

• New Machines and Gadgets •

☼ **MERCURY, 99.99995% PURE**, is required for huge power rectifiers that convert alternating to direct current for refining of aluminum, magnesium, copper and other strategic metals. This high degree of purity is obtained by treating the mercury for 15 hours with nitric acid to remove the base metals, and then distilling under a vacuum (which keeps the oxygen away) to remove the silver and gold and all other foreign substances. One company alone is producing half a ton daily of the highly purified metal.

Science News Letter, August 22, 1942

☼ **AN ELECTRICALLY HEATED CARBON TIP** replaces the old copper soldering iron and speeds up the process of soldering resistance wires in a regulator for motors or generators. The carbon tip is lowered into contact with one of the several buttons to which the wire is to be attached, the button is quickly heated and the solder applied. The operator then turns the plate by foot lever to bring other buttons into position for soldering. This arrangement saves time-out for cleaning the old copper soldering iron (See photograph).

Science News Letter, August 22, 1942



If you want the sources of 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 118.

☼ **A MERCURY BOMB EXPLODES** inside a fluorescent lamp during manufacture, providing the exact amount of mercury vapor needed, saving 50% of the mercury formerly used and producing a better lamp, it is claimed. The old method of dropping the mercury in from a dispenser wasted much of the liquid metal. Some lamps got too much, some too little. Many lamps had to be rejected. Mercury is a critical war material completely banned in many industries.

Science News Letter, August 22, 1942

☼ **PHOTOGRAPHIC MISTAKES** are well-nigh impossible with an automatic camera designed primarily for medical use in taking color pictures of body cavities, such as the eyes, mouth, throat and other cavities that are accessible from without. But it can also look through the spark plug opening into the cylinder of an airplane engine, or keep a record of the instrument board. Light is provided by a 1750 watt bulb and reflected through appropriate tubes to the cavity. For each type of picture a special "key" is provided which sets the distance of the object from the lens, the focus, the diaphragm and the amount of light. After the flash is made, the button cannot again be pressed until after the film has been moved.

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Glances At New Books

➤ **FUNDAMENTAL FACTS** about raw materials and their place in peace and war is told in **STRATEGIC MATERIALS AND NATIONAL STRENGTH** by Dr. Harry N. Holmes, president of American Chemical Society, (Macmillan). If we had paid attention to the warnings of our scientists, we would have stock-piled many important materials before the war. Once we get through with this war, he advocates a strategic materials advisory board to see that the job is done.

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➤ **WITH OUR EYES** constantly on our own troubles, we are apt to assume that only American coastal waters are overfished; but the problem really is acute in all waters contributory to markets serving large populations. It was therefore fitting that an Englishman should come to this country to talk things over: **THE OVERFISHING PROBLEM** by E. S. Russell (Macmillan), is a record of a course of lectures at the Johns Hopkins School of Hygiene.

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➤ **DRAFTERS OF BLUEPRINTS** for a new world when peace comes will want to check their sketches with the outline given in Stuart Chase's **THE ROAD WE ARE TRAVELING** (Twentieth Cent. Fund). It is an illuminating summary of whence we have come socially and whither we are likely to go. Recommended reading between headlines these troubled days.

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➤ **A FULL PICTURE** of the flora of one of the most interesting xeric areas of the world is contained in **FLOWERING PLANTS AND FERNS OF ARIZONA** by Thomas H. Kearney, Robert H. Peebles and collaborators (Govt. Printing Office). Outstanding, of course, are the 76 cactus species; except for Texas, no other state has so many. The 30 good halftone plates furnish glimpses of ecological backgrounds and species habits.

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• Just Off the Press •

GUIDES TO THERAPY FOR MEDICAL OFFICERS—U. S. War Department—Govt. Print. Off., 185 p., 25c. (Technical Manual, 8-210).

HOW RUSSIA PREPARED, U. S. S. R. BEYOND THE URALS—Maurice Edelman—Penguin, 127 p., 25c.

LEARNING THE RADIOTELEGRAPH CODE—John Huntoon—American Radio Relay League, 34 p., illus., 25c.

MATHEMATICS OF MODERN ENGINEERING, Volume II (Mathematical Engineering)—Ernest G. Keller—Wiley, 309 p., \$4.

NUTRITION AND THE WAR—Geoffrey Bourne—(2d ed. rev. & enl.)—Cambridge (Macmillan), 148 p., \$1.50.

THE OVERFISHING PROBLEM—E. S. Russell—Cambridge (Macmillan), 130 p., charts, \$2.

RADIO CODE MANUAL—Arthur R. Nilson—McGraw-Hill, 174 p., illus., \$2.

YOUTH LOOKS AT SCIENCE AND WAR—Science Talent Search Trip Winners—Science Service and Penguin Books, 133 p., 25c.

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