

METALLURGY

Fireproof Sterling Silver Developed in England

➤ A NEW sterling silver alloy which is not stained by fire has been developed by English scientists. The discovery promises more beautiful objects of silver, from belt buckles to tea sets.

Secret of the silver's fire resistance is the addition of one percent of aluminum to the basic alloy. By law, all sterling silver must contain 92.5% pure silver. Copper normally makes up the remainder of the alloy, giving it better working qualities.

But in the silversmith's art, high temperatures must be used for annealing and soldering. Under this heat, oxygen from the air reaches the copper and forms colored oxides, producing a firestain which is often very difficult to remove.

The aluminum in the new alloy, however, oxidizes first. A thin film of aluminum oxide forms on the surface of the object and prevents oxygen from penetrating the metal and oxidizing the copper. The stain is limited to a thin surface layer which is easily removed in final buffing and polishing.

If the aluminum content is less than 0.9%, according to the report of England's Design and Research Center, the oxide film is not continuous enough to shut out the oxygen; if it is above 1.5%, the working properties and color of the silver are noticeably affected.

The new alloy has been covered by a provisional patent in England only to insure that it is freely available to all silversmiths.

Science News Letter, October 7, 1950

ENTOMOLOGY

Battle against Forest Insect Ravage Stepped up

➤ THE government is stepping up its long-term battle against an enemy which ranks with fire in ruining American timberland—the forest insect.

Dr. Harvey J. MacAloney, veteran insect scientist of the Agriculture Department, was named to head a new warning network designed to spot insect outbreaks before they reach the point where, like fire, they can race out of control through valuable timber.

A Forest Insect Survey was approved by Congress in 1947. Although it is still in skeleton form, eventually the Survey hopes to cover all 48 states with a system of trained observers. These men, many working on a volunteer basis, will keep sharp eyes cocked for dangerous buildup of the tiny forest marauders.

One of the most serious of these, at present, is the spruce budworm, eating its way through a million acres of Pacific Northwest Douglas fir, white fir and spruce.

Seven forest-dusting pilots were killed this summer in fighting the budworm plague, which earlier had brought ruin to 2,000,000-000 acres of forest in Alberta.

Other pests, which in some parts of the country cause damage far exceeding fire losses, include bark beetles and a host of those insects that chew the foliage of trees.

The insect network will be a weapon against fire as well. Trees which have been killed by pests are prime fire hazards.

Science News Letter, October 7, 1950

ENGINEERING

Specially Designed Radar Sets Aid Weather Tracking

➤ SPECIALLY designed radar sets with ranges of 200 to 250 miles, working in pairs, will be a valuable aid to weathermen in tracking storms and hurricanes. A pair of radar sets, one in Fort Monmouth, N.J., and the other in Cambridge, Mass., right now are busy tracking storms in experimental work for the Army Signal Corps.

Signal Corps experts believe this method of keeping continuous track of a storm from two angles will provide much valuable information about the origin and progress of such disturbances. Right now, the radar operators are trying to learn exactly what it is that they see on a radar scope trained on a patch of sky.

They know that the frequency on which radar signals are broadcast and the size of raindrops which these signals hit have a bearing on the kind of signal pictured on the scopes. However, they do not yet know exactly how big raindrops have to be before radar signals will bounce back from them to the radar. Signals bounce off ice crystals also and therefore the same problem exists. These and other problems may be solved by experiments with the two radars now in use.

Science News Letter, October 7, 1950

VETERINARY MEDICINE

Cattle Disease Kills 400 Army Deer

➤ "BLACKLEG," a disease which kills thousands of young cattle annually in the United States, has now been found to attack wild deer.

At the Army Proving Grounds in Aberdeen, Md., more than 400 out of about 2,500 deer which roam the reservation have died of the disease. The deaths are reported by Army veterinarians, Lt. Col. H. L. Armstrong and Maj. J. K. MacNamee, in the JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.

Although blackleg can be prevented by vaccination, it is fatal to young cattle which are not immunized, and sometimes attacks sheep and other livestock.

Science News Letter, October 7, 1950

IN SCIENCE

NUCLEAR PHYSICS

Swiss Mountain Scene of Cosmic Ray Research

➤ THE SUMMIT of Switzerland's 13,600-foot Jungfrauoch mountain will be occupied this winter as a cosmic ray observatory by four University of Manchester scientists who will study the production of meson atomic particles by these penetrating radiations from outer space.

Dr. P. M. S. Blackett, Nobelist and British atomic scientist, will lead the team, which will use a 14-ton magnet and cloud chamber apparatus to observe the mesons, which are the particles that are involved in the constitution of the atomic heart.

Previous explorations of cosmic rays have led the same group of scientists to conduct experiments deep in London subways and British coal mines.

Science News Letter, October 7, 1950

AGRICULTURE

2, 4-D Colors Potatoes For Buyer "Eye Appeal"

➤ DON'T be surprised if your wife brings home some potatoes she purchased because "they are pretty."

A method of using the well-known weed killer, sodium salt of 2,4-D, to intensify red skin color and increase vitamin C content of Red McClure and Bliss Triumph varieties of potatoes has been reported in synthetic plant hormone studies by the Colorado A & M College Experiment Station, Fort Collins, Colo. The 2,4-D is applied as a spray to the vines while the potatoes are still in the ground.

Intensifying the red color is aimed at providing a potato with eye appeal to the commercial buyer as well as the housewife. By increasing vitamin C content up to 12.5% through spraying with 2,4-D, the potatoes will provide a larger portion of the daily body requirement of vitamin C in a cheap food, Station chemists point out.

Because potatoes form such a large part of the nation's food supply, they provide much of the vitamin C requirement. A tendency toward tougher skins, which would be an advantage at digging time, has also been noticed.

Growers of red-skinned potatoes have been warned to be especially careful in use of plant-killing 2,4-D to "color" and increase vitamin C content of the spuds. Recommendations for using 2,4-D have been prepared by Dr. Jess L. Fuels, Colorado Experiment Station botanist, and Dr. Lawrence Schaal, USDA plant pathologist.

Science News Letter, October 7, 1950

E FIELDS

HOME ECONOMICS

Aluminum Takes Fresh Fish to Market

► FRESH fish which travels from wharf to market packed in light, airtight aluminum containers is the advance guard in a revolutionary new method of distributing perishable foods now being tested in England.

Although the fish is marketed in cans, it is not "canned fish" in the usual sense. It is as fresh as if the housewife picked it from a barrel of ice in the grocery store and carried it home wrapped in the traditional newspaper.

The aluminum containers take the place of the ice in preserving freshness. Choice fish straight from the trawlers is filleted by skilled workers working near the fish docks at Hull, England, sealed in the aluminum cans and sent to wholesalers and retailers in London, Manchester, Southampton and other cities for sale.

The venture could be the forerunner of similar packaging methods for other types of perishable foods. Fresh vegetables, fruit or meat conceivably could be transported in the same sort of containers. They give protection not only from air and high temperatures (the aluminum reflects heat rather than absorbs it) but also from rough handling.

Exhaustive tests have proved the fish shipped in this manner reach the consumer in good condition. Waste and nearly all bones are removed at a central location. The fish are washed in water which contains a small amount of chlorine to destroy surface germs. Tightly packed in cans ranging from one to 14 pounds capacity, they represent a solid block of fresh fish surrounded by a light sheet of aluminum, which is a tough customer in the knocks and jolts of freight transportation.

Science News Letter, October 7, 1950

ENGINEERING

Stainless Steel Promises Larger TV Picture Tubes

► LARGER rectangular pictures in home television sets are promised with the development of a new stainless steel particularly suitable for use in picture tubes because it has a heat expansion rate practically the same as that of the glass screen.

TV tubes with metal sides and glass fronts are more durable than tubes of all glass and they can be constructed in larger sizes and in rectangular shape. One difficulty has been a suitable metal that will expand and contract at the same rate as the glass under the heat conditions devel-

oped in the tube. If the expansion rates are different the glass will crack.

Stainless steel is a desirable metal in television tubes because it is durable and non-corrosive. The new steel was announced in New York by United States Steel Corporation. It was developed by Carnegie-Illinois Steel Corporation, a subsidiary, in cooperation with video vacuum tube manufacturers. It is an alloy containing 17% chromium. By special processes its grain structure is stabilized without changing its other desirable characteristics.

Science News Letter, October 7, 1950

ENGINEERING

Boron and Carbon in Electrical Resistors

► NEW electrical resistors in which a thin film of carbon and boron takes the place of tightly-wound wire coils were described in Chicago, Ill., at a National Electronics Conference.

The new units, developed at Bell Telephone Laboratories in New York, were discussed in a technical paper presented by Bell engineers R. O. Grisdale, A. C. Pfister and G. K. Teal.

Resistors with carbon films laid on ceramic cores have seen increasing use in recent years. The addition of the element boron to the film has further improved the electrical characteristics of the resistors, and opened the way for widespread use in the communications and electronics fields. Boron-carbon resistors, said the engineers, are smaller and less expensive than wire-wound types designed for the same jobs.

Science News Letter, October 7, 1950

BIOLOGY

Penicillin Increase Due To Mold Heredity Change

► A FOUR-FOLD increase in the output of penicillin has resulted from scientists' ability to change the heredity of the mold that produces this first of the antibiotic wonder drugs.

This accomplishment, of live-saving importance to millions throughout the world, was cited as one of many examples of the benefits of the modern science of genetics by Dr. Conway Zirkle of the University of Pennsylvania at the American Institute of Biological Sciences meeting at Ohio State University in Columbus.

Plants and animals have been bred to give man more foods and in the field of human heredity, Dr. Zirkle pointed out, geneticists and physicians have combined to find ways of predicting which couples are going to have babies afflicted with the often fatal Rh blood disease. As a result, many such tragedies have been prevented.

A formula for pre-birth prediction of anemia in a laboratory animal of pure genetic stock was also reported.

Science News Letter, October 7, 1950

MEDICINE

Videognosis for Rural Patient

► SICK and injured patients in rural hospitals may some day have the diagnostic services of big city medical specialists via a new technique called videognosis.

The technique, consisting in television transmission of X-ray pictures, has already worked successfully in trials by Dr. J. Gershon-Cohen and associates of the Jewish Hospital of Philadelphia.

The specialist and the physician at the patient's bedside confer by telephone while viewing the X-ray picture and its televised image.

The television image is said to be better in some respects than the original X-ray picture because dark and light contrast can be made greater for easier reading and special parts can be magnified by focussing of the transmitting camera.

Science News Letter, October 7, 1950

NUCLEAR PHYSICS

Small Plastic Vial Is New Radiation Detector

► A PLASTIC vial about two inches long and half an inch in diameter is the latest device protecting workers in U. S. atomic energy plants and laboratories from overdoses of radiation.

The miniature detector, worn on the clothing during working hours and then checked by recording instruments over a double radiation range, was announced recently by scientists at Argonne National Laboratory in Chicago, Ill.

Its invention makes possible for the first time radiation measurement over two different dosage scales, using a single detecting device carried by an individual who works with radioactive materials.

The plastic cylinder is filled with air. Inside is a thin plastic rod. An electrical field is established between the walls of the tube and the rod. Radiation causes this charge to "leak" away. By measuring the drop in charge after working hours, technicians can tell how large a dose of radiation the worker received.

The tube is hermetically sealed and lined with a thin film of grease and graphite to prevent any movement of dust particles through the air in the electrical field. In earlier instruments, dust caused leakage of the charge and produced a higher radiation reading than the amount actually received.

The new atomic pill bottles, although accurate and inexpensive, probably will not be practical for use by large numbers of ordinary citizens as radiation warning devices in case of atomic attack. There is no way to "read" them directly. Special indicating equipment and technicians to run it are needed.

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