

METALLURGY

Dies Now Are Hardened Without Discoloration

DIES, increasingly useful in modern industry for punching out metal parts or plastic articles or objects of other materials can be hardened in a new electric furnace which leaves the metal bright and shiny although it gives it armor plate hardness.

Conventional hardening processes produce discoloring layers of oxidized metal. They remove carbon from the outer layers of the steel and require troublesome and costly cleaning after hardening.

Trick of the new furnace is to perform the heat treatment in a mixture of hydrogen and nitrogen gas derived from ammonia. Even high chromium alloys and stainless steels can be bright hardened without tarnish in this Westinghouse Electric furnace, product of research conducted by Dr. A. A. Bates and Howard Scott.

Science News Letter, March 9, 1940

POPULATION—ECONOMICS

Every 100 Jobs Lost Means 181 Seeking Work

FOR every 100 jobs lost in the long depression, there resulted not 100 but 176 unemployed. This figure does not include those added to the ranks of job-hunters by the natural increase of population. If you count those, the unemployed resulting from each 100 jobs lost is actually 181.

The widening circle of unemployment is explained by Dr. Rupert B. Vance and Nadia Danilevski, population experts of the University of North Carolina, in a report to the Milbank Memorial Fund. When the family bread winner, a primary worker, is left without a job, not only does he pound the pavements in search of a job, but a little procession is started including his wife and the older boys and girls. Each year, just by growing up, the younger children add to the ranks.

In this manner the 4,740,000 jobs lost in the depression between 1930 and 1937 produced a total increase of 8,586,000 unemployed.

Unfortunately, it would be too optimistic to feel sure that as employment mounts the resulting decrease in unemployment will be in this same ratio.

With hard times and the wider employment of women, the custom of family limitation has grown. Women, it is

suggested, may come increasingly to prefer pay envelopes to child care.

And employers may come to prefer women and youthful employees.

"If there should become apparent in our technology," the investigators suggest, "a long-time trend away from jobs in heavy industry for males to service jobs for women, reemployment of primary workers will become a hopeless issue, giving way to jobs for the secondary unemployed."

"As the skills of many primary unemployed become obsolescent, another question arises. Under such conditions is it likely that men will follow the pattern set by women workers and gradually become 'unavailable for gainful employment'?"

Here is a real problem for pondering by population experts and also those determining political policy.

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GENETICS

Ability To Curl Tongue Is Hereditary Trait

PUT out your tongue. Now curl up its edges.

The chances are about two to one that you can do it. In tests on 280 persons, performed at the California Institute of Technology by Dr. A. H. Sturtevant, it was found that 65% of the subjects could carry out this little maneuver of the most troublesome of human organs, while the remaining 35% could not. Tests on related family groups indicated that the ability is a hereditary trait, hitherto not known to be such. Tongue-rolling ability exists equally in both sexes, and there seem to be no racial limits, for Dr. Sturtevant found it to be present in white persons of several different nationalities, as well as in Negroes and Japanese. (*Proceedings, National Academy of Sciences, Feb.*)

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ENTOMOLOGY

Japanese Beetle Traps Will Be Yellow This Year

A "YELLOW PERIL" will confront Japanese beetles when they swarm out of winter quarters for this spring's campaign. Tests by the U. S. Bureau of Entomology and Plant Quarantine have shown that the standard sheet-metal beetle traps attract half again as many insects when they are painted yellow as when they are colored in the present green-and-white combination.

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IN SCIENCE

ZOOLOGY

When Wild Animals Break Into Zoo—That's News

WHEN wild animals escape from the wilds and enter a zoo of their own free will, is that news?

The Bronx Zoological Park finds that wild opossums break into the zoo and keepers are eager to capture them when they do. They and raccoons come in search of birds which they consider good eating. In early years of the Zoo, minks and weasels, too, were common wild visitors but they have not been seen in many years. Wild raccoons are not as plentiful along the Bronx River this year as in the past. Evidently the New York area is beginning to be too civilized.

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CHEMISTRY

Even the Christmas Tree Now Has Its By-Products

EVEN the Christmas tree now has its by-products. As the result of the development of unusual products of coniferous trees undertaken by Maine's Technology Experiment Station, balsam-needle oil will probably be manufactured in Maine communities.

Apparatus necessary is an ordinary house-heating boiler converted into a still. Needles and twigs, 150 pounds of them, are charged into this improvised still heated with steam from a sawmill boiler plant, yielding about a pound of oil.

Balsam-needle oil is partly volatile like turpentine, partly less volatile with a sweet-smelling aroma. It is described as "the fragrance of the forest in concentrated form." Suggested uses: scenting of soap, bath salts and bath oils, in paint and varnish as combined thinner and perfume, in air conditioning equipment to impart outdoor freshness to the atmospheres of department stores, theaters, homes. Most obvious use suggested by the *Industrial Bulletin* of Arthur D. Little, Inc., is reinforcement of the aroma of Christmas trees and Christmas decorations.

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CE FIELDS

MEDICINE

Frozen Sleep Treatment For Drug Addiction

FROZEN SLEEP or human refrigeration treatments, pioneered on cancer, will be used in treating drug addiction and other medical conditions besides cancer, if conclusions of the New York Academy of Medicine are implemented.

Frozen sleep treatments, which have reduced human temperatures 10 to 18 degrees Fahrenheit below normal for from a few hours to three days, have been given to 27 patients at Lenox Hill Hospital, New York. Of 17 cancer patients suffering "severe intractable pain," 11 showed marked relief for varying intervals of time. In all cases the pain returned after varying periods, often with lessened severity, less often with ordinary severity.

These treatments have been rechristened with the technical term, cryotherapy.

"No evidence has as yet been found," the New York Academy of Medicine warns officially, "that general cryotherapy can be regarded as a cure for cancer."

Science News Letter, March 9, 1940

BIOLOGY

"Blitzblight" of Sponges Appears in Florida

A "BLITZBLIGHT" fungus disease of sponges, that has already practically wiped out the sponge fisheries of the British-owned Bahamas, has now appeared in Florida waters. Dr. Paul S. Galtsoff, U. S. Bureau of Fisheries biologist, has been detailed to study the cause and course of the epidemic, which is still obscure.

The British colonial government is carrying out a rehabilitation program, using as a nucleus about 50,000 wool sponges that lived through the epidemic on the cultivation grounds in Mastic Cay Lake, Andros Island. Because of the slow rate of growth of sponges, however, three or four years will be required before recovery becomes apparent. Meanwhile, the Bahama sponge industry is completely knocked out.

The disease has appeared in sponge beds as far away as British Honduras in Central America. The fungus seems to have a fiendish preference for the very finest and highest-priced sponge species.

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PHYSIOLOGY

Prothrombin Disappears As Blood Goes Through Lung

PROTHROMBIN, a vital element in the mechanism which brings about clotting of blood that is shed, disappears from the blood when it passes through the lungs, Drs. William DeW. Andrus, Jere W. Lord, Jr., and Joseph T. Kauer have discovered in experiments at New York Hospital and Cornell University Medical College.

Why this occurs has not yet been determined, but the New York investigators suggest, on the basis of earlier research by Drs. W. H. Howell and D. D. Donahue, that the disappearance of prothrombin may be caused by the action of the blood platelets which are apparently formed in the lung and which, by releasing thromboplastin, change prothrombin to thrombin.

Thrombin is a ferment which acts on fibrinogen to form fibrin, the essential portion of the blood clot.

Science News Letter, March 9, 1940

NATURAL HISTORY

Nature Tales Told by Museum of Natural History

NATURE tales authenticated by the American Museum of Natural History:

Tigers literally frighten monkeys to their death. On hearing the fierce growl of a tiger in the jungle, the monkeys are so scared that they fall out of the tree-tops, easy prey for the striped prowler.

The poisonous tentacles of certain huge jellyfish serve as a haven of refuge for the young butterflyfish which, threatened by larger and hungrier fish, slip quickly beneath the tentacles and take up a position safe from harm.

A favorite of amateur tropical fish fanciers, the colorful, toy-sized platyfish of Mexico, are now used in biological laboratories as aquatic guinea pigs used by scientists in their study of tuberculosis and cancer.

Bats catch mosquitos and other insects with an ingenious trap formed by a web of skin between hind legs and tail.

Science News Letter, March 9, 1940

PHYSICS

Many Mesotrons Found In Rays Six Miles Up

SURPRISING numbers of slow mesotrons, atomic particles found in cosmic rays, were found during an airplane flight that rose to 29,300 feet in order to take cloud-chamber photographs of cosmic rays, Gerhard Herzog and Winston Bostick of the University of Chicago's Ryerson Physical Laboratory report. (*Physical Review*, Feb. 15)

Hint of other particles being present in the cosmic rays at these high altitudes is contained in pictures that show stronger ionizing particles which may be protons, alpha particles or still heavier nuclei.

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ENGINEERING

Motorist May Be Slow In Deciding When to Pass

IF YOU see a blimp hovering over the highway when you are driving through New England hills don't worry. It may only be Yale traffic experts studying, with aerial movies, your judgment time required to make up your mind to pass that slow car ahead.

Dr. T. W. Forbes of the Yale Bureau for Street Traffic Research told the Highway Research Board that hovering airships taking movies of highway traffic form one of the most accurate methods of determining passing-judgment time.

The problem of judgment time is most important in traffic safety for it determines the total distance needed for passing. In hilly country, with many curves, a driver rounding a bend will pass on the straight stretches if the distance is long enough and if his decision to pass is made quick enough.

Traffic engineers who must place "pass" or "no passing" signs on highways must decide on the proper sign not only by distance measurements but also by taking in an additive time constant which represents the average driver's time to make up his mind to pass. A hovering blimp over a roadway allows studies to be made without disturbing normal traffic flow on the highway.

Other methods, involving stop-watches carried by observers in test cars, can be used but it is difficult to secure average drivers. Most drivers in the Yale studies were traffic engineering students who are believed above average since traffic is their professional interest.

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