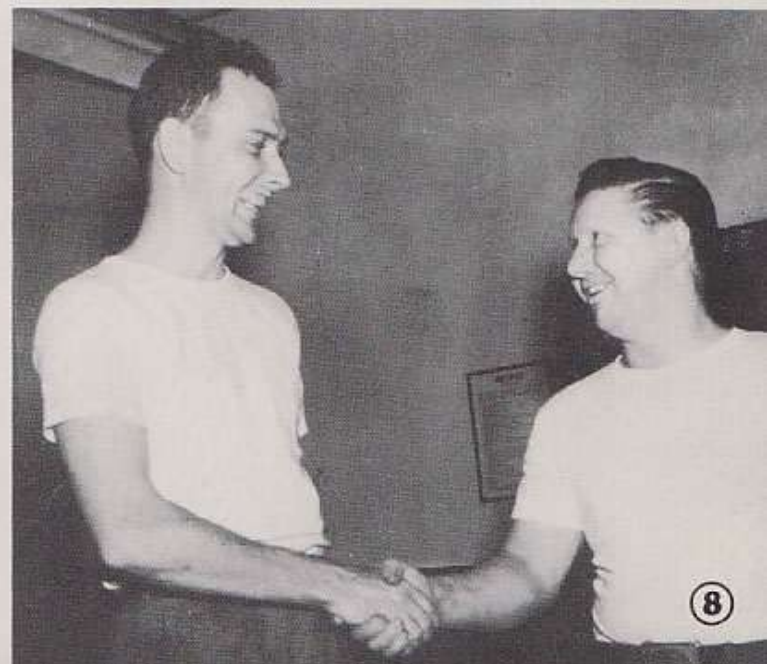
# HERE'S YANKEE INGENUITY AT ITS BEST

It has been said that "Yankee ingenuity" was one of America's secret weapons. Guide Lamp, with the GM Suggestion Plan, made the most of it—by accepting and using more than 600 suggestions which would increase production, save material or make operations safer and easier. More than \$25,000 was paid to employees for these ideas. Here are eight examples—folks who won highest awards:

- ① Richard Hoppes (\$949.37) suggested a method of cleaning gun barrel bores in a manner which saved 300,000 flannel swabs per month—and many man hours.
- ② Walt Johnson (\$949.37) suggested a way in which one gun barrel spot grind operation could be eliminated.
- ③ Albert R. Goff (\$863.95) suggested reaming and countersinking operations on gun barrels be combined—through a tool which he devised himself.
- ④ Wayne Shipman (\$560.95) suggested using a special hand tool to remove burrs instead of hand filing—stepped up production substantially.
- ⑤ Eddie Wilborn (\$687.75) suggested use of an arbor in M-3 welding job which would not allow weld to run through on magazine.
- ⑥ Francis Young (\$480.35) suggested rearrangement of 105 mm. cartridge case piercing method so that one operator could do the job done formerly by two.
- ⑦ Albert Dunn (\$479.65) suggested a method of using one target for test-firing several M-3 submachine guns—thereby saving targets and paper.
- ⑧ Fred Leaf and Robert Harvey (\$538.50) suggested a method by which broken and worn gun barrel reaming bits might be salvaged and used again.









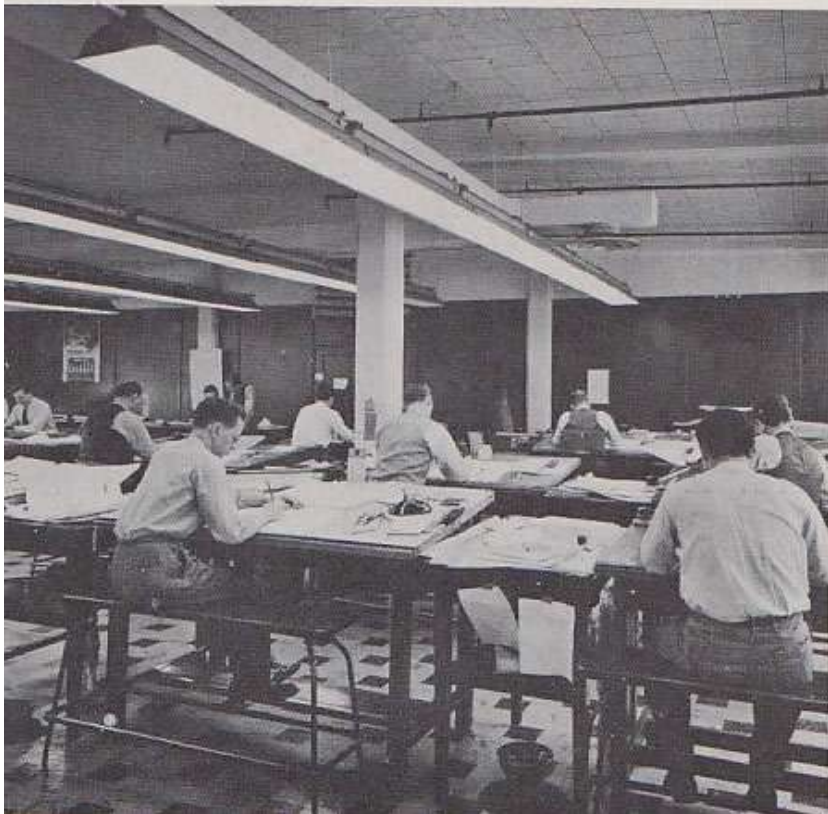
# SPECIALIZED MILITARY LAMPS



**L**et's look at some of the details of our war production. We'll start on lamps. Lamps for all kinds of vehicles had been our business before the war. We had a lot of "know-how" that served us well in making the specialized lighting equipment demanded by the army. We became the designing department—as well as the production factory—for the Ordnance Department. Our products varied

from our standardized sealed-beam headlamp unit to the specialized tank spot and signal lamp. The army told us what sort of job a lamp had to do. We designed and built lamps to fit the job.

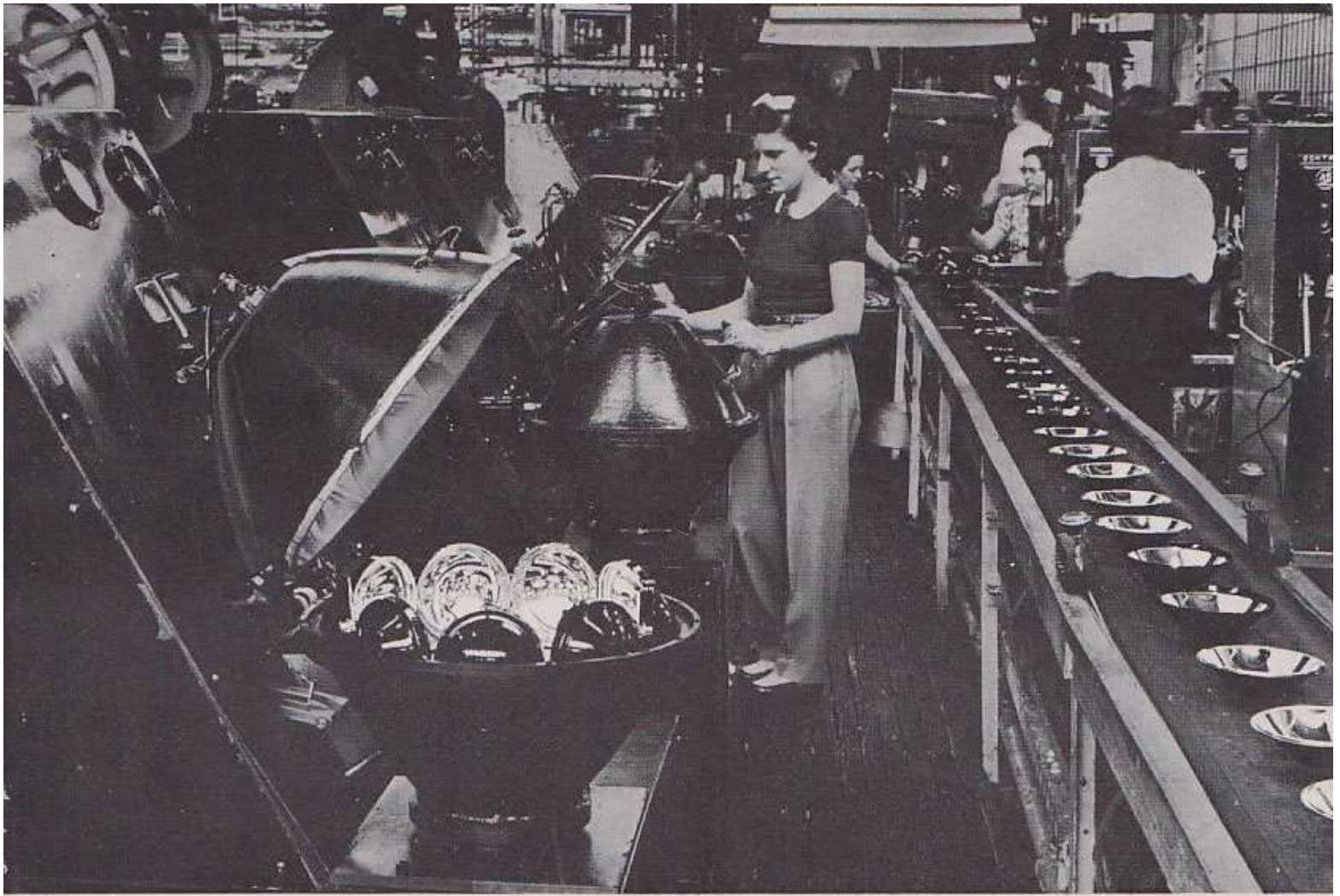
BELOW—Here is the drafting room of our Engineering Department—where the lamps were born and designed for production.



BELOW—Our laboratory tested the models—made them suit the requirements. It tested finished lamps regularly, too.

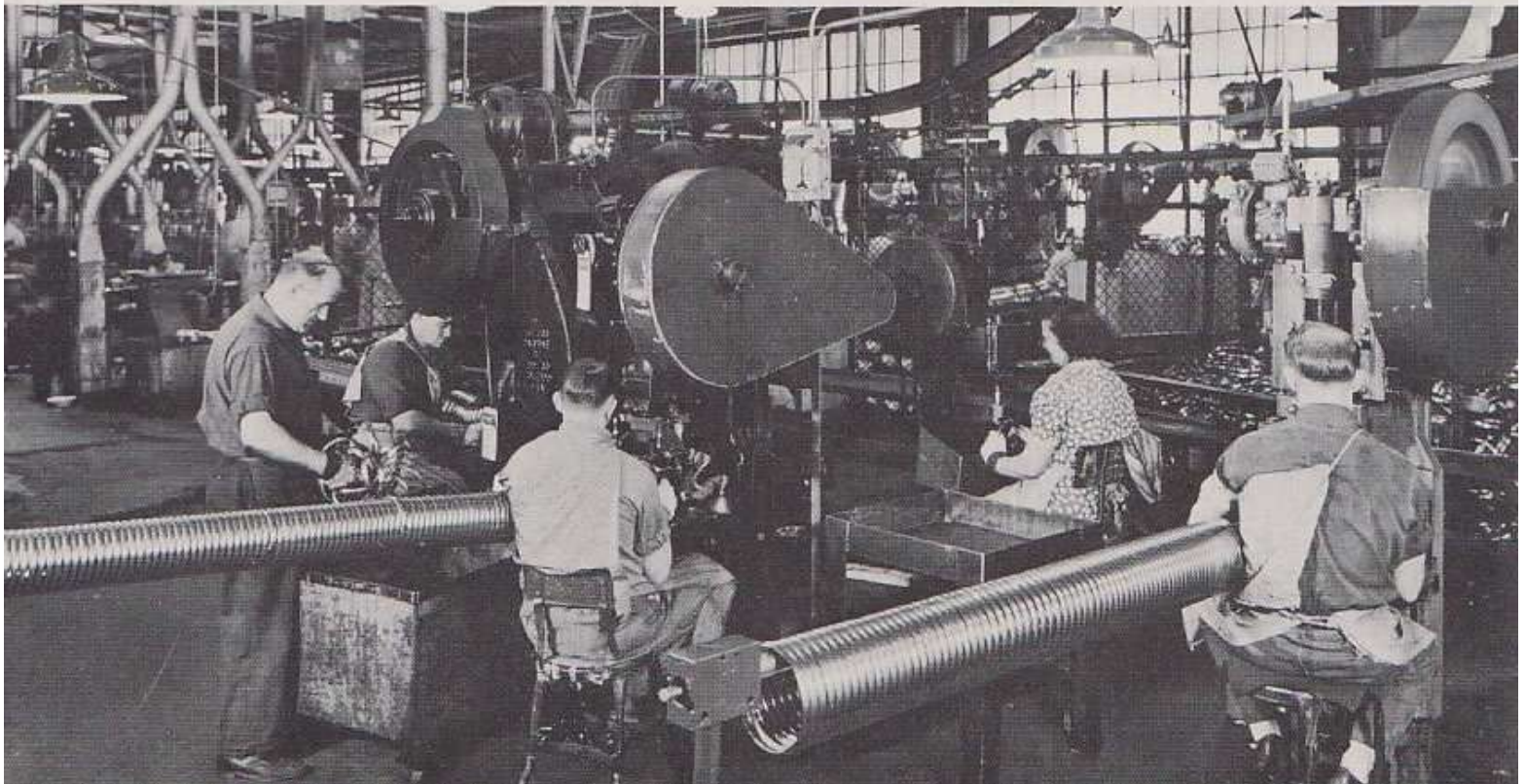






Aluminizing was a new development for treatment of reflectors when materials for plating became critically short. Instead of brass reflector shells, we used steel. The shells were smoothed down by a buffer, bonderized, painted, then coated with vaporized aluminum.

A fleck of aluminum smaller than a grain of wheat would make the bright coating for a reflector. Above are the vacuum chambers in which the aluminizing process was completed. Below are machines which produced the moldings for completed lamps.

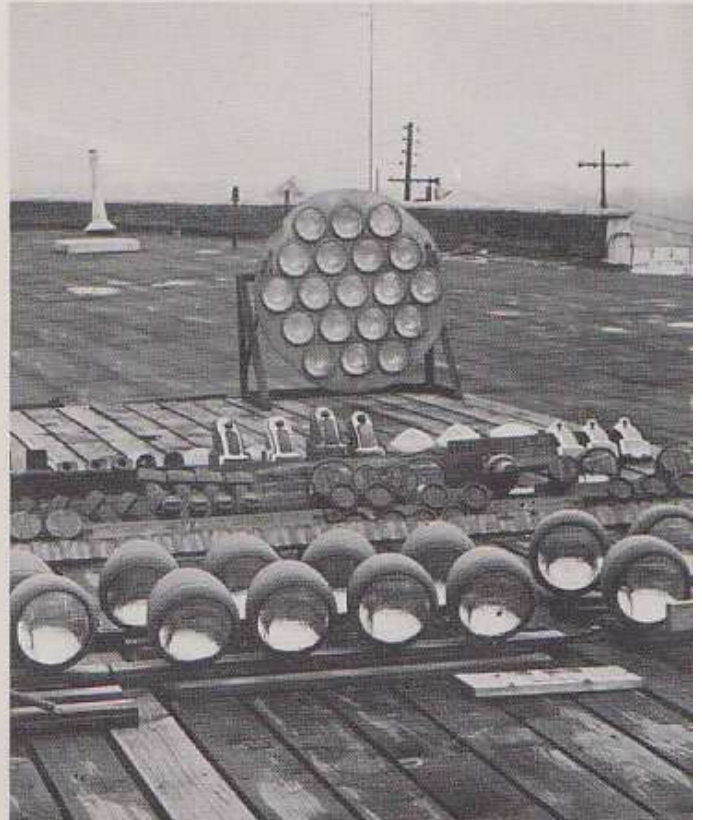




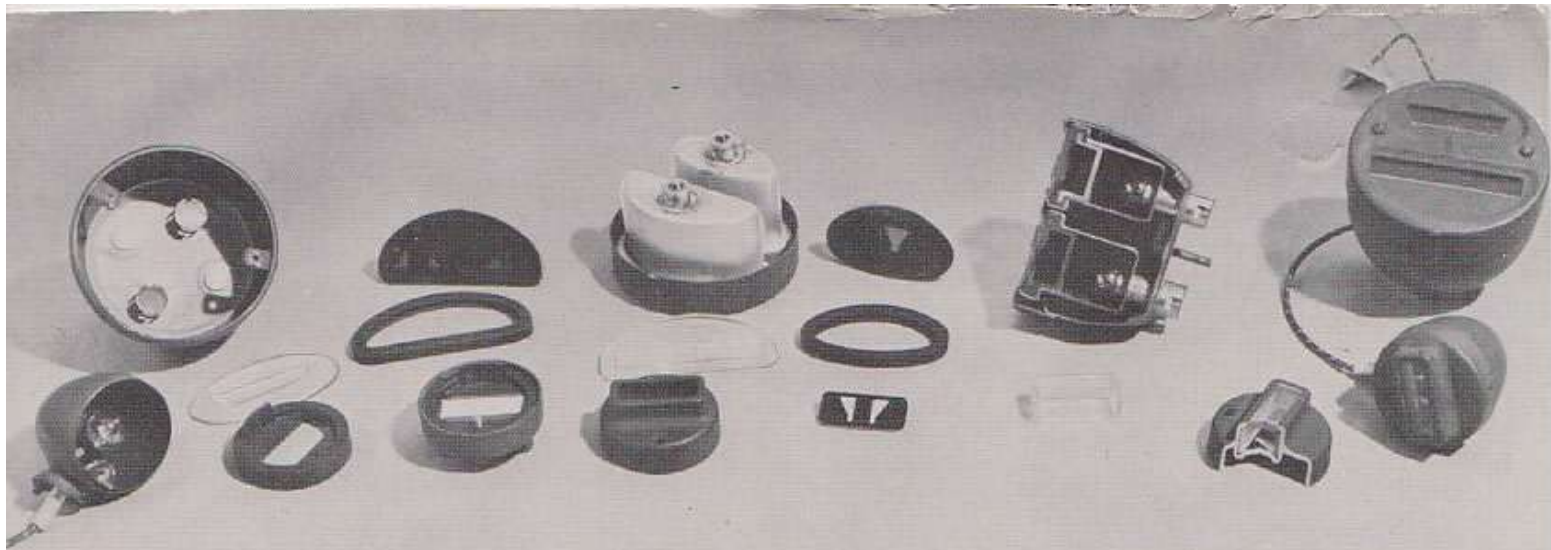


Here is one of the assembly lines on which blackout marker lamps and Stimsonite reflectors were assembled.

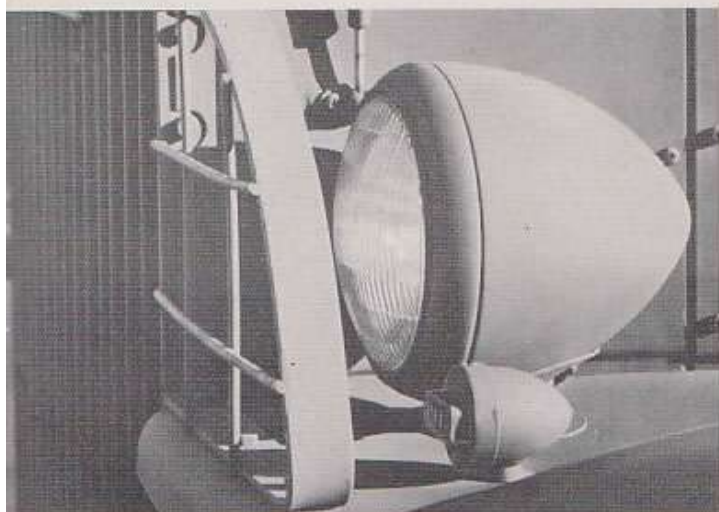
BELOW—Here are two of the tests for our lamp products. At left is the engineering laboratory section in which service-life is checked. To the right, other models are being subjected to actual exposure to the weather.







ABOVE—Lamps are often taken for granted as just one part of a car or truck. But they are made up of many parts. Here you see the lenses, the bodies, the gaskets, the blackout lens patterns, a cut-away example of the rear blackout marker and two complete blackout lamps.

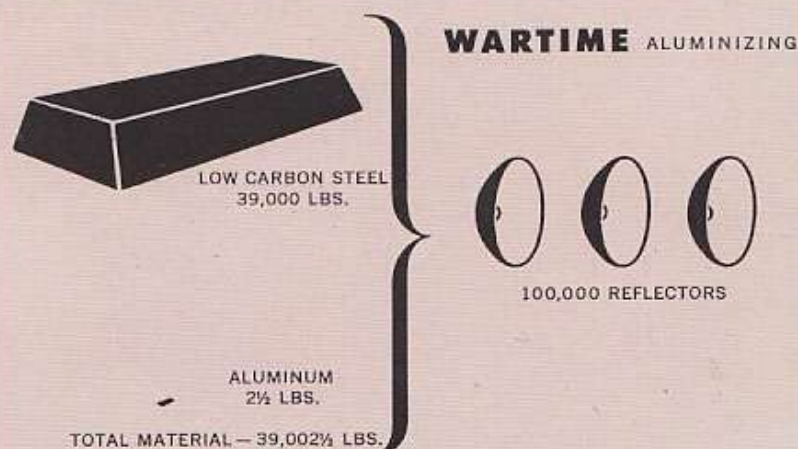
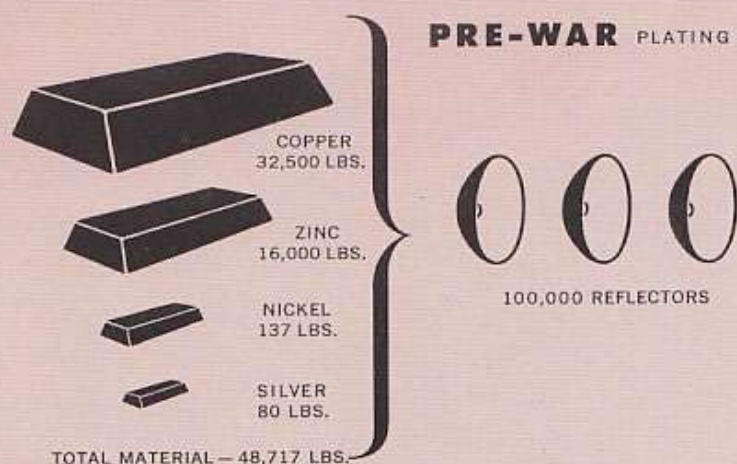


ABOVE—This is a typical installation on a truck. For tanks, the little marker lamp sets on top of the driving lamp. Note the triangular shape of the marker's lens. From 1,000 feet, it can't be seen—and it is invisible from 300 feet in the air.

Building lamps is a science. In peacetime, light must be controlled to give the maximum amount of visibility without producing glare which will blind an oncoming motorist. In wartime, light must be controlled even more rigidly—lest it expose a truck or car to attack

## ALUMINIZING SAVED CRITICAL MATERIALS

Tons of critical copper and zinc and thousands of pounds of nickel and silver were released for other use when we developed a method of aluminizing steel to replace nickel and silver plating of brass for sealed-beam lamp reflector units.





# CARTRIDGE CASES



**T**he ten thousand brass cartridge cases for the three-inch anti-aircraft rifle which we produced on our educational contract gave us a foundation for the things to come. We had hardly completed it before we got an order for over four million 37, 90 and 105 mm. cases. We had learned how to produce good cases—and what equipment was required. We adapted some of our own presses, installed new ones, set new dies and went to work. To the time I set this down, we have produced and shipped more than 23,000,000 on the original and successive orders.

In co-operation with the Ordnance Department, we also worked on the perfection of a method by which cases could be drawn from steel. Though we never reached full production, we made some pertinent steps forward before the steel experiment was deemed no longer necessary.

BELOW—At left is a photograph of three examples of our cartridge cases. At right is a chart of the operations required. The chart represents work in steel, but brass was similar.

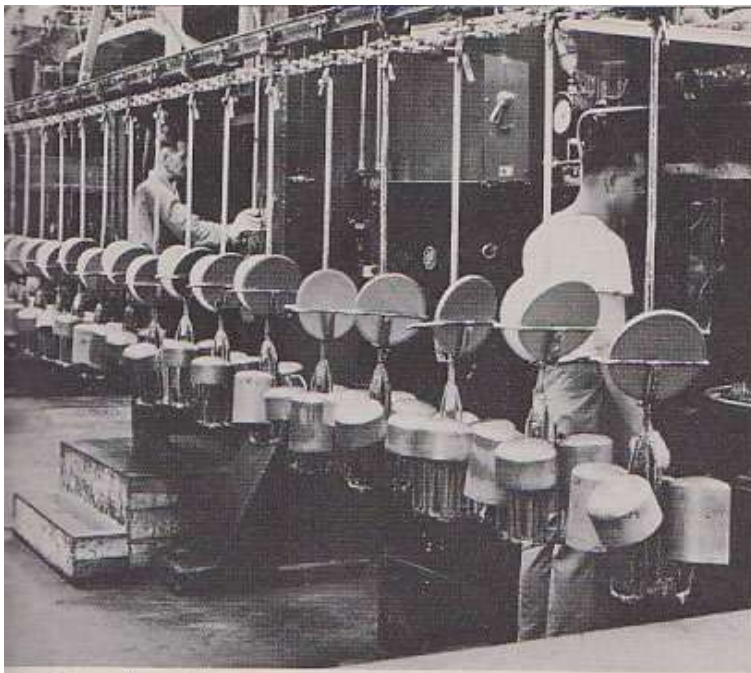
## BRASS CARTRIDGE CASES



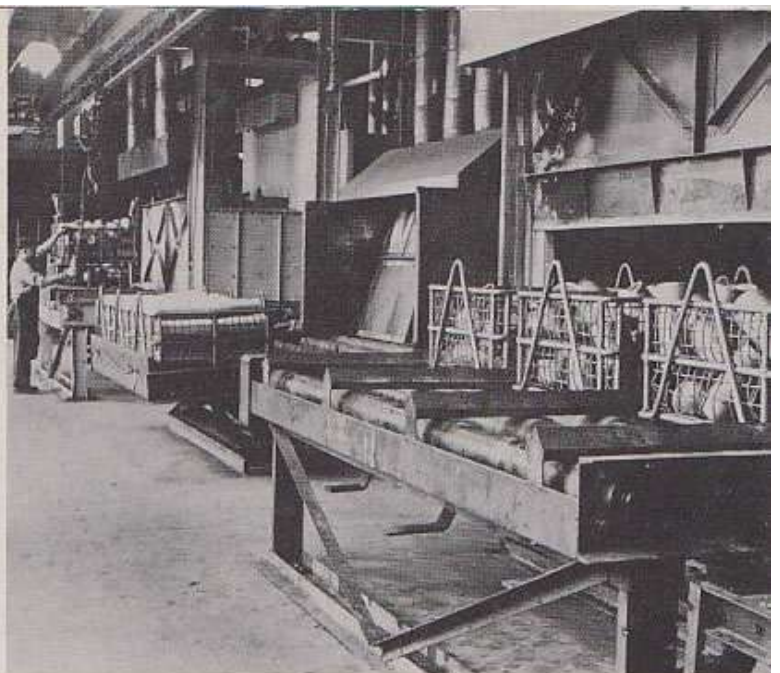
### 37 MM. CARTRIDGE CASES





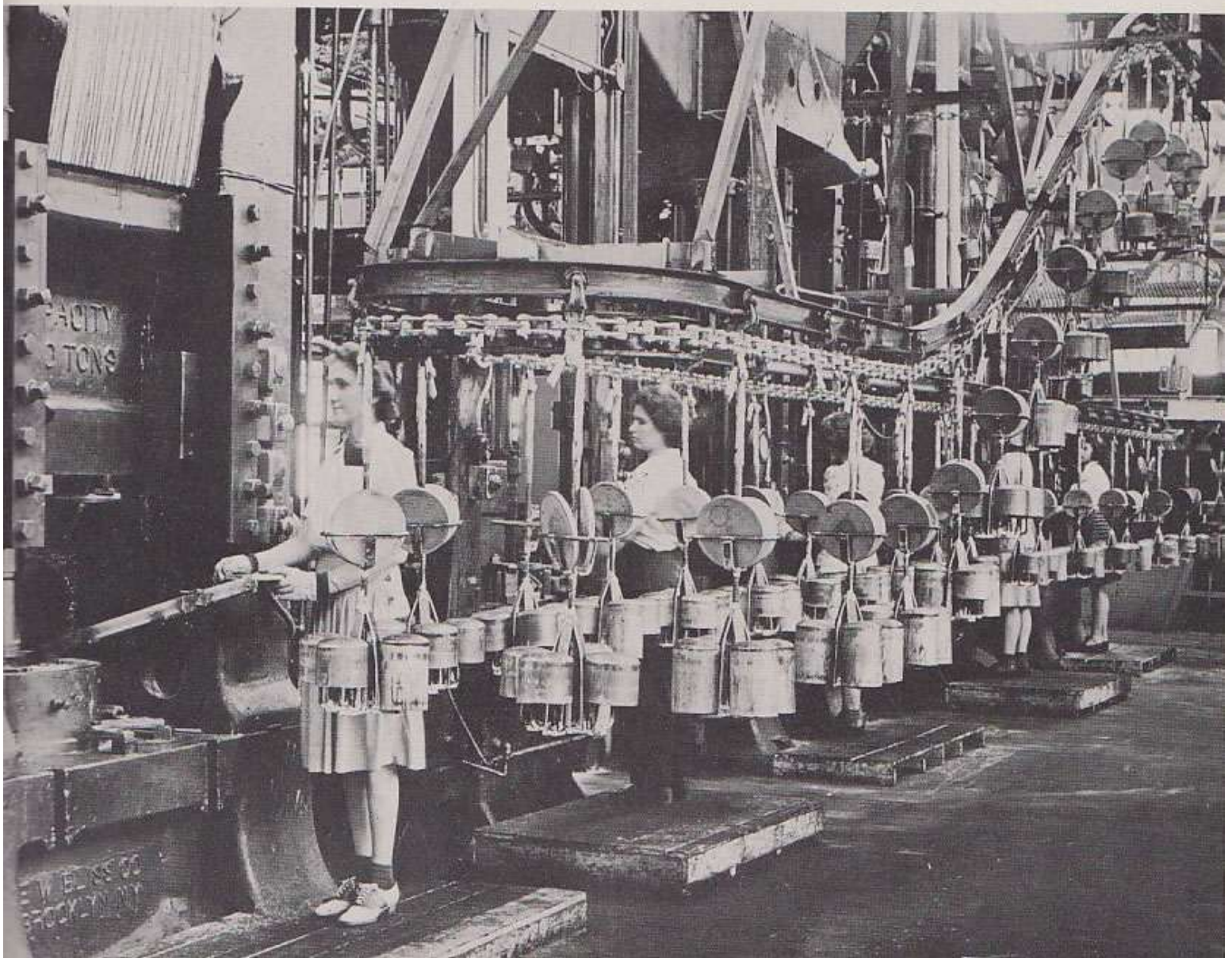


The entire cartridge case is drawn from a blank such as shown on the conveyor. For a 90 mm. case, the blank weighs more than 13 pounds.

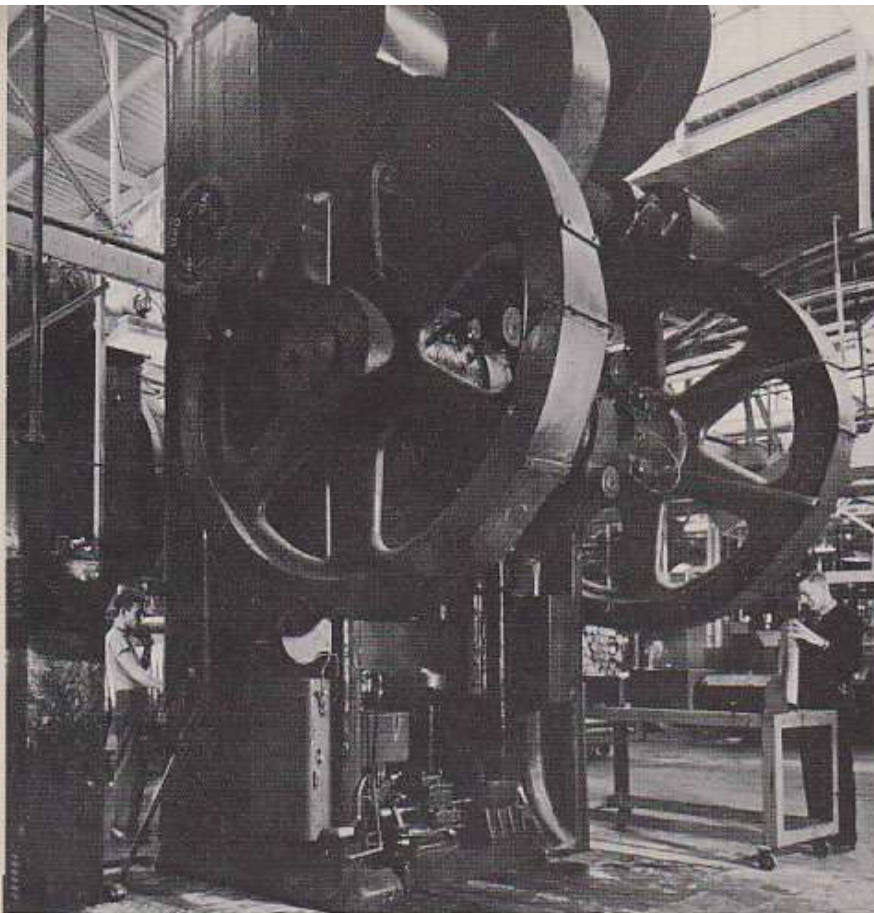


After each draw, the metal must go through the fully automatic annealing furnace to prepare it for the next operation. These cases are just entering.

BELOW—This is a typical conveyor line in the Case Plant. You can see cases in various stages—cup, first draw and second draw.





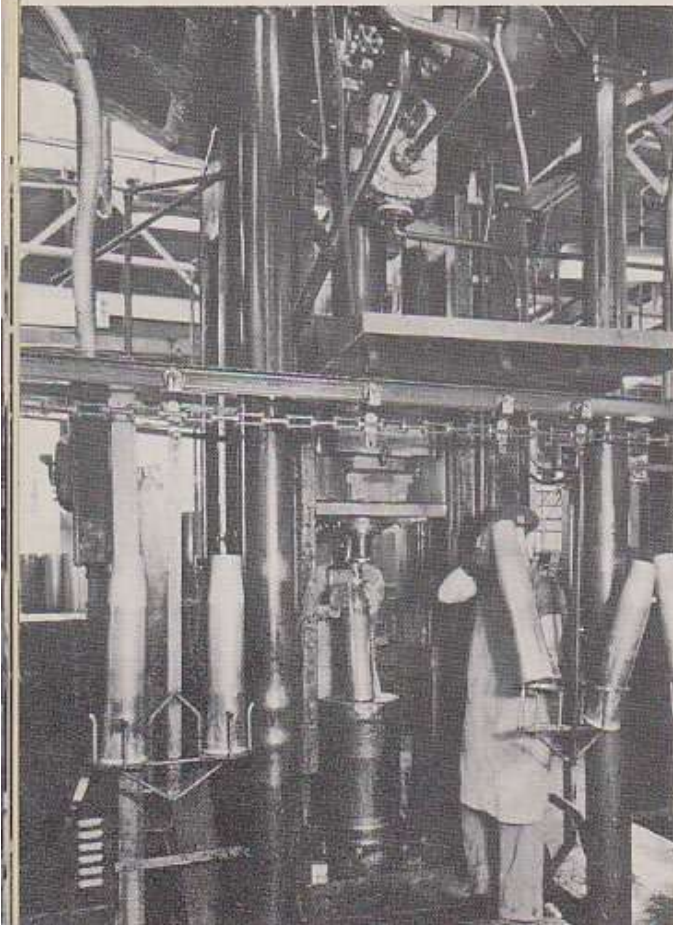


Here is one of the biggest of our presses—with a capacity of 2,000 tons. It forms the head on the 90 mm. brass case.



This is a closer view of another of the larger presses. This one is hydraulic—used for heading the 37 mm. case.

BELOW—At left you see the press in which the 90 mm. case is tapered after previously being drawn to its full length. At right is the machining operation on the head of the 105 mm. case.







Here the 90's are complete and being minutely inspected by women specially trained for the job. They are Guide workers. Ordnance workers make another final inspection.



ABOVE—After inspection, the cases start on the way to a shell-loading plant. Here they are being boxed for shipment.

To the left you see a picture of some 90 mm. anti-aircraft shells being put ashore. There's a good chance that the cases were made by Guide people and machines. Making cases was our first war job—and one of our biggest. Two big sections of the plant kept pounding them out 24 hours a day without pause.



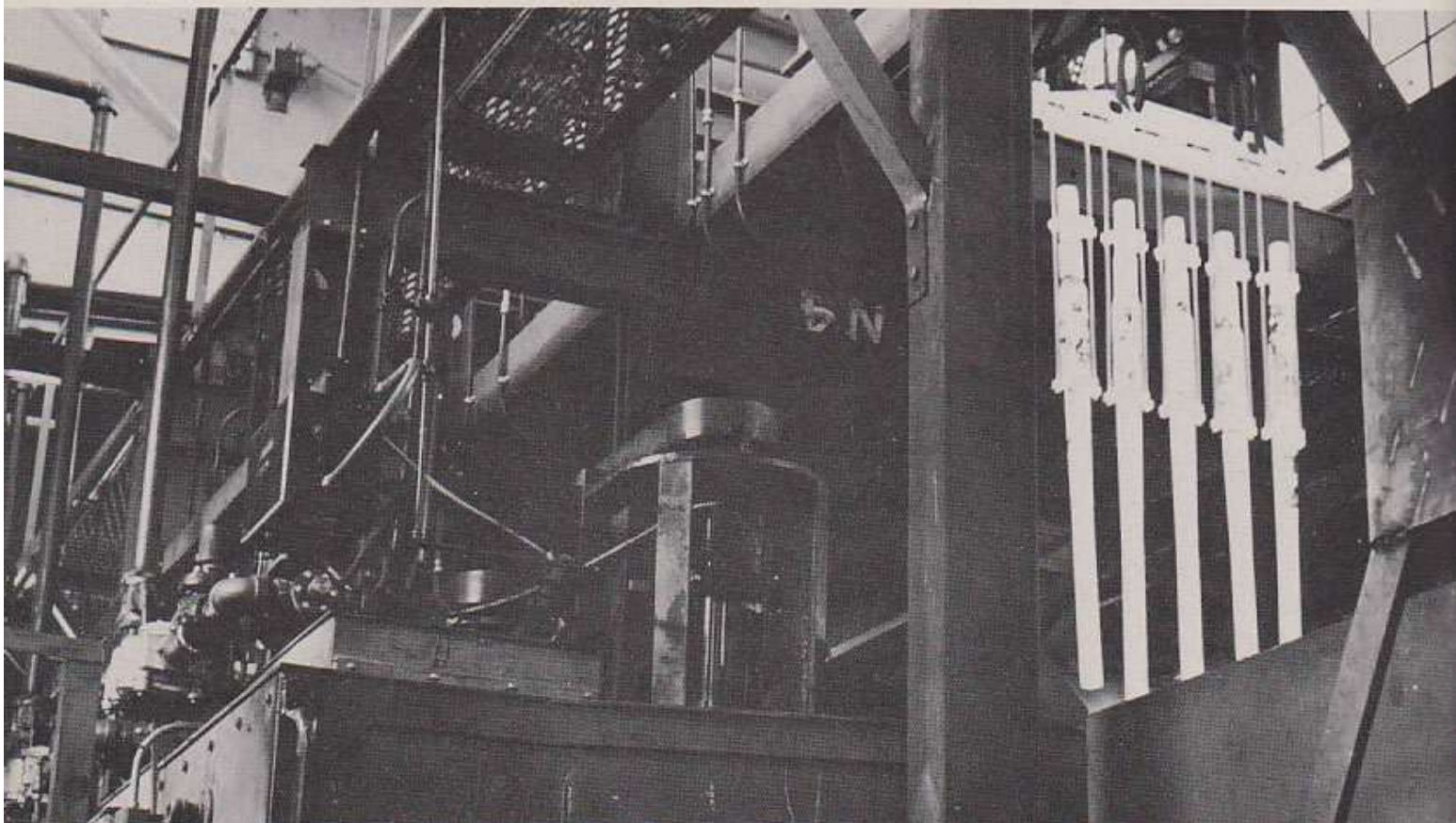
# MACHINE GUN BARRELS



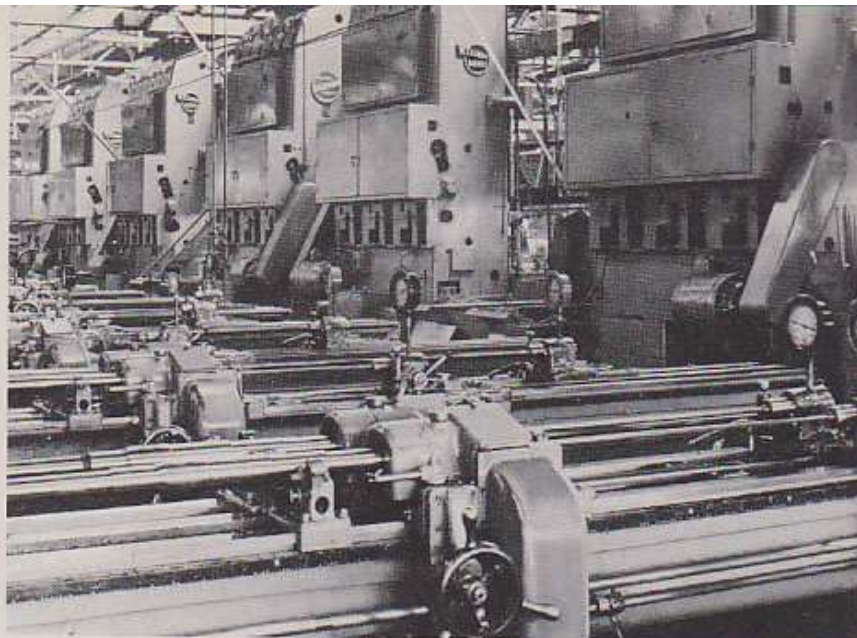
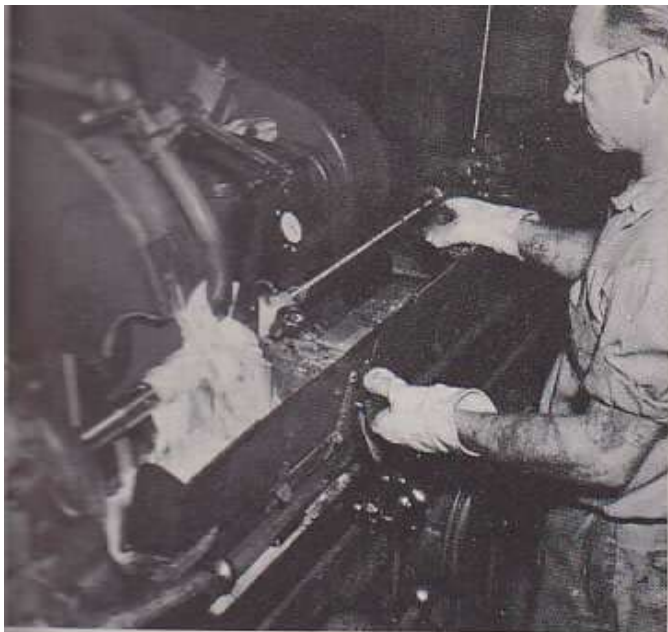
**O**ur first order for caliber .50 Browning machine gun barrels, on sub-contract for AC Division, called for 1,000 barrels. We got the order in April, 1942. That order was substantially increased before production began in June. Much of the special equipment came from AC—and many of our key men were trained there. Producing the gun barrels required manufacturing operations which were completely strange to Guide folks. Among them were heat-treating the barrel stock, grinding and machining hard

steel, drilling and reaming the 45-inch long bore of the barrel and broaching the bores to produce the rifling. We were proud of the part we had in the development of barrel rifling by the broach method. Starting from scratch we have provided more than a million barrels for our fighting men. And with our volume we found ways to make a healthy reduction in cost.

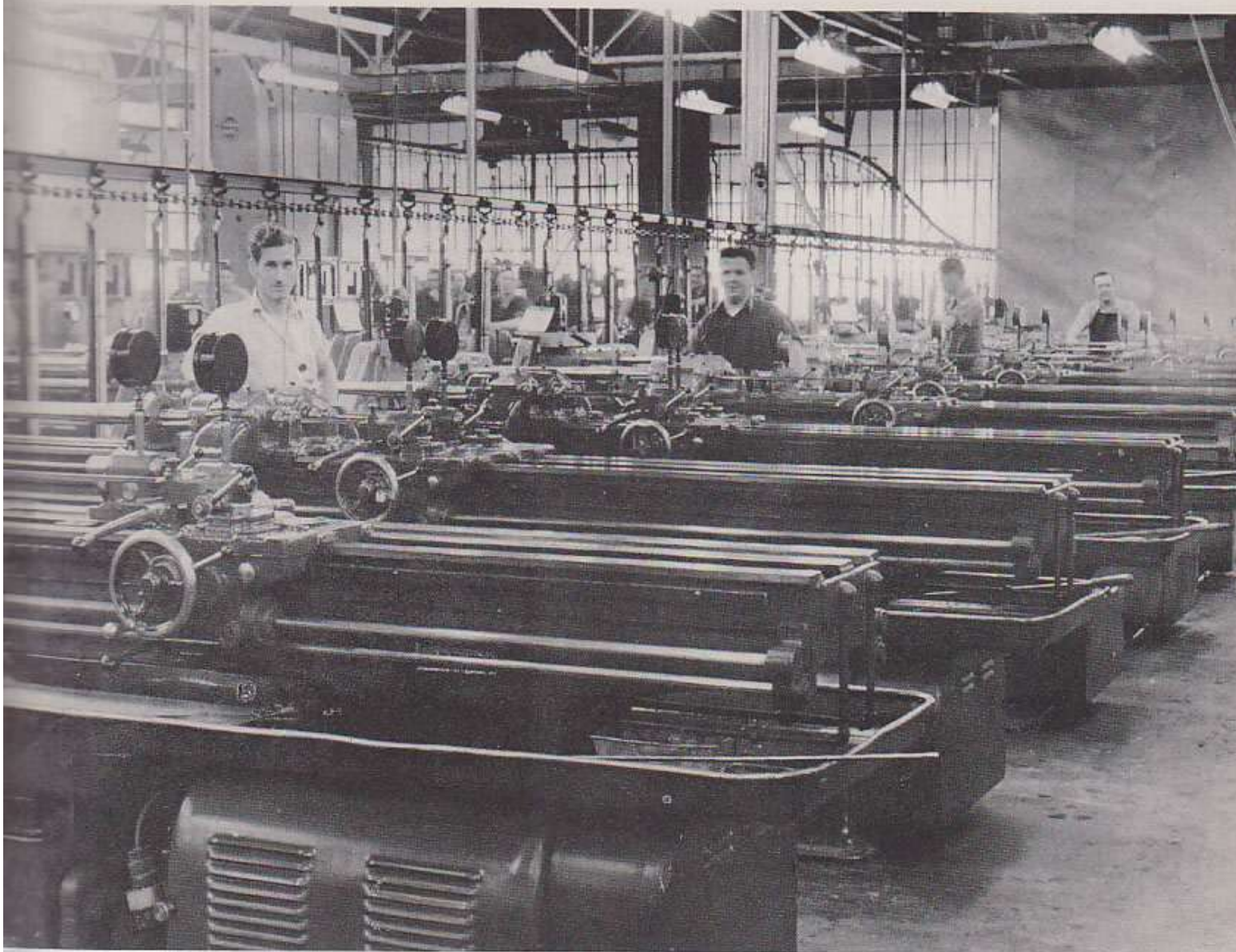
BELOW—Machine gun barrels begin as forged bars of steel and first must be heat-treated. Here are some red-hot ones just lifted from the huge automatic furnace, and traveling by conveyor to the oil-quench.



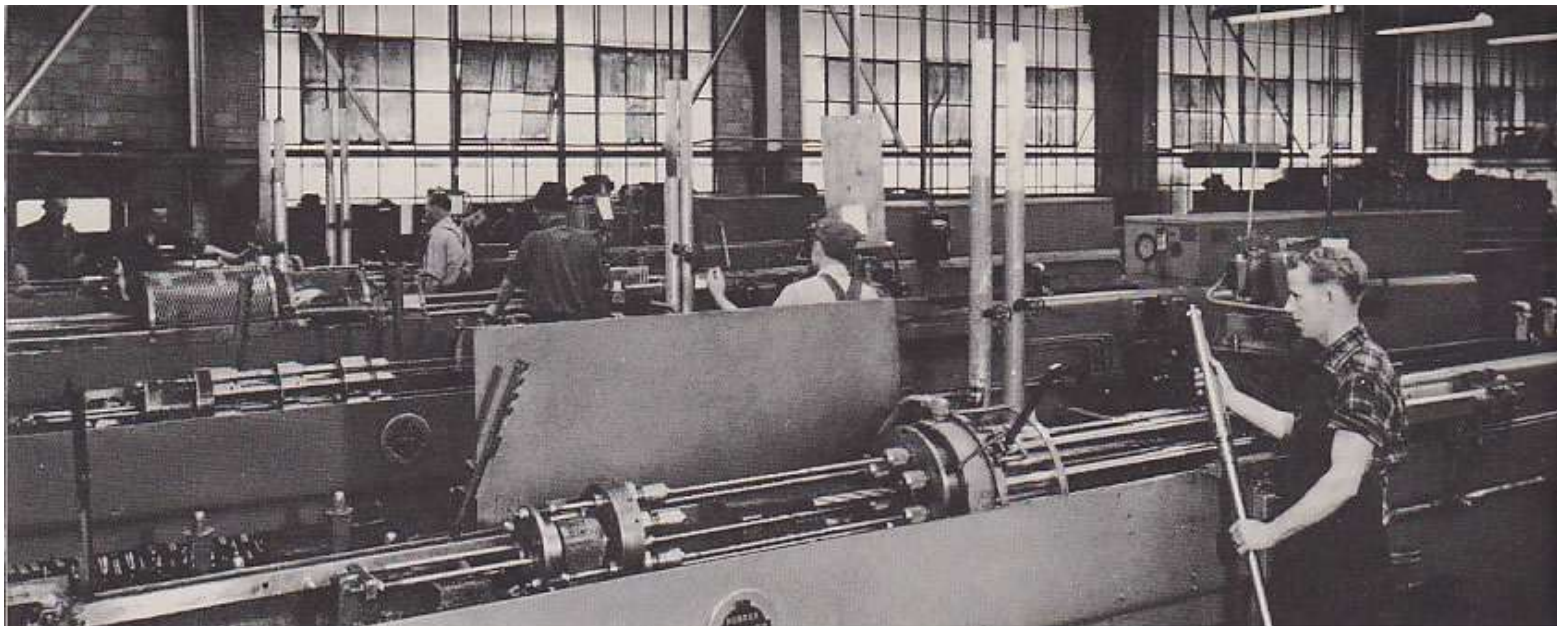




Precision grinding (left) was also new to us, but our men learned to do it to measurements that made a human hair look like a pencil by comparison. After spot-grinding and rough-machining, came drilling—done by machines shown at right above and below. After drilling, barrels were reamed to size and prepared for rifling.

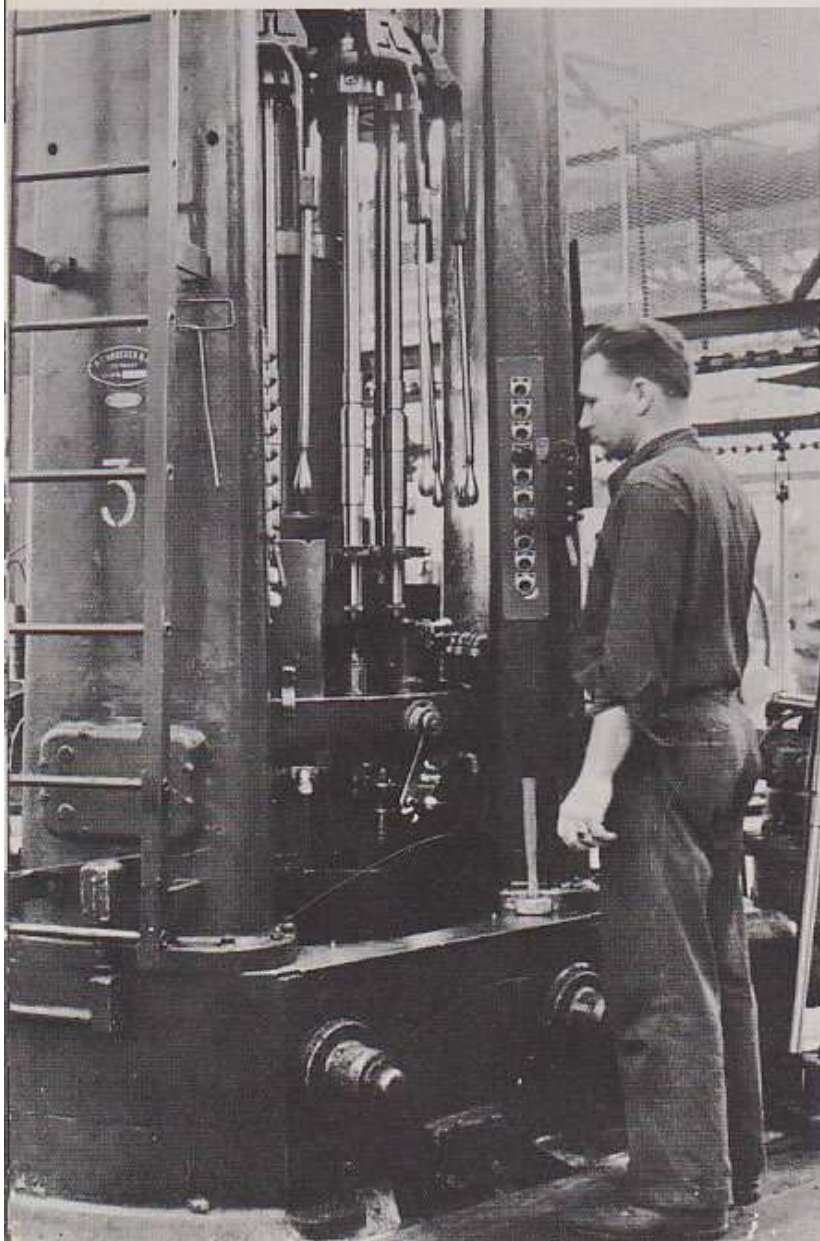






On these hydraulically operated machines, the rifling of the barrels is done by broaching on five barrels simultaneously.

BELOW—This tall machine performs the exacting chambering operations automatically.



Here you see where the broaches are serviced and conditioned.

BELOW—Every barrel is minutely inspected before it is sent on to the proof-firing.

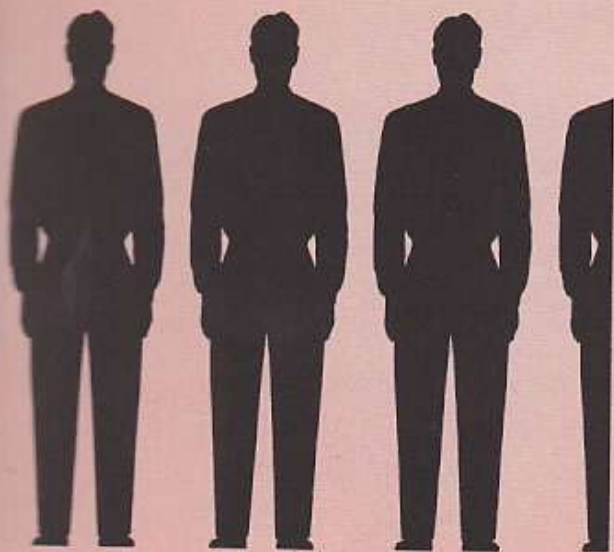




# FEWER MAN-HOURS — LOWER PRODUCTION COST

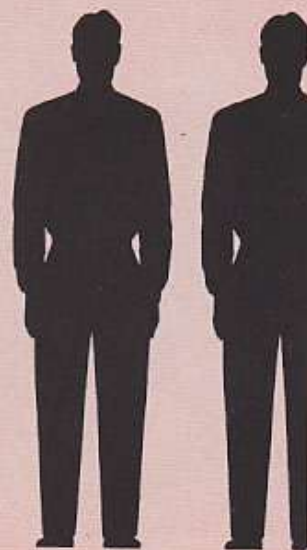
Revisions in plant layout, use of broaching machines for rifling of barrels and combinations of several processing operations made possible a reduction of 42% in man-hours required on each machine gun barrel. In 1942, our first year of gun barrel production, we used 3.27 man-hours per unit. In 1944, the time had been cut to 1.90 hours.

1942

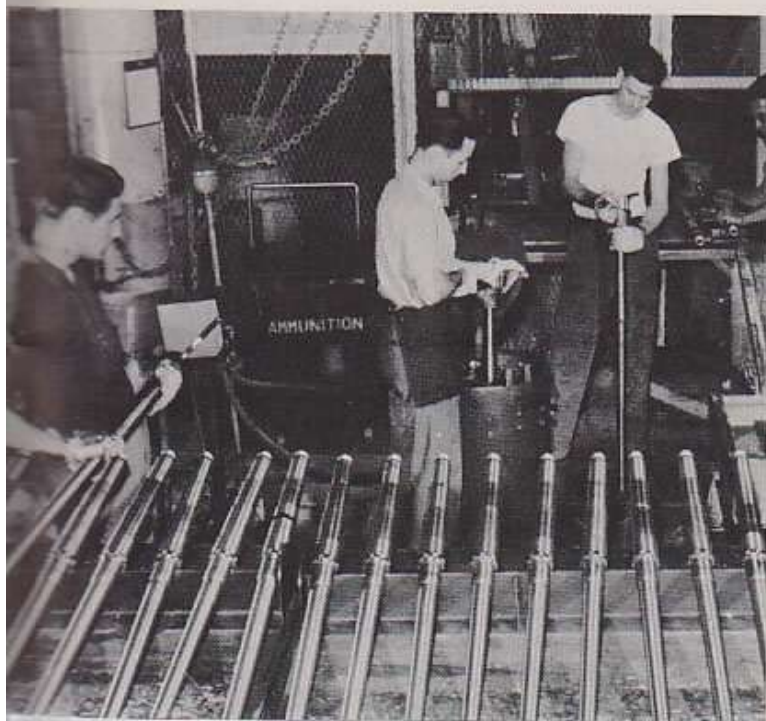


3.27 MAN-HOURS PER BARREL

1944



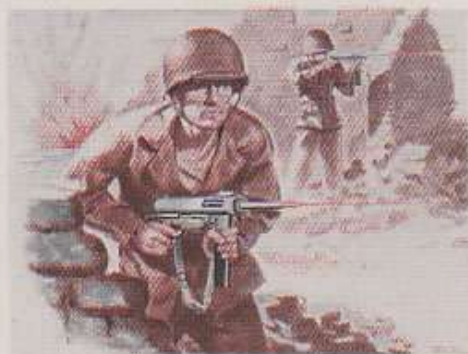
1.90 MAN-HOURS PER BARREL



LEFT—Before a barrel leaves the Guide Plant, it is first fired once with a cartridge containing an abnormally heavy powder charge. Firing is straight down so no one will be hurt. Concussion from the heavy charge, of course, is tremendous. The test well visible is heavily armorplated. Though muffled by inches of tough steel and concrete, each proof fire shot can be heard easily over other noise several yards away. After they leave here, the barrels for AC are shipped to Flint, Mich., for final assembly. Four times as many more go to Ordnance as spares for replacements on the fighting fronts.

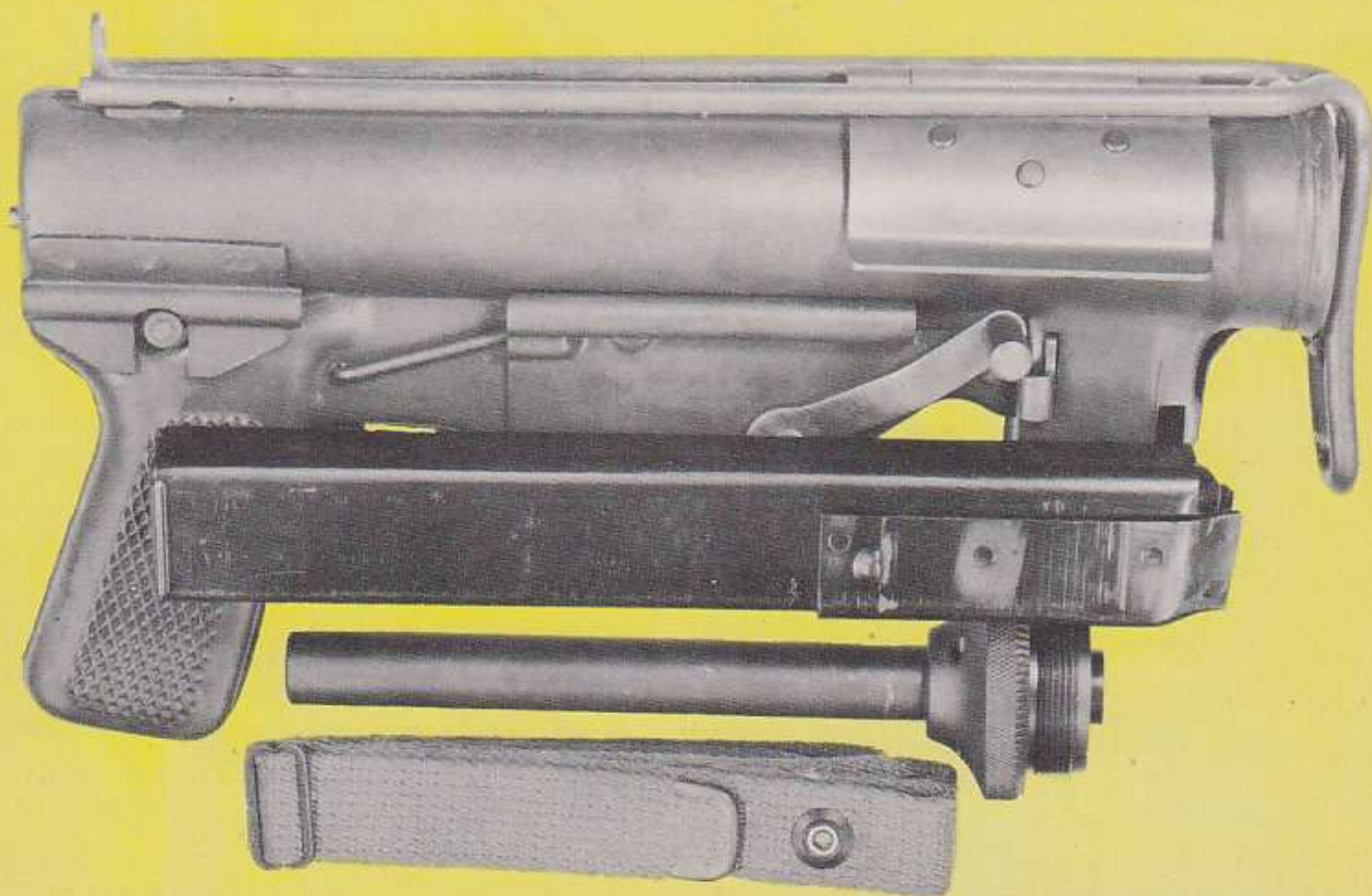


# THE M-3 SUBMACHINE GUN

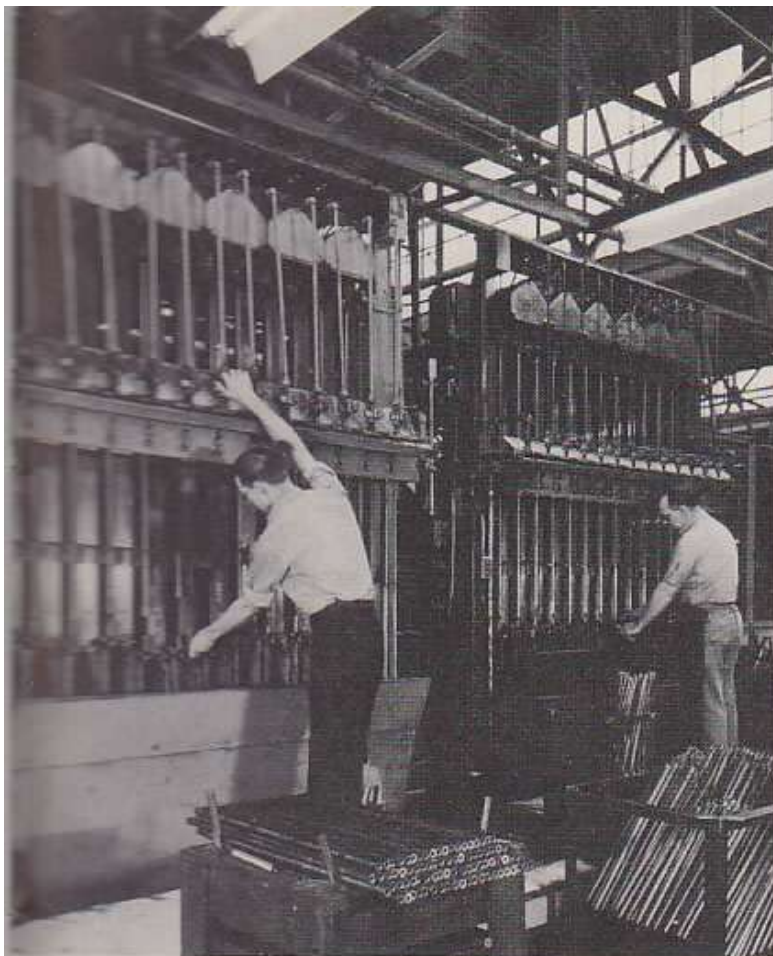


**T**he M-3 submachine gun was designed by Inland Division in collaboration with Army Ordnance engineers—and designed in such a manner that it could be produced without new and specialized machine tools. We became the designated producers of it for the Ordnance Department in January, 1943. Our Model Shop built models and the Engineering Department prepared the design for

production on our equipment. Arrangements were made for manufacture in two sections of the plant—utilizing the space we had available. It is one of the finest examples of a specialized war product in production by a former civilian goods manufacturing plant—with unspecialized, peacetime equipment.

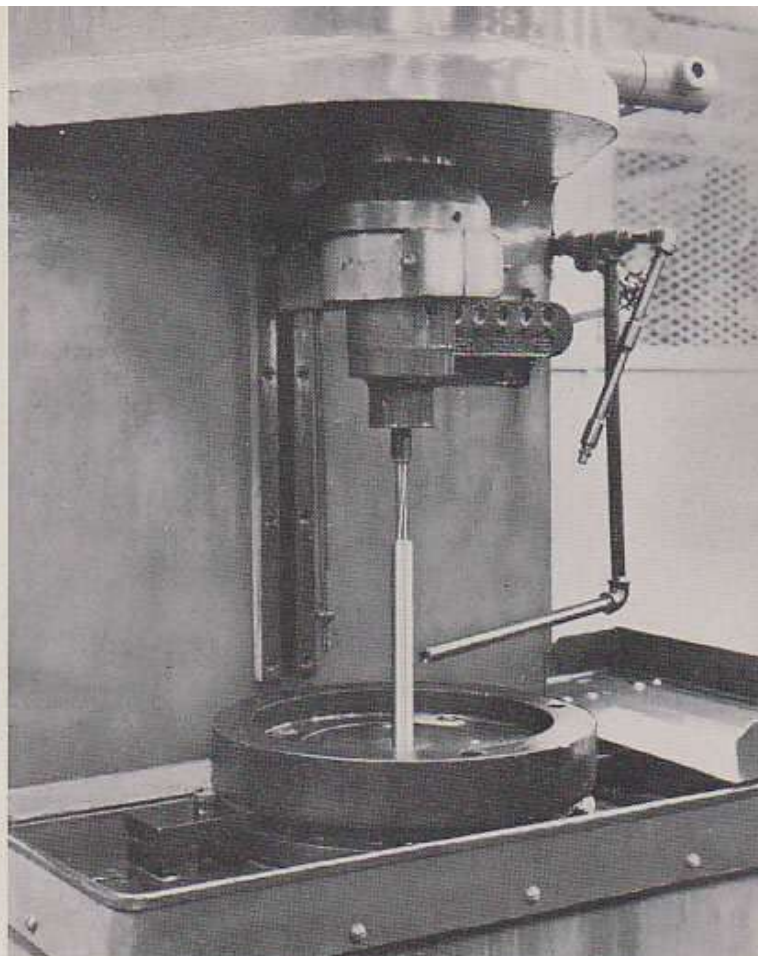




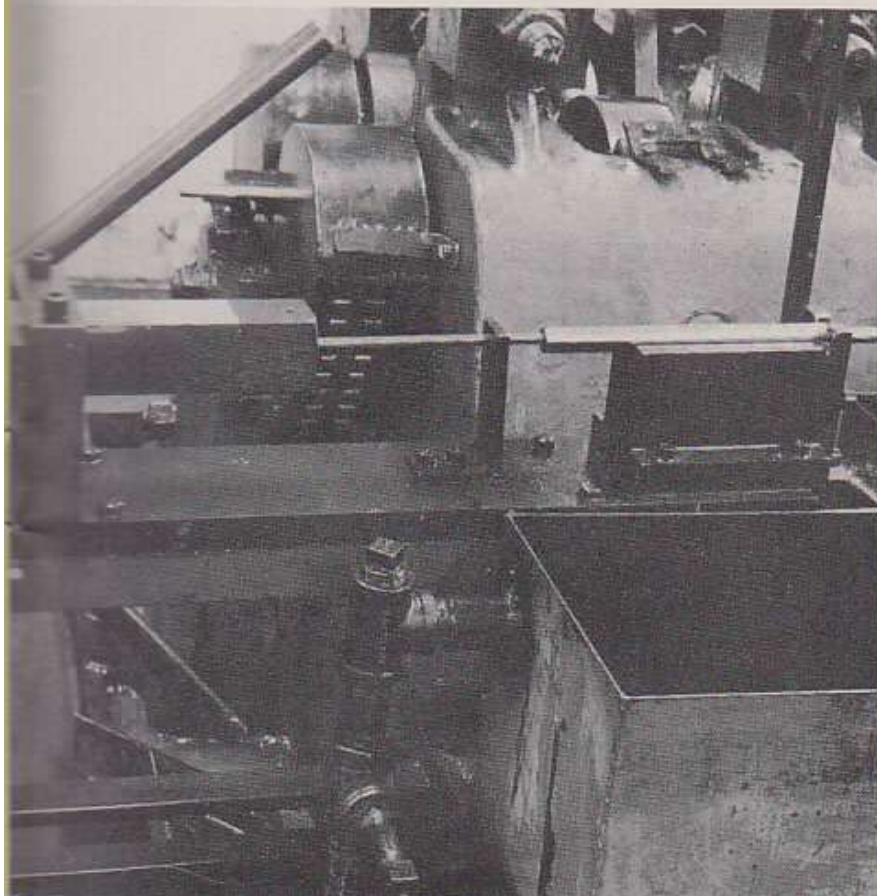


The eight-inch barrels are made from tubing—prepared for rifling on these reaming tools.

After the mandrel is loosened in the barrel, it is pressed out and the tube cut to barrel length.

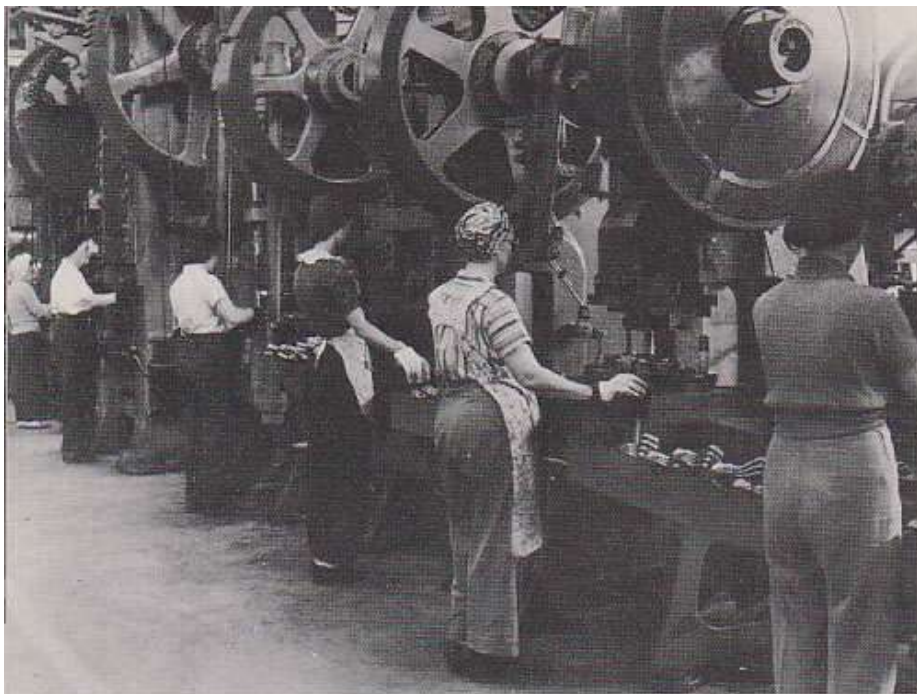


Rifling is pressed in by inserting a mandrel and compressing the tube as it is forced through a die.



The swedging process for rifling was developed in this country by the Guide Plant as a quicker and less expensive manner of rifling than broaching or other methods. Especially noteworthy, other than the increase in production, is the fact that the new process produces a smoother result than can be obtained by former conventional methods. Accuracy of fire is well within the requirements set up by Army Ordnance.





The receiver, or housing, of the gun, is a pair of precise metal stampings welded together. At left you see the production of the stampings and at right, the welding process. Women perform almost all of the operations.

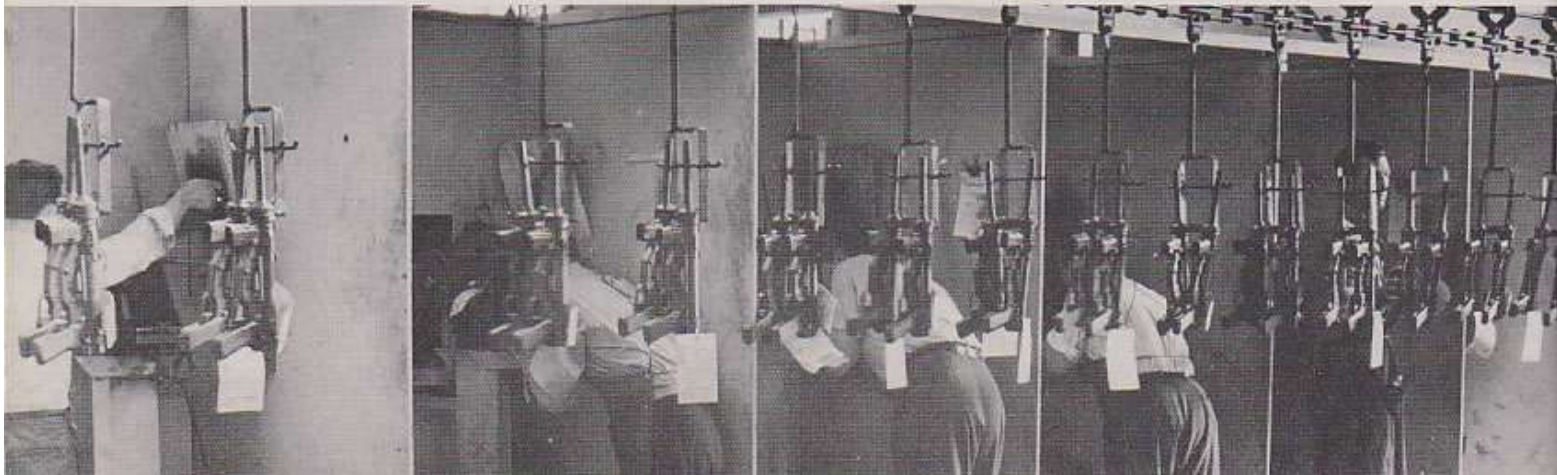


Here is the assembly line—and inspection. From here, the completed guns go to the test range for proof and test firing—and for targeting.

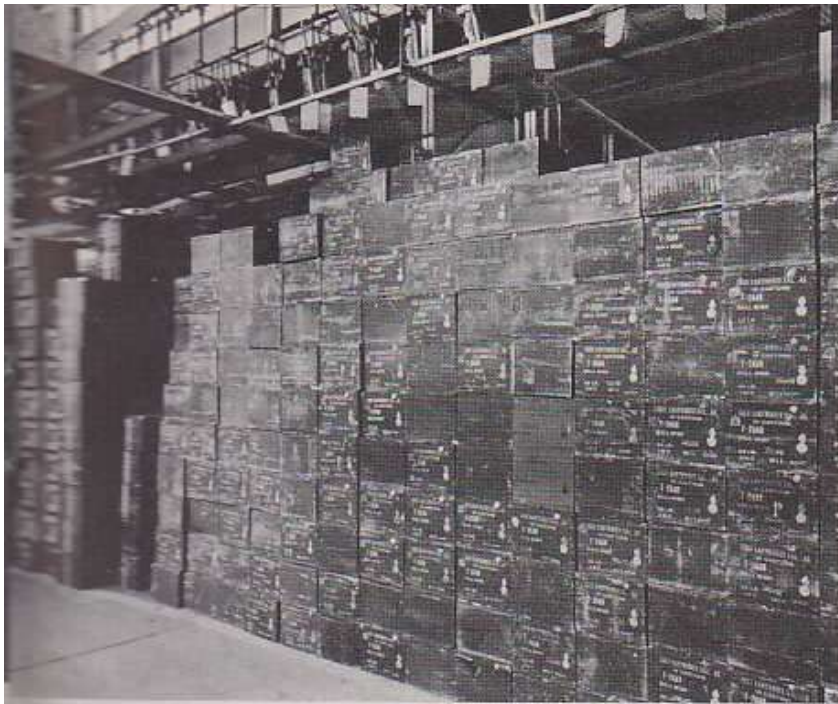


We not only made the gun—but developed a quick way of loading magazines for test firing with an automatic machine.

BELOW—You see a typical view of the targeting operations.

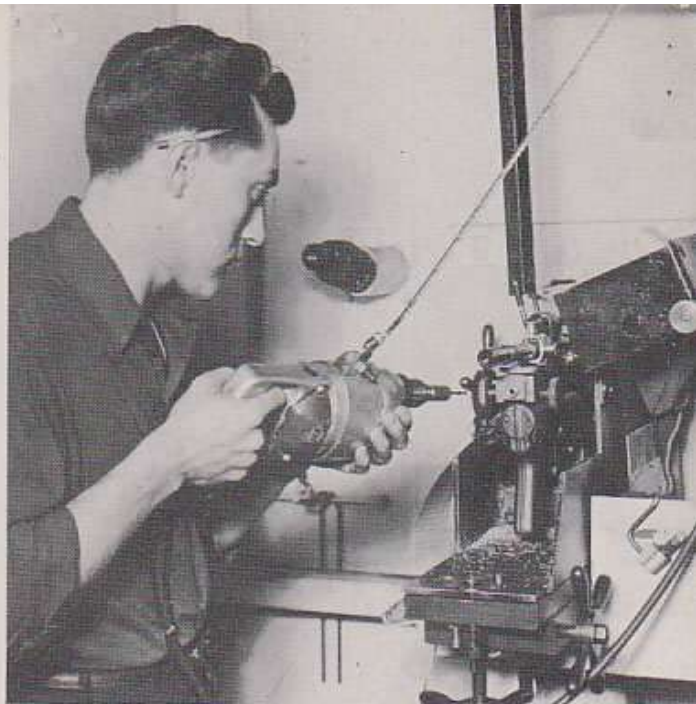






It takes a lot of ammunition to test and target M-3's. A single case contains 1,800 rounds of .45 caliber cartridges. Guide kept two to six million rounds in the ammunition "bank."

Test operators were completely safeguarded. For function firing, the guns were completely enclosed in a heavy steel box.



Here is another Guide time-saving development—the targeting method. The operator is preparing to drill the rear sight.

Placement of sights for a firearm, of course, is a job requiring strictest precision. A soldier's life depends on the gun putting its bullets into the target at which it is aimed. The front sight is affixed in assembly as is the blank for the rear sight. However, the rear peep is not drilled until the gun is tested for targeting. Then, by an ingenious telescopic sight developed by Guide engineers, the peep is drilled with direct reference to five shots fired from the gun. When the telescope cross-hairs are trained on the bulls-eye pattern, the exact proper location of the rear peep is indicated by a drill guide. The drilling then is done before the gun is moved. After drilling, the sighting is tested by another burst of fire without the use of the telescope. The M-3 has a reputation for targeting extremely well.



# AIRCRAFT PARTS



fastens to the propeller hub—and on which the nose is fastened in turn. It is also a deep-drawn part. The Allison sleeve is seam-welded from sheet metal.

These "noses" are ready to be shipped to Moraine for finishing operations. The flat end will be pierced to accommodate the muzzle of a 37 mm. cannon.

**O**ur three aircraft parts are all on sub-contracts for other manufacturers. The spinner-nose is another deep-drawn operation. Guide Lamp draws the piece from the largest blank ever handled by the Division—nearly three feet in diameter. Further work is done by the Moraine Division. The spinner-nose adapter is a heavier gauge piece which

This is the first draw on the spinner-nose. Note the large circular piece of stock at right and the shaped piece coming from the big draw press.



Here you see a battery of draw-presses which make the second, third, fourth and fifth draws.





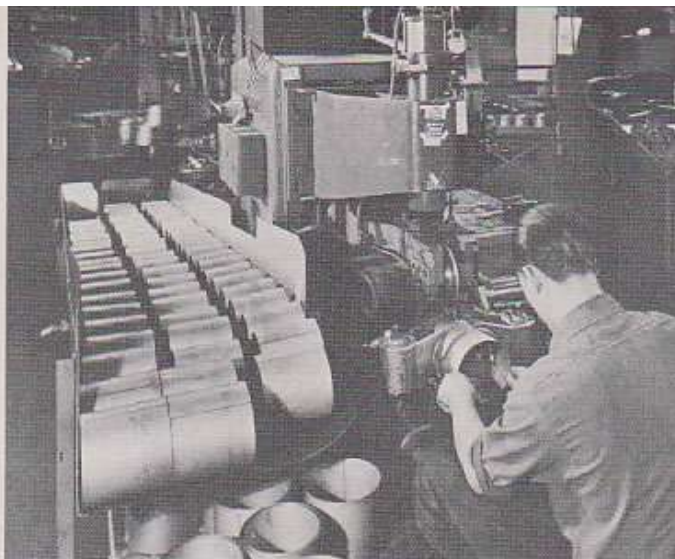
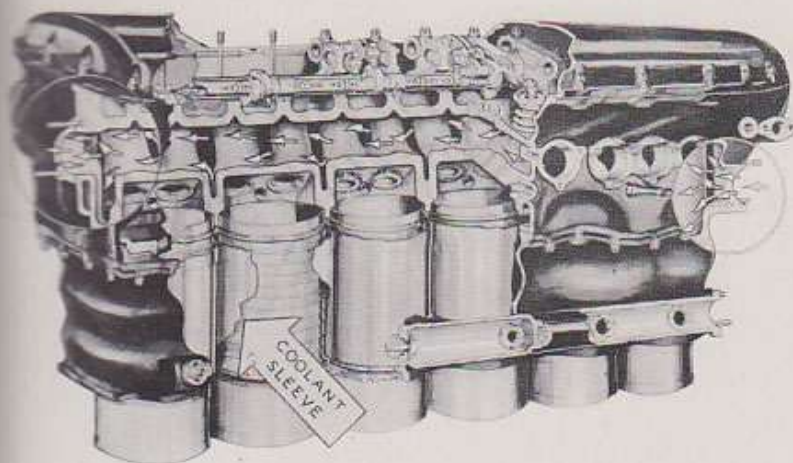


These are finished adapters. They are being inspected before being shipped to another plant for assembly.

BELOW—Burs are removed with grinding tools before these completed sleeves go on to final inspection.



CUTAWAY VIEW OF THE ALLISON AIRCRAFT ENGINE SHOWING THE POSITION OF THE COOLANT SLEEVE

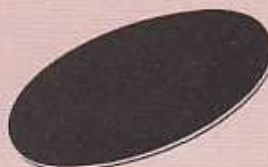


This is the Allison sleeve—a piece of sheet-metal rolled into a cylinder. The machine is a seam-welder. From here, the parts go on to be stamped with a slight flare, to be die-cut with the proper slots. Later, they will be finished and shipped for assembly in the famous Allison aircraft engine.

## LESS MATERIAL — LESS SCRAP FEWER MAN-HOURS

● Originally, the Allison sleeve was produced by drawing and trimming — a process requiring several operations. Development of a new method of fabrication by rolling and seam welding a stainless steel sheet produced the substantial savings of material and labor.

### OLD WAY



MATERIAL .7326 LBS



SCRAP 9%



MAN-HOURS .1324

### NEW WAY



MATERIAL .5199 LBS.



SCRAP 1%



MAN-HOURS .0711



# THE ARMY-NAVY "E"... AND TWO STARS



An American Legion color guard—all Guide employees—conducted the flag-raising ceremony at the opening of the gala event.

**O**ur work and its quality won us the most sought after of all home-front citations—the Army-Navy "E" Pennant. We were awarded the pennant only nine months after Pearl Harbor—on September 9, 1942. Our first star was presented on May 15, 1943—and we won the second, appropriately enough, on the second anniversary of our entry in the war, December 7, 1943.

We had a big celebration at the first presentation. We were honored with the presence of Indiana's Governor Henry F. Schricker and the highest officers of the Cincinnati Ordnance District and the Third Naval Reserve Area. Among them were: Col. F. A. McMahon, District Chief, Cincinnati Ordnance District; Col. W. S. Drysdale, commandant of Ft. Benjamin Harrison; Lt. Col. W. R. Martin, who presented the pennant; and Lt. Commander L. F. Brozo, of the Third Naval Reserve Area.

We did not take time off to celebrate when we were awarded the first or the second star—but it was a pat on the back which we appreciated all the same.





Lt. Col. W. R. Martin, Executive Officer of the Cincinnati Ordnance District, and our General Manager C. A. Michel, display the coveted pennant.

We were proud to have Lt. Commander L. F. Brozo, of the Navy, and Col. Fred A. McMahon, of Army Ordnance, in attendance.

Lt. Commander Brozo presented the first "E" pin to Francis Hannon of Department 325.



The pennant presentation speech was given by Lt. Col. Martin.





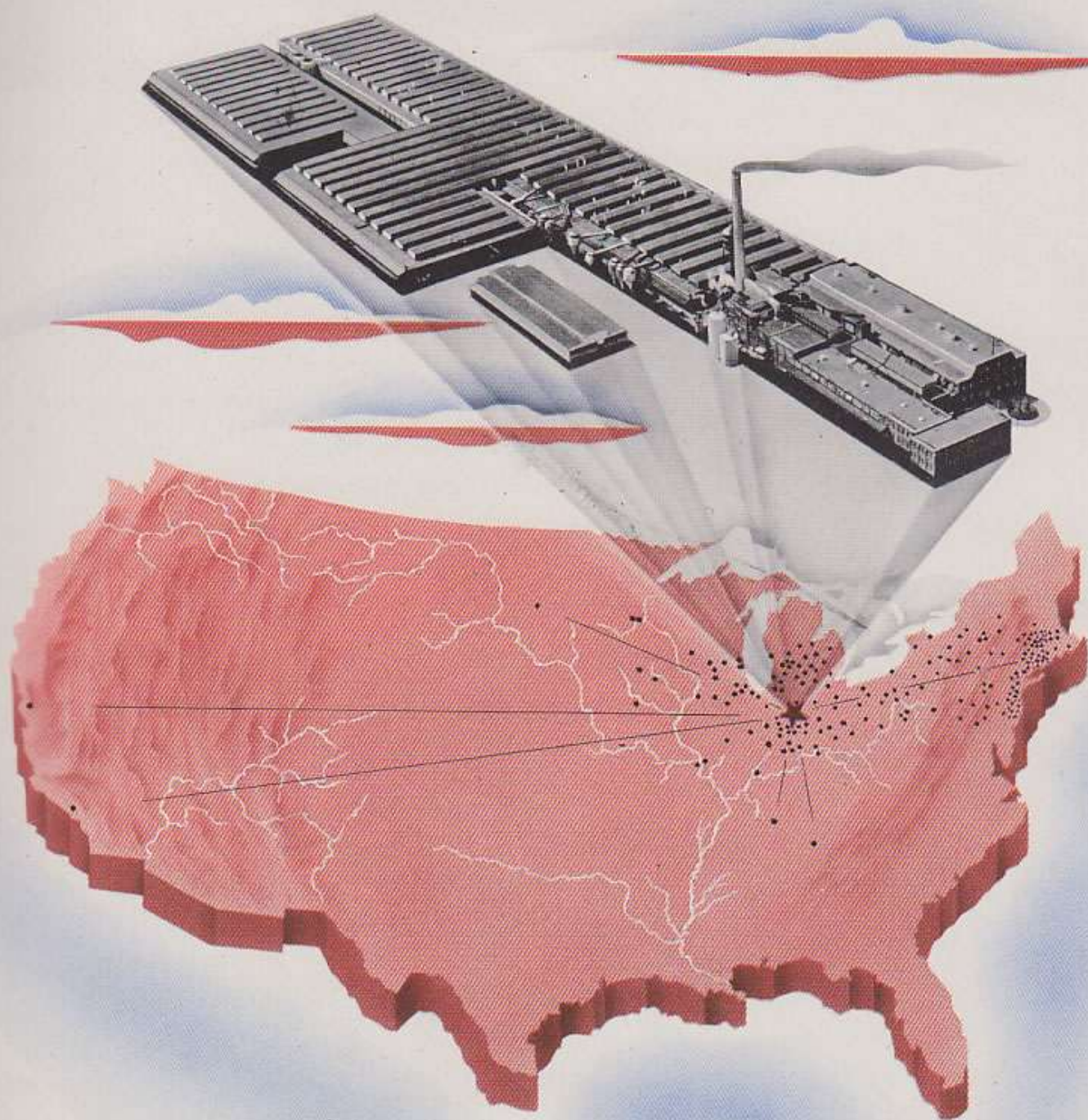
## SUB-CONTRACTORS DID THEIR PART TOO

**A** share in our achievement at Guide Lamp must go also to the 650 sub-contractors and suppliers. If their portion of the work is to be recognized on the basis of dollars and cents, then they become full partners—for figures show that 50 cents of every dollar in our war business is spent with them. We have needed these sub-contractors and have really appreciated their cooperation.

It would be impossible, of course, to indicate the location of each of our sub-contractors and suppliers with a dot on a map—and in some of the more congested areas, every city cannot be marked. However, the map on the opposite page tells a visual story of the division of labor which gives tremendous productive power to the nation's war factories. Guide is the center of a great web which encompasses more than 200 cities in 22 states. Naturally, most of the sub-contractors and suppliers are in Indiana and adjoining states.

There are 91 in Indiana, 121 in Ohio, 109 in Illinois, 118 in Michigan—all cooperating with Guide for the production charted in this booklet. Besides these accounted for, there are many others in New England and all over the quarter of the country set off by the Mississippi and Ohio rivers. And there are a few as far away as the Pacific coast.







# ORDNANCE WORKED WITH US

**F**rom the beginning of our war work, we had the cooperation and assistance of the Cincinnati Ordnance District. At first, it was under the direction of Colonel F. A. McMahon who was transferred to Washington in December, 1943. Colonel J. C. Shouplin succeeded him and continued the fine spirit of cooperation. It was the job of these men and their department to procure guns, ammunition and equipment in this area for our growing Army, and further, it was their responsibility to insure finest workmanship through rigid inspection.

The district assigned a Resident Army Inspector of Ordnance, Lieutenant C. L. Asmann, to the Guide Lamp Division. He maintained a staff of Civil Service Ordnance inspectors and office assistants numbering, on the average, about 85 persons. Lt. Asmann's organization checked every lot of equipment we made before it was shipped. They helped us also in clearance of new and faster processes.



Col. J. C. Shouplin, Chief of Ordnance, Cincinnati District.

BELOW—Lt. C. L. Asmann, Army Inspector of Ordnance, examines an M-3 submachine gun.



BELOW—Ordnance inspectors checked our products. Here they inspect 90 mm. cartridge cases.





# TOOLING

**M**uch credit for our high production achievement must be given to the men in our Tool Engineering Department and to our tool-making and repair departments. Special tools and dies which would help us to increase our production schedules were designed in our engineering section. Those tools and dies were made in our tool rooms. But just as important as making new tools was the work of keeping all of our hard-working equipment in top shape. These departments took little space in our plant, but no corner of the factory was beyond their vigilance or efficient workmanship.



The men at these desks are responsible for production tool design.



Above and below are typical views of two of the Division's tool rooms.





## THE BOXSCORE TELLS THE STORY

Our achievement as a part of the "Arsenal of Democracy" was recognized, of course, by the Army-Navy "E" — and the two stars which were later added. But we liked to think of our accomplishments in the form of a "box score" — figures that are no "aid or comfort to the enemy."

The folks in the office looked into the records and counted up our production in round figures — as of June 1, 1944. They told us we had shipped:

- Approximately 6,500,000 articles of lighting equipment — head-lamps, tail-lamps, dome-lamps, blackout lamps, and signal lamps.
- Approximately 2,600,000 Stimsonite reflector units.
- Enough spinner-noses and adapters to outfit 18,000 P-39 Airacobra fighting planes — or replace damaged noses.
- About 900,000 water-jacket sleeves for Allison aircraft engines.
- Well over 23,000,000 cartridge cases — in five different sizes.
- Around 1,100,000 barrels for Browning machine guns.
- Besides, we were providing something like 1,000 complete M-3 submachine guns every 24 hours.

From this shipping dock we started a train-load of material — plus about 100 truck-loads — every week.





## WE WENT TO WAR IN OTHER WAYS, TOO

Building weapons and equipment wasn't the only way we got in our licks against Hitler and Tojo.

For instance, we invested over \$3,000,000 in war bonds through the payroll deduction plan. In only ten days from the beginning of the drive for 100% employee participation in this plan, we went over the top. Every month, an average of more than 10% of our payroll went into bonds. And every time the mobile blood bank came to Anderson, Guide Lamp people responding to the call more than filled the quota.

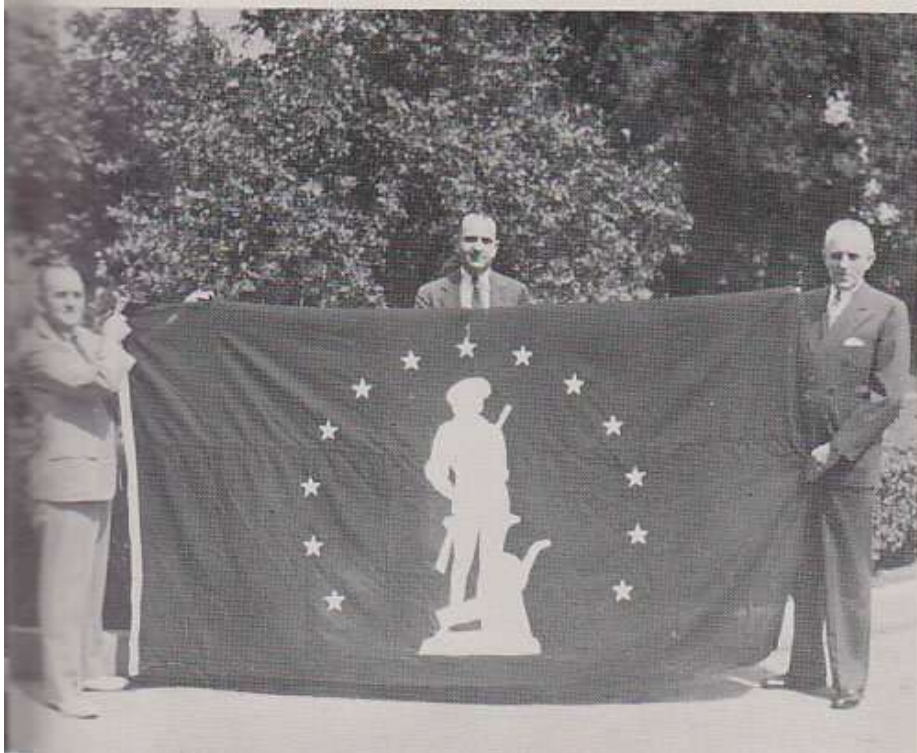
By share-the-ride clubs, more than 90% of our working force saved tires and gasoline in getting to and from work. The other 10% were able to use public transportation facilities. As I put this story together, there are more than twice as many workers as there were in 1939—and less than half as many cars in our parking lots.

Many of us had plots in the victory garden, too—where we plowed our baseball diamond under.



ABOVE—We went all-out in the scrap salvage program—and made an enviable record.

BELOW—We won the Treasury's Minute Man flag for 100% enrollment in the payroll deduction bond-buying plan in just ten days.



BELOW—Ninety percent of us got to work through the share-the-ride program.





HONOR ROLL						HONOR ROLL					
EMPLOYEES OF						EMPLOYEES OF					
GUIDE LAMP DIVISION						GUIDE LAMP DIVISION					
IN THE ARMED SERVICE OF OUR COUNTRY						IN THE ARMED SERVICE OF OUR COUNTRY					
GENS. JONES	HAROLD A. PRIVETT	LESTER W. FOX	CLARENCE J. PULLEY	CHARLES J. CORNELIUS	WAYNE OJCE	EDWARD O. SYLVESTER	GEORGE J. CONNAN	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM
DONALD W. WRIGHT	DENSON W. SYLVESTER	WALTER W. FRISCHORN	MALLOY J. PENNINGTON	EDWARD O. SYLVESTER	LAWRENCE A. B...	GEORGE J. CONNAN	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WILLIAM F. HOWARD	CLIFFORD W. HEARD	GEORGE J. CONNAN	ALBERT D. FREE	GEORGE J. CONNAN	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ROSCOE HUMPHREY	WILLIAM T. TUPPS	JOSEPH J. DOWNING	ALBERT D. FREE	JOSEPH J. DOWNING	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	GEORGE W. NUTUM	PAUL C. SPENCER	DANIEL J. PREESE	ALBERT D. FREE	DANIEL J. PREESE	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	RAY M. STANESU	EUGENE C. SEWARD	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	CURTIS E. TAYLOR	CLAYTON S. DUTCH	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	MORRIS R. WRIGHT	ORVILLE M. STANLEY	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	RICHARD W. ANDERSON	CHARLES R. REEDER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	SHERMAN C. NOEL	LOUIS B. SPALDING	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	MORRIS C. SMITH	GEORGE T. MEHY	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	GEORGE D. STEWART	ROBERT J. WELLS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JOY E. WHITE	JACK F. RYAN	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	RICHARD S. MAC MILLAN	GEORGE E. STALKER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	RALPH TODD	GEORGE S. BERREDELL	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ELMER C. PERRING	ELLOYD H. BOONE	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JAMES F. SIMMONDS	KENNETH H. GIBBS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ROBERT M. GRUM	DERMILL E. SHELUS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WORTH F. ROUDEBUSH	ERNEST W. WHITE	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ROBERT A. MANGAR	CHARLES A. BAILEY	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	OLIVER P. SHARE	JACK J. DORMOD	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ROBERT A. BURTON	LOWELL E. BLADES	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	MAX W. SENSENEY	JACK ROSSER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WAYNE D. APPLETON	DAVID J. MARTIN	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WILLIAM S. HART	EREN H. MATHES	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WALTER T. ZUMPI	GILBERT W. MARLING	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	CLARENCE B. GUNN	WILLARD P. BAER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	LAWRENCE R. SINGLETON	HARRY T. GRIFFITH	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JOSEPH D. RICH	JOHN S. MILLER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	CHARLES D. PIERCE	NATHAN D. MYERS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	COOLE SHEETS	THOMAS H. PRITCHARD	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	HOWARD L. BRYANT	FRANCIS E. BARTON	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JOHN K. KING	MADISON C. KERSHNER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	THOMAS L. MATTINGLY	PAUL E. LYNAM	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WILLIAM F. PETERSON	ERNE HIGGINS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	CARL W. HART	HAROLD D. CONKLIN	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ALBERT M. HENDERSON	EMERSON G. RUSH	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WILLIAM L. STAHL	MORTON H. BENHAM	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	MAURICE F. JARRETT	GENE F. NOWLIN	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	BERTIS L. PLEW	PHILLIP W. TEMPLE	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WILLIAM W. ERVIN	PELL LKENS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	EMERTY J. MC CLELLAN	ELLOYD F. RAINS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ORVILLE L. ROGERS	CHARLIE C. REGER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	LOUIS C. RIVA	JOSEPH C. GOODWIN	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	CHARLES W. SNIDEMAN	ROBERT A. SLAUGHTER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JAMES O. LINDSAY	RAYMOND R. PINNELL	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	LEONIS REX SHAMA	JOHN J. GRAY	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	EDWARD K. LEIBRANDT	ROBERT D. TEAL	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	HAROLD A. OYETT	WILBUR G. TRANBARGER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	LEON C. BARD	MARTIN B. THACKER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	BOTTLEIN BAUER	THOMAS C. THOMAS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JOHN C. WATKINS	ROBERT THOMPSON	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ELMER M. GATT	EDGAR L. BISHOP	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	GEORGE H. COX	NADMI J. BOGGS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ANGUS BOONE	GERALD AYERS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	KENNETH BOWERS	NELSON BANTA	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	EUGENE DAUGHERTY	HELEN BENNETT	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	WILLIAM H. GURN	WILBUR H. MORRIS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	PAUL L. HANNA	OTIS L. HOWARD	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	HOLLIS T. MARLOW	CHARLES H. IMEL	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	HAROLD N. RAPER	FRED C. PRESSER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JAMES R. HAYNES	WILBUR P. HALKER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	PAUL A. JAMES	HARRY F. WATKINS	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ROBERT L. JOHNSON	CHET A. HEAT	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JAMES H. WHEELER	LAWRENCE L. WHILLER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ELMER WHITSON	ELMER WHITSON	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	FRY WILEY	FRY WILEY	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	ALLEN WILLHOITE	ALLEN WILLHOITE	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	CHAROLD T. PEARSON	CHAROLD T. PEARSON	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	VICTOR G. WHELCHER	VICTOR G. WHELCHER	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	JAMES E. SPONG	JAMES E. SPONG	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD
DONALD W. WRIGHT	DONALD W. WRIGHT	BOYO C. BENTLEY	BOYO C. BENTLEY	LEAHNA W. MC PHERSON	ALBERT D. FREE	LEAHNA W. MC PHERSON	ALBERT D. FREE	DONALD C. PLAM	ROY E. STEPHEN	RALPH DURHAM	RICHARD E. GAD







# ACTIVITIES

**W**e worked hard—but we found time to play, too—to keep from going stale on the job. There were bowling teams for men and women. Most every department had a team—some were well up the ladder toward top proficiency. In season, we also had basketball, softball, golf and the like. Competition in all sports was keen. The program was carried on through the Guide Lamp Welfare Club. It was established in 1932. The war stopped some of its activities, but it customarily carried on a program of giving food baskets to the needy at Christmas, promoting an annual picnic and supervising the various athletic events. Hardly what one might call an activity, but still deserving of mention, was the Guide Light, our plant newspaper. It gave enthusiastic support to every activity—and kept us informed about the happenings around the plant.

BELOW—The women's bowling leagues found no trouble getting keglers.



BELOW—The men went for the sport of ten pins with enthusiasm—and ability.



BELOW—Golf was a popular sport—and we had some handy niblickers.



BELOW—Guide Light and GM Folks kept us up with the times—and ourselves.





*Every employee of the Guide Lamp Division may well be proud of the contribution he has made through these war years. His has been an opportunity to serve his country in a vital work. That opportunity remains—and is accepted—by the Division and its people until the nation finds the production of arms and munitions no longer needed.*

*The objective is victory—and  
victory is our business.*



