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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • DECEMBER 12, 1942



A Glimpse Into The Past

See Page 377

A SCIENCE SERVICE PUBLICATION

Do You Know?

All the *quartz* for radio crystals comes from Brazil.

A small quantity of *citric acid* is found in cows' milk.

There have been four invasions of *cholera* in the U. S.

The Hupa and Yurok Indians made twine from *iris* leaves.

The average American eats and drinks 12 pounds of *salt* each year.

Next to Greenland, *New Guinea* is the largest island in the world.

A lack of *vitamin C* will show up in the blood plasma in two days.

The Americas have a total *population* of about 250,000,000, almost half of which is in South and Central America.

A method of producing *lactic acid* from grapefruit juice, using discarded fruit, has been patented by two chemists of the U. S. Department of Agriculture.

The United States produces one-third of the world's *iron ore*, 40% of the iron and steel, two-thirds of the oil, 40% of the copper, 29% of the zinc, and 24% of the lead.

Gasoline and rubber shortages are proving a boon to *birds* and small mammals which were killed in tremendous numbers during the days of speeding automobiles.

Question Box

Page numbers of Questions discussed in this issue:

CHEMISTRY

Who received the Chemical Industry Medal? p. 382.

ENGINEERING

How much cargo is being carried by truck as compared with pre-war times? p. 372.

What are the features of proposed small battleship plans? p. 375.

What factors have contributed to the present revival of the plywood airplane? p. 371.

What railway will have the first gas-turbine locomotive? p. 371.

What savings are being effected in the manufacture of tanks? p. 373.

GENERAL SCIENCE

What action was taken about the A.A.A.S. Christmas meetings? p. 377.

INVENTION

How are feathers "minced" to relieve the shortage of down? p. 380.

MEDICINE

To whom were awarded the new Gorgas medals? p. 380.

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

What methods were used to save the Boston fire victims? p. 376.

What new medical use has been proposed for the betatron? p. 373.

What vitamin was used in daily dose to bring relief to hay fever victims? p. 376.

PHYSICS

What improvements have been made in the electron microscope? p. 374.

PHYSIOLOGY

What happens when pigs are deprived of vitamin B₆? p. 376.

PSYCHOLOGY

How can air sickness be prevented? p. 378.

PUBLIC HEALTH

How is the health of America? p. 380.

Where has a human case of bubonic plague occurred in the United States? p. 372.

ZOOLOGY

Where has a freshwater jellyfish been found? p. 376.

Quick freezing of green vegetables preserves 50% more vitamin C than canning.

Wooden nuts and bolts may soon be a commonplace, as well as "copper" wire made of silver.

A new word, "*geotechnology*", has been coined to include all the mineral arts and sciences from metallurgy to ceramics.

Sweet potatoes have now been added to the list of potential gasoline substitutes being tried out in Africa.

A shortage of *sauerkraut* has been averted by packing it in old-fashioned wooden barrels instead of cans.

New *lead* and *sulfur* deposits have been discovered in the U. S. S. R. in the high plateau of the Pamirs, next to India.

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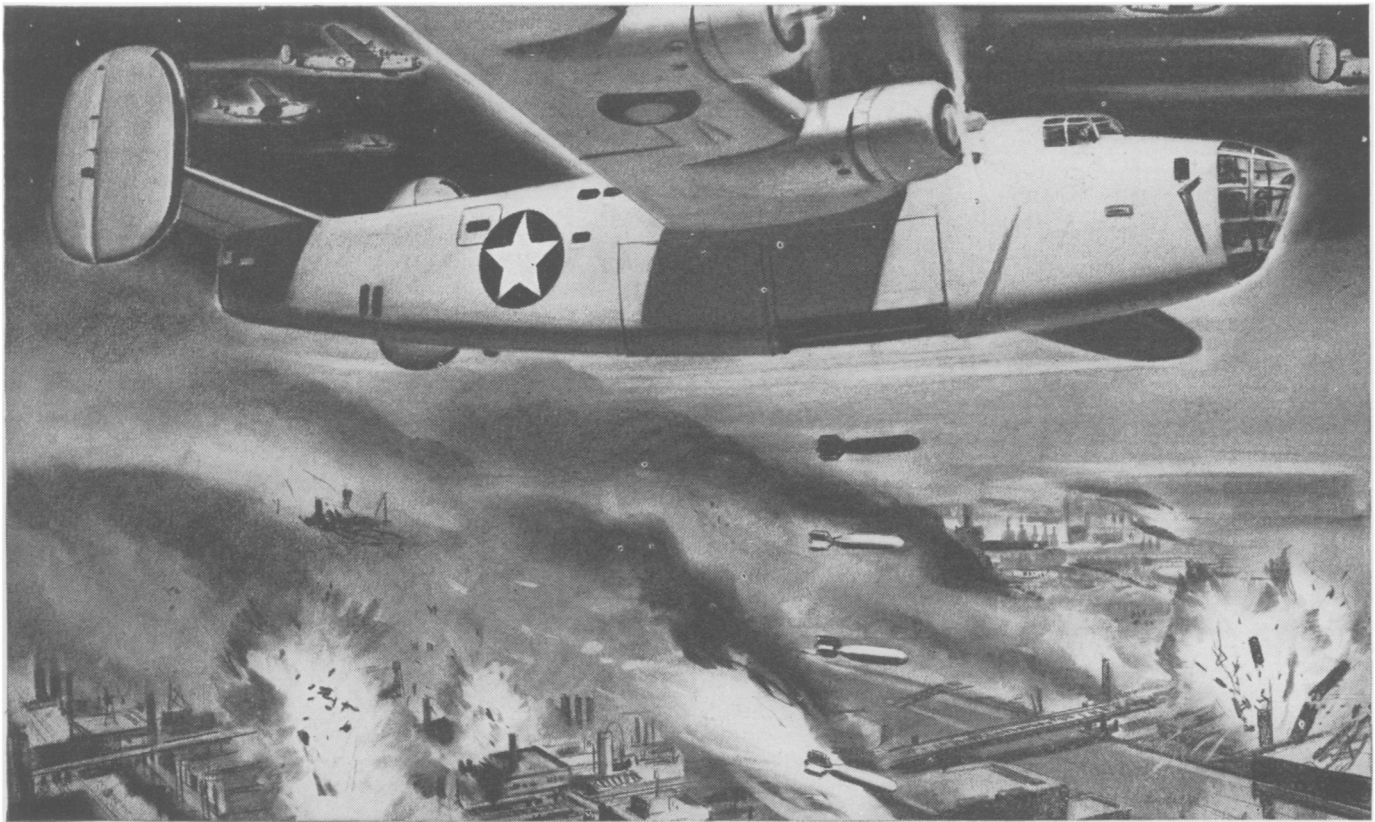
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More bombs for Berlin . . . more terror for Tokio

IN TOTAL WARFARE, every pound of metal we can save means just so much added destruction we can hurl at the enemy.

7000 tons of steel saved means approximately 70,000 more heavy bombs to drop on Berlin and Tokio.

2500 tons of copper saved means nearly 1,000,000 additional 3 in. A. A. cartridge cases for blasting Zeros and Messerschmitts out of the sky.

Westinghouse will save these huge amounts of steel and copper during 1942 in its Transformer Plant alone . . . because of *radical improvements in transformer materials and design* that have come out of the Westinghouse Research Laboratories and Westinghouse engineering:

An entirely new kind of transformer steel wherein the crystals line up like tenpins in a row, instead of in helter-skelter fashion as in ordinary silicon steel. This new grain-oriented steel . . .

called Hipsil . . . is the result of nine years of intensive study and experiment by Westinghouse Research Engineers.

Hipsil has *one third* more flux-carrying capacity than the best grade of ordinary silicon steel. Because of its higher permeability, less Hipsil core material is needed. Transformer weight may be reduced *25 to 30 per cent*. Hipsil, alone, will save thousands of tons of critical steel and copper in the vast number of transformers Westinghouse will make during 1942.

Forced oil-cooled transformers in which the cooling medium is rapidly circulated inside the transformer shell. This means quicker heat removal. Smaller cores and coils can do a bigger job. Strategic steel and copper are saved to help win the war.

Copper temperature control. Here a liquid-cooled transformer carries a load up to the point where the copper reaches a critical temperature, beyond which the insulation may be damaged. By the use

of this thermal control, higher safe loads can be carried. A transformer of a given size, therefore, does *more work* . . . another way of saving steel and copper for more shells and tanks and ships to hurl at the Axis.

Westinghouse makes transformers in a wide variety of sizes . . . from tiny units for use in portable "Walkie Talkie" radio sets to high power transformers as big as a six room house: these latter transformers weigh 257 tons. As a further example of the economy in strategic materials effected by Hipsil 40 tons of steel and 4 tons of copper are saved through the use of this new magnetic material in the construction of such a transformer.

Better transformers go hand in hand with these major achievements of Westinghouse "know how" in saving strategic materials for our all-out drive to victory.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pennsylvania. Plants in 25 cities. Offices everywhere.

Westinghouse

. . . making Electricity work for Victory