

## ENGINEERING

**Steam Log Carriage Yields to Electricity**

► THE TRUSTY old steam log carriage, which veteran woodsmen have watched for scores of years as it fed logs to the rip-saw, has just about reached the "end of its trail."

H. A. Rose, Westinghouse electrical engineer, told the American Institute of Electrical Engineers meeting in Vancouver, B. C., that today's technology has made electrically driven log carriages cheaper to operate than the steam ones.

The hard-working sawmill machine "has been the last to resist electrification," Mr. Rose went on. This, he explained, is because waste wood has been cheap in the past. But today, the scrap is going into pulp or other highly valued products, and thus is scarce as a low-cost fuel for steam carriages.

Furthermore, steam plants have become costly to install and expensive to operate, except in some of the largest mills where many machines rely upon steam for power.

Science News Letter, September 19, 1953

## MEDICINE

**Lou Gehrig Disease Study Started on Guam**

► THE BAFFLING disease that killed baseball hero Lou Gehrig and attacks 1,500 to 2,500 persons in the United States yearly is now getting a thorough research investigation on the Pacific island of Guam.

The disease is known to doctors as amyotrophic lateral sclerosis, or a.l.s. for short. Natives on Guam call it lytico, short for paralytico.

A.l.s. is said to be highly prevalent on the Pacific island, which is why it was chosen for research in a joint program by the Public Health Service, the Navy's Bureau of Medicine and Surgery, the Department of the Interior and the Government of Guam.

The disease has been prevalent on Guam for generations, Dr. Donald R. Koerner of Rochester, N. Y., found while serving as a Navy physician on the island. This finding plus the fact that the population is relatively fixed will give the scientists a good chance to determine the possible roles of heredity and environment in the development of a.l.s.

Dr. Leonard T. Kurland of the Public Health Service's National Institute of Neurological Diseases and Blindness is now on his way to Guam to head the study. Dr. Donald Mulder, U. S. Navy, and Drs. K. K. Waering and S. Tillema of the Government of Guam will cooperate.

A.l.s. is a degenerative disease of the nervous system in which the fatty covering of nerve fibers of brain and spinal cord are broken down. It therefore belongs to the large class of diseases of which multiple sclerosis is the best known.

Two types of a.l.s. are known: a slow progressive type primarily paralyzing muscles of hands and arms but eventually affecting other parts of the body too, and a more rapidly progressive type where shoulders, neck, tongue, lips, palate and pharynx are first involved and paralyzed. In this latter type death by asphyxia or pneumonia usually occurs within two years.

No treatment is known for a.l.s. It is always fatal and its cause is unknown. Victims are most often between the ages of 30 and 55. The average patient has three years to live after being attacked by a.l.s.

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## AERONAUTICS

**Personal Plane Takes Off At Trot; Flies at Gallop**

► A FOUR-SEATER "personal-type" airplane has been designed that takes off at a trot, flies at a gallop and lands at a slow walk.

Fully loaded, the Helio Courier can lift itself into still air in about 220 feet. It will clear a 50-foot obstacle 500 feet from its starting point. It can cruise at 157 miles an hour and land on a still day at 34 miles an hour.

The plane currently is being made by the Helio Aircraft Corporation for the armed services. Company officials say an all-metal model probably will be available to civilians in 1954.

Science News Letter, September 19, 1953

## CHEMISTRY

**Plastic Better Than Wood Now Made Fire Resistant**

► GLASS REINFORCED plastic that surpasses wood in structural strength and can be used in more slender and more graceful structures can now be made safer against fire.

Flammability of polyester resins which increases with reduction in thickness can be overcome by making a chemical change in the resin. Addition of chlorine to the chemical make-up of the resin solved the fireproofing problem, after experimental addition of other kinds of fireproofing materials had resulted in spoiling the plastic's unusual strength.

Solution of the difficulty was reported to the American Chemical Society's division interested in paint, plastics and printing ink, by Drs. P. Robitschek and C. Thomas Bean of the Hooker Electrochemical Co., Niagara Falls, N. Y.

The new fireproof plastic is made from phthalic anhydride by addition of four chlorine atoms. The glass fibers incorporated in the plastic can add their strength to the delicate structure without the danger of fire from the bonding material. Other types of resin are also being improved in flame resistance by similar chemical arrangement.

Science News Letter, September 19, 1953

**IN SCIENCE**

## MEDICINE

**Diet With Treatment To Fight Cancer**

► PATIENTS GETTING X-rays or chemicals for cancer treatment may some day also be put on special diets.

Studies both here and abroad point to this as a future possibility, Dr. Albert Tannenbaum, director of cancer research in the Michael Reese Hospital, Chicago, told members of the American Chemical Society.

Attempts to starve cancer to death have so far failed, he said. Cancers grow at the expense of the host when the diet is so poor that the body loses weight and poor nutritional state results.

Underfeeding, with restriction of calories, slows the establishment and growth of transplanted cancer in experimental animals and sometimes checks the spread of such cancers. But at best, Dr. Tannenbaum said, the life span of the animals is only moderately increased by limiting the calories.

"Rather interesting results," he said, have been obtained by combining special diets with X-ray treatment or with anti-cancer drugs such as aminostilbene. The diets have been ones with restrictions of either calories or protein or vitamins or minerals.

Giving anti-folic acid chemicals to produce a chronic deficiency of this vitamin have produced results which "may have practical significance," he said. But he stressed that these results are for "particular tumor types" and not for cancers in general.

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## CHEMISTRY

**Soap and Water Not Good Germ Killers**

► ORDINARY SOAPS are not germ-killing but if they contain free fatty acids, chemicals uncombined into soap, they can hand a number of bacteria a wallop.

J. V. Karabinos and H. J. Ferlin of the Blockson Chemical Co., Joliet, Ill., told the American Chemical Society in Chicago that a good scrubbing with ordinary soap and water can not be counted upon to kill harmful microorganisms.

The fatty acid in the soap causes a type of suffocation, coating the bacteria with their molecules. This is the theory of its action, and quaternary ammonium compounds, commonly used as germicides, are thought to act the same way.

Cleaning operations that can be carried in a solution that is acid in reaction can be made germicidal by very small quantities of fatty acids with nine to 12 carbon atoms in straight chains, with the 11 carbon fatty acid most efficient.

Science News Letter, September 19, 1953

# CE FIELDS

## CHEMISTRY

### Drying of Paints Speeded by Chemicals

► A NEW way of making paints, varnishes and inks dry faster is to put into their linseed oil inexpensive amine chemicals along with manganese, iron and other metals that have proved to speed the drying process.

Reported by Raymond R. Myers and Dr. Albert C. Zettlemoyer of Lehigh University and the National Printing Ink Research Institute, the new procedure depends upon keeping out of the materials cobalt metal or compounds which heretofore have been used to accelerate or catalyze drying reactions.

The Lehigh chemists told the American Chemical Society meeting in Chicago that cobalt, although a conventional drying agent, must be excluded from the oil to allow the amines and the manganese and iron to work to the best advantage.

Drying of oil paint and ink is an oxidation process speeded by complex iron compounds such as iron containing hemoglobin acts in the blood.

Science News Letter, September 19, 1953

## TECHNOLOGY

### Additives May Extend Life of Automobile Oils

► SCIENTISTS AT the Canadian National Research Council in Ottawa have found that adding certain chemicals and metals to automobile oil will greatly extend its life.

To the motorist this means that he may not have to change oil every 1,000 miles, but may be able to use the same oil for nearly 7,000 miles.

Tests run on two vehicles showed the additives seem to hold great promise. However, the Council cautions that more extensive tests should be made before sweeping conclusions are drawn.

Laboratory work over a number of years has revealed that the addition of lithium, sodium, potassium, magnesium or their salts or oxides, in certain quantities, has the effect of braking the oxidation that gradually destroys the properties of ordinary hydrocarbon oil.

Although no commercial applications of this discovery have been developed as yet, the National Research Council suggests that a piece of the required metal could be attached inside the motor car's oil plug, or that the protective material could be built into the oil filter.

Dr. I. E. Puddington and Dr. A. F. Sirianni, who developed the formula, also

found a new sand-based, high-temperature, water-repelling grease that may be of particular value to military trucks, jet planes and high speed factory machines. To make the grease water repellent, they added a drying oil. When the mixture is heated, the drying oil forms a water-repelling protective coating over the grease surface.

Both formulas have been patented by the Canadian National Research Council and will be available for commercial development by industry, with the two scientists receiving a small percentage of the royalties.

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## TECHNOLOGY

### "Bloody" Model Helps Navy Teach First Aid

► "BLEEDING" FROM any one of half a dozen serious "wounds," a life-size and fully clothed plastic manikin challenges Naval dental officers learning to give emergency treatment to casualties in case of mass disasters.

The "blood" which gives the realistic touch is a fluid of glycerin, water and a red vegetable dye. It is pumped from a storage tank in the base of the manikin to simulate wounds in arm, leg, belly and chest. It drips from the mouth in case the "wound" was a broken jaw.

To make the model as life-like as possible, it was given "skin" of resilient vinyl plastic cured by dry heat in metal molds.

It can also be made to "choke" to simulate a casualty with a foreign body in its throat.

Comdr. John Victor Niiranen of the Navy's Dental Corps, other staff members of the Naval Dental School, and William C. Young, a civilian employee of the audiovisual department at the Naval Medical School, designed the model as a training aid. It was fabricated by Rogay Models of Washington and is currently on exhibit at the Naval Medical Center at nearby Bethesda, Md.

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## PLANT PATHOLOGY

### Mold Remedies Stop Plant Diseases, Too

► THE ANTIBIOTICS, so-called mold remedies, that stop germ infections in humans can stop some germ diseases of plants, too.

Fireblight of pears and apples and halo blight of beans, both previously incurable, have been controlled by such antibiotics as terramycin and streptomycin.

For best results, the antibiotic should be applied to the stems of plants, whence it will spread upward and outward through the plant's circulatory system, it appears from studies reported by Dr. John W. Mitchell of the U. S. Department of Agriculture at the American Institute of Biological Sciences in Madison, Wis.

Science News Letter, September 19, 1953

## PHYSIOLOGY

### Bigger Persons Stand X- and Atom Rays Better

► THE BIGGER you are, the better you can stand radiation, from X-rays to atom bombs. This appears from studies by Drs. W. M. Court Brown and R. F. Mahler of the Postgraduate Medical School of London, England.

They find that the larger the person, in weight and body surface area, the longer the period after irradiation before acute symptoms of radiation sickness set in. And the longer this period, called the latent period, the shorter is the period of acute symptoms.

Their studies, made on 20 patients getting X-ray treatment for spinal disease, are reported to American scientists in the journal, *Science* (Sept. 4).

Science News Letter, September 19, 1953

## ARCHAEOLOGY

### Man Lived in Alaska Long Before Columbus

► MEN LIVED in Alaska long before the coming of the Eskimos when the climate was much milder than it is at present, the Smithsonian Institution reports.

America's first settlers arrived here from 2,500 to 6,500 years before Columbus. They left behind them in the soil weapons and tools, including arrowheads, knives, skin scrapers, primitive engraving tools and spear points like the ancient Folsom points used by the first-known human occupants of America's Southwest.

These long-buried human belongings have been dated by geological methods by Dr. D. M. Hopkins of the U. S. Geological Survey, who, with the archaeologist Dr. J. L. Giddings, Jr., of the University of Pennsylvania, made a combined study of the Iyatayet Valley on Cape Denbigh, Alaska.

These first Americans lived in Alaska during a warm interval which lasted probably several hundred years. Reading the record in the soil and rocks, Dr. Hopkins found that the warm spell was followed by a long period of bitter cold during which there is no trace of human remains.

Then at a level corresponding to about 50 B.C. they found the handiwork of the first Eskimo people to come to this continent. Later came another Eskimo group who did work very similar to that of the present inhabitants of the Far North.

No trace of human bones was found. But the scientists did come across tiny fragments of charcoal where these early American families gathered around a fire on their hearth possibly 8,000 years ago. For the most part, however, the finds in the bottom layer were mainly flint flakes and chipped stone tools.

It was not possible to tell whether the site of the ancient hearth fires was a permanent homesite or a temporary camp.

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