

Shoreline Victory

**H**ORDES of flying enemies that threatened the success of the new aviation training program along the northwestern Gulf coast of Florida have been defeated in a joint chemical warfare campaign conducted by the U. S. Department of Agriculture and the U. S. Public Health Service. Benefited also were the civilian population of the region and the long-suffering Florida cattle.

The enemies were uncountable myriads of biting flies, known locally as dog flies. They were the same species as stable flies elsewhere—insects that look very much like common house flies, but armed with fierce little dagger-like mouthparts that make life miserable for man and beast.

These flies have long been intolerable

pests to human beings, and sometimes a cause of loss among cattle. The poor beasts flee into swamps to escape their bites, become bogged down and perish. However, when they began seriously to interfere with the aviation training program, prompt action was called for.

When Dr. W. E. Dove of the Bureau of Entomology and Plant Quarantine, with headquarters at Panama City, Florida, moved into the field, the first thing he sought was the enemy's operating base—the places where they bred. He found this to be the great windrows of fermenting aquatic vegetation cast up on the shores of bayous and backwaters reaching inland from the coastal sandbars.

Sprays of arsenical insecticides were found to be effective, but the most practicable and economical means of attack proved to be creosote oil, diluted in a Diesel light fuel oil. Attack was delivered from barges operating in the shallow inshore waters, each barge carrying a power sprayer and lines of hose with nozzles. Colored day laborers formed most of the crews.

A single application was found to be completely effective against larvae and eggs already in the fermenting masses. It also discouraged adult flies from returning to deposit more eggs.

Residents of the region reported that they had never enjoyed a season so nearly completely free of dog flies, and the flying cadets could stop swatting and squirming and concentrate on learning the business of winged warfare.

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## ENGINEERING

## Building Up Machine Parts Can Save Much Metal For War

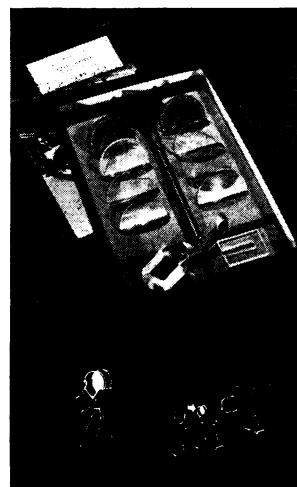
**W**ORN machine parts, such as shafts, bearings, hinge pins, pistons and the like, can be built up to their original dimensions at one-third to one-half the cost of new parts and in some cases with wearing qualities superior to the original, was the statement made by W. J. Cumming, automotive engineer of the Surface Transportation Corporation, at the meeting of the Society of Automotive Engineers in Detroit.

The building up is done by spraying the worn part with a fine mist of molten metal blown from a gun. The piece is first prepared by roughening its surface

by sand blasting or other means according to the nature of the metal. This insures interlocking or dovetailing of the new metal to the old. The built-up piece is then machined or ground to the proper size and quality of surface.

The wearing qualities of the built-up piece can be made superior to the old by coating it with a harder metal. This can also be done with new pieces, Mr. Cumming stated. This would effect an economy of the hard metals.

Of the materials that can be sprayed in this way, Mr. Cumming mentioned aluminum, babbitt, brass, bronze, copper, lead, monel, iron, steel (including



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alloys and stainless), tin and zinc. The coating metals may be stainless steel, high carbon steel, hard steel alloys and non-ferrous alloys including the cobalt-chromium-tungsten alloys which at 1100 degrees Fahrenheit are harder than all known alloys except the tungsten carbide group.

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## METALLURGY

## Magnesium Extracted From Dolomitic Limestone

**M**AGNESIUM, lightweight metal needed in ever-increasing quantities in the airplane and munitions industries, can be produced from dolomite, a widely distributed and very common form of limestone, by a new process just patented by N. R. Collins of Los Altos and G. H. Gloss of Belmont, Calif.

Essential steps in their process are introduction of carbon dioxide under pressure at one stage, and heating to a high temperature, under vacuum, in the presence of calcium carbide, at the concluding stage. This thermal reduction process brings out part of the magnesium as pure metal; the residue, consisting of a mixture of the oxides of magnesium and calcium, is dumped back in with the raw dolomite, to repeat the process.

Rights in the patent, No. 2,271,626, have been assigned the Marine Magnesium Products Corporation.

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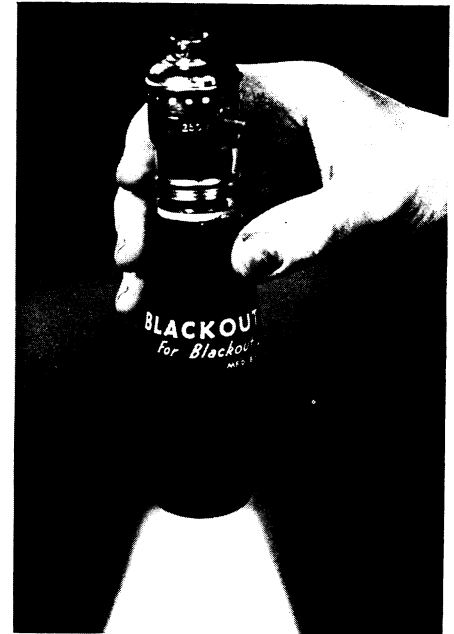
## New Machines And Gadgets

### Novel Things for Better Living

If a thermite incendiary bomb falls in a factory containing expensive, delicate machinery, powdered graphite may be used instead of gritty sand to control the flames. A special powder, said to be even better, is also made for this purpose by a chemical company. It is almost impossible to extinguish a thermite bomb. The main problem is to keep the fire from spreading. This may be done by rolling the bomb with a long-handled shovel onto a bed of sand or other smothering substance and then covering it with more. This is the method recommended by Asa H. Nuckolls, chemical engineer of Underwriters' Laboratories.

**Fuel briquettes of straw** burn slowly and give an intense heat. But until now they have been difficult to produce because the glossy surfaces of both the outside and inside of the straw prevented the chopped up pieces from sticking together. This difficulty has been overcome in a recently patented invention by grinding the straw down to a powder, drying it at high temperature and then compressing it into briquettes while still hot.

A **blackout bulb** with a silver lining is shown in the illustration. The inside coating of pure silver reflects the light downward and an outside coating of



black silicate down to the extreme lighting end of the bulb insures that no trace of light escapes through the sides. The end of the bulb is a deep blue. The lamp consumes 25 watts and despite its silver lining is very inexpensive.

**Aiming a pistol** without raising it to the level of the eye is made easy by a recent invention. The pistol is provided with a groove along one side of the barrel in which the extended forefinger may be laid. Thus the pistol is aimed by merely pointing the finger.

**Keep the flag flying!** This can be done even when there is no breeze by means of a hollow flag pole into the base of which compressed air is admitted. A slit near the top of the pole and behind the flag allows the air to issue in an artificial breeze that keeps the flag distended. A patent has been granted for this invention.

**Handkerchiefs**, when disposable tissues became popular, were carried more or less for ornament. For this purpose, only a small portion of a man's handkerchief shows above his breast pocket, perhaps neatly folded to display the four corners. Conservation of the material not in these corners is the idea behind a patent recently issued. The invention consists of a flat sheet to the top edge of which is attached "a preformed show-kerchief."

*If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St. N.W., Washington, D. C., and ask for Gadget Bulletin 92.*

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**Milk** and cream represent about 20% of the food consumed annually by the average American, says the Milk Industry Foundation.

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