



ELECTROPLATED METAL—The gleaming finish on this electric iron cover shows the metal plating technique developed by engineers of Westinghouse Electric Corporation. The new method is expected to save huge quantities of nickel, a strategic metal.

TECHNOLOGY

New Electroplating Method Uses Less of Critical Metals

► **STRATEGIC NICKEL**, now in short supply for non-defense applications, is conserved in a new method of electroplating automobile bumpers and other objects which results in a satisfactory, bright, corrosion-resistant trim. The process saves other critical metals also.

The process was developed by Westinghouse Electric Corporation, Pittsburgh, Pa. The resulting trim has very thin coatings of copper, nickel and chromium. A layer of copper about one-thousandth of an inch thick is electroplated to the steel base. Over this is put a layer of nickel about one-half as thick. Then an extremely fine film of chrome is applied.

The key feature of the new plating system, according to George W. Jernstedt of the Westinghouse staff, is an electrical "back-stroke" that alternately applies metal then takes some of it away by reversing the current. The use of the electroplating current in reverse is a relatively new process for giving a bright smooth finish to electroplated coatings.

In ordinary methods of electroplating a continuous flow of direct current is sent through the electrolytic bath until a coating of the desired thickness is obtained. Surfaces obtained are lumpy when examined under a microscope and have to be polished. The new process, by alternately giving and taking away metal, conserves metals, eliminates the lumps and results in a surface requiring no hand or machine polishing.

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MEDICINE

Mass Screening Unsound

► **MASS TESTING** of the population for detection of half a dozen or more diseases at one time is criticized by Dr. Wilson G. Smillie, professor of preventive medicine and public health at Cornell University Medical College, New York, in a report to the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (April 21).

Tuberculosis, syphilis, diabetes, cancer and heart disease are among the serious diseases covered in plans for mass multiple screening tests, or "multiphasic" screening tests as they are also called.

As a primary public health diagnostic function, a multiphasic diagnostic screening unit is "unsound in its concepts; untenable in its principles and indefensible in its logic," Dr. Smillie declares.

Advantages, Dr. Smillie points out, are: low per capita cost, detection of serious unsuspected disease, speed and education of the public.

Disadvantages, which Dr. Smillie thinks outweigh the advantages, are: 1. Lack of selectivity. Syphilis, for example, is essen-

tially a disease of young men and women in the lower economic and social group. Mass blood testing of persons over 40 for detection of syphilis is foolish. Mass tests for early detection of cancer in persons under 35 is also "futile," Dr. Smillie thinks.

2. Mechanistic basis which fails to take account of man as a person rather than a series of organs.

3. False sense of security given the 960 or so of every 1,000 who emerge from the screening with negative results. Negative tests have little value, which the average person does not know.

Having health departments make tests and then refer the patient to the physician is a cart-before-the-horse arrangement, Dr. Smillie points out. It takes a physician familiar with the patient's personality, history and family background to make a diagnosis of health or sickness. The health department should make tests to aid the physician's diagnosis, not the other way around.

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GEOLOGY

More Mineral Prospecting

► **MINERAL PROSPECTORS**, from lonely "sour-doughs" to highly-equipped geologists, are expected to become very active again in the near future with financial aid from the government. They will be searching for new sources of minerals needed in the defense program.

Regulations and terms under which the federal aid will be given have just been issued by the U. S. Department of the Interior. Application blanks have also been prepared. All participants, individuals or mining operators, must file on this blank prepared by the Defense Minerals Administration.

This office is in the Department's Bureau of Mines. Proposed projects by applicants will be investigated and defined by the Bureau of Mines and the Geological Survey before contracts are made.

The percentage of funds to be supplied by the government in proportion to the total cost of an approved project depends upon the minerals being sought, and varies from 50% to 90%.

The government contribution is 50% for chromium, copper, fluor spar, graphite, iron, lead, molybdenum, sulfur, zinc and cadmium.

For antimony, manganese, mercury and tungsten, a 75% contribution will be made. For uranium, important in atomic energy development, a 90% contribution will be made by the government.

Other minerals in the 90% classification include spinning-grade asbestos, beryl, cobalt, columbium-tantalum, corundum,

cryolite, industrial diamonds, strategic kyanite, strategic mica, nickel, platinum-group metals, piezo-electric quartz crystals, steatite and tin.

The applicant's share of the cost may be in the form of labor at reasonable rates, rental of equipment owned by him, and similar contributions in kind as well as cash. The applicant must own land on which to prospect, or have land available under a proper lease.

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MEDICINE

Heart Can Absorb a Drug, Break It Down to Compounds

► **FIRST EVIDENCE** that the heart can absorb a drug and break it down into other compounds has been obtained from radioactive digitoxin from the University of Chicago's "atomic farm."

Digitoxin is the most active compound in the familiar heart medicine, digitalis. It is obtained from the foxglove plant. The plants were made to produce radioactive digitoxin by making them breathe radioactive carbon dioxide.

From 40% to 50% of the drug was converted to other compounds by the heart, Dr. A. Sjoerdsma of Michael Reese Hospital, Chicago, and Dr. Conrad C. Fisher of the university, reported at the meeting of the Federation of American Societies for Experimental Biology in Cleveland.

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