PUBLIC HEALTH

Danger of Lead Poisoning Among Shipbreakers

➤ SHIPBREAKERS and other workers engaged in cutting structural steel that has been covered with lead-bearing paint are in danger of getting lead poisoning, Dr. Irving R. Tabershaw, Benjamin P. W. Ruotolo and Robert P. Gleason, of the Massachusetts Division of Occupational Hygiene, warned at the meeting of the American Industrial Hygiene Association in Rochester, N. Y.

"Neither the use of respirators nor natural ventilation provides complete protection," these scientists found in study of a group of 14 men engaged in salvaging an old elevated railway structure.

Oxyacetylene cutting was used exclusively on this job. A sample of scrapings from the girders contaned 7% of lead. All of the workers used approved respirators for protection against the poisonous metal fumes but during the course of the salvage operations nearly all of them were ill at one time or another with some slight or major symptoms of lead poisoning.

Rotation of workers to other jobs to avoid dangerously long exposure to lead is advised by the Massachusetts scientists.

Science News Letter, June 5, 1943

DENTISTRY

Lip-Biting Found to Be Cause of Buck Teeth

➤ MOST PARENTS have learned that thumb-sucking may play a role in causing buck teeth or some other variety of the condition dentists call malocclusion. Malocclusion means a condition in which the teeth are so out of place as to interfere with the efficiency of the jaws for chewing.

The lip-biting habit is also a common contributor to malocclusion while tongue habits are probably the most troublesome of all, Dr. Leland R. Johnson, of Chicago, declares (*Journal, American Dental Association*).

Tongue habits may consist in thrusting the tongue forward or to either side; forcing it between the upper front teeth, widening the space between them; or forcing it between upper and lower teeth with every swallow.

In order to break any of these habits, it is necessary that the child himself wants to break the habit. Some children may be inspired by a desire to improve their looks, others by a desire to outgrow a babyish habit, others by still other motives. You have to study your child in order to learn which chord to strike.

Once the child wants to break the habit, half the battle is won. Then various devices may be used to help him. For the tongue habits, he must be taught to swallow correctly. Dr. Johnson advises putting a small piece of candy on the palate just back of the front teeth and teaching him to hold it there with the tip of his tongue. As the candy dissolves, he keeps his tongue in this position while swallowing. After practice with the candy, the child learns to swallow always with the tongue in such position.

Pomade lipstick may help to break the lip-biting habit. The grease serves as a reminder and also relieves the chapped condition which may be the basis of the urge to bite the lips.

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PHYSICS

Current in Lightning Flash Overestimated in Past

➤ THE MAGNITUDE of the total peak current in a lightning flash has been overestimated in the past, declares R. H. Goude of the British Electrical and Allied Industries Research Association, in the British scientific journal, *Nature*.

The method universally accepted during the last decade for measuring the total current in a lightning flash was to obtain the magnitude of the various flashes from the cloud to the earth and add the recorded crest values of these currents. This method was based on the assumption that the currents in the various paths are in phase, that the current peaks occur simultaneously. The new theory advanced by Mr. Goude takes into account the phase differences between the component currents, and the total value found is necessarily less.

By the old method it was calculated that the average flash of lightning was great enough to light, during the split second that it lasts, 20,000 100-watt bulbs. Mr. Goude estimates that 15,000 of these bulbs is the more accurate number. Up until now it was thought that the most brilliant flash would be great enough to light 220,000 of these 100-watt lamps, whereas it is now believed that a mere 160,000 could be lighted.

Several investigators have recently commented on the fact that the crest values obtained on single lightning conductors are smaller than former calculations had led them to expect. The new theory provides an explanation.

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IN SCIEN

CHEMISTRY

Boron Carbide Abrasive Wins Schoellkopf Medal

➤ DEVELOPMENT of boron carbide as an industrial abrasive has just won the 1943 Jacob F. Schoellkopf Medal for Raymond I. Ridgway, associate research director of the Norton Company, Chippewa, Ontario.

At the presentation by the Western New York Section of the American Chemical Society, Mr. Ridgway explained how war production is being substantially increased by synthetic grinding materials.

"Depletion of deposits of corundum and emery, which are naturally occurring grinding materials, makes the production of artificial alumina abrasives extremely important to our mechanized mode of warfare," he declared.

Boron carbide, the important synthetic abrasive, is next to the diamond in hardness. Sandblast nozzles, plug gauges and other products made of the abrasive last thousands of hours longer than those made of hardened steel.

Science News Letter, June 5, 1943

PHARMACY

Quinine Supply Bolstered By Guatemala Agreement

➤ EXPORTABLE quinine-bearing bark from the 17,000-acre cinchona plantation at El Porvenir, Guatemala, will be obtained under an agreement just announced by the Board of Economic Warfare.

A fourth of all Latin-American production is expected to come from El Porvenir. Guatemala is the only source that can supply the anti-malarial drug to this country by land route.

A laboratory already has been established at El Porvenir for testing and analyzing bark and studies are being made of the different types of trees found there.

It is hoped that a training program may also be undertaken to school people for work in locating and testing other cinchona stands in neighboring republics.

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CE FIELDS

ENGINEERING

Automatic Apparatus Tests Single Textile Fibers

➤ AN AUTOMATIC apparatus, developed at the National Bureau of Standards, tests and records photographically the strength, elasticity and extensibility of textile fibers. It is the work of Dr. Milton Harris and his associates of the Textile Foundation.

The new sensitive apparatus uses photoelectric controls. It measures the mechanical properties of individual fibers under continuous loads, and may be used to make a point-by-point record at constant rate of loading.

Important and scientific and technical advances have been made in the textile industries resulting from studies of the mechanical properties of the fibers used. This instrument promises accurate results, quickly obtained, which will prove very valuable.

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ENGINEERING

Dry Grain Separated from Wet by Electric Condenser

➤ AN INGENIOUS method of separating wet from dry grain by use of an electrical condenser has been developed in England. Two British scientists, T. A. Oxley of the Department of Scientific and Industrial Research, and F. Y. Henderson of the Imperial College of Science and Technology, have presented a method which may prove invaluable in preventing loss of grain through spoiling.

In both England and America large quantities of wheat are lost each year because of the development of fungi in the stored wheat. The fungi start in a moist, warm spot, often buried deep within the grain. They may either spread from there through the rest of the grain, or one such highly developed spot may be sufficient to taint the entire supply and make it unfit for milling.

In order to preserve the crop, it is important to eliminate these wet danger spots. To do this by thoroughly drying the entire supply would be very expensive and in many cases impractical.

The more water in the grain, the poorer is electrical conductivity of the mass. As reported in the British scientific journal, *Nature,* the two scientists have made use of this fact by passing the grain in a steady stream of uniform thickness between two metal plates acting as a condenser. If the grain is comparatively dry, it is sent down one chute. When the moisture reaches a certain percentage, the decreased electrical current causes a mechanism to divert the stream to another chute. Eventually, when the grain passing through becomes drier, it is automatically switched back to the first chute.

The moist grain is given priority in being dried. Not the entire harvest, but only the damper portions of it, need be heated enough to eliminate the few highly moist spots. With the danger spots removed, all the grain can be safely stored until needed.

Science News Letter, June 5, 1943

NUTRITION

Citrus Fruits for Germany Lost When Sicily Falls

➤ WHEN SICILY is lost by the Axis, Germany will lose not only its war industries' principal sulfur supply, but also the citrus fruits and citrus products needed for their scurvy-preventing vitamin C. Following the loss of citrus fruit imports from North Africa, this will be an especially heavy blow.

Germany has been the principal buyer of Italy's oranges and lemons during the past few years. The southern mainland of Italy produces both, but Sicily has been for years the heavy citrus-growing area. Its lemon-growing region was pronounced a few years ago the largest in the world. Its best lemons and oranges were shipped whole. Surpluses were processed and shipped as lemon oil, orange oil, and citrate of lime.

In 1938, Italy exported lemons valued at nearly $16,000,000. Germany took 37% of them. It exported oranges valued at approximately $11,000,000 of which an equal percentage was purchased for Germany.

Citrus fruits, of course, are not the only source of vitamin C. This vitamin is found in many common vegetables, but not as abundantly as in lemons and oranges. It is abundant in tomatoes. Potatoes have furnished it in sufficient quantities to persons of limited income who ate them freely in the days of potato plenty.

Science News Letter, June 5, 1943

PHARMACY

New Sulfa Drug May Simplify Treatment

➤ SULFAMERAZINE, a new sulfa drug which promises to simplify treatment and reduce its cost, has been developed in the medical research laboratories of Sharp and Dohme.

Details of the development and characteristics of this new drug, which chemists will call sulfamethyldiazine, are reported to medical scientists by Dr. Franklin D. Murphy, Dr. John K. Clark, Dr. Harrison F. Flippin, and Miss Elizabeth Patch in the *American Journal of the Medical Sciences* and by Dr. Arnold D. Welch, Dr. Paul A. Mattis, Albert R. Latven, Wilbur M. Benson and Ethol H. Shiels in the *Journal of the Pharmacology and Experimental Therapeutics.*

It may be given by mouth for pneumococcus pneumonia, meningitis, gonorrhea and streptococcus infections. It is said to be at least as safe as sulfadiazine and may be even safer since its slower elimination by the kidneys and greater solubility make it less likely to form stones. It is possible that patients may be adequately treated with only one, two or three daily doses of sulfamerazine as contrasted with the four to six doses frequently required when other sulfa drugs are used.

Its use as a prophylactic against germ infections as well as in treatment is "definitely indicated," it is said, because of the slow excretion of this drug.

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ENGINEERING

Women To Get Engineer Training in Universities

➤ ONE HUNDRED AND TWENTY young women with good backgrounds in college mathematics will soon begin training for employment as junior engineers in the Goodyear Aircraft Corporation plant. They will be selected and trained at the expense of the company at four leading engineering colleges.

Girls selected must be over 18 years of age and above average intelligence. They must have completed college courses in algebra and in plane and solid geometry. In the universities they will live together and take their training in classes by themselves. All expenses will be paid by the company.

Science News Letter, June 5, 1943