CHEMISTRY

Glycol Motor Oil Good in Arctic Weather

➤ NEW SYNTHETIC motor oils that lubricate truck and automobile engines satisfactorily, even under Arctic conditions, were described to the Society of Automotive Engineers meeting in Chicago.

J. A. Miller and H. F. Galindo, both of the California Research Corporation, Richmond, Calif., reported that synthetic oils made of polypropylene glycol give excellent performances in Alaska, Canada, and the coldest parts of the United States where temperatures often plunge to minus 35 degrees Fahrenheit.

Even in the coldest weather, the new synthetics remain fluid enough to permit the engine to be started easily. They have the advantage also of not "boiling away" rapidly after the engine reaches its normal operating temperature of about 180 degrees.

Military requirements are demanding new and better oils for use in cars and trucks in the Arctic. Present make-shift methods of getting sluggish engines started often result in damaged vehicles.

The synthetic oils can be made from materials "readily available," and with no major troubles of manufacturing. Although "somewhat more expensive than mineral oils," they are relatively cheap when compared to other synthetics having the same properties.

Science News Letter, November 22, 1952

GERONTOLOGY

Lists Four Essentials For Treating Old People

➤ FOUR ESSENTIALS for treatment of older persons who are undernourished, or suffering from "nutritive failure," were given by Dr. Tom D. Spies of Chicago and Birmingham at the meeting of the Southern Medical Association in Miami.

The four are: 1. Diet, furnishing adequate protein, vitamins and minerals in suitable and edible form for the individual person.

2. A basic supplement of vitamin A, thiamin, riboflavin, niacinamide, ascorbic acid, folic acid, vitamin B-12 and "activator" when necessary.

3. Additional medication as indicated for coexisting diseases.

4. Natural B complex such as dried brewers' yeast powder or liver extract.

"All of us," Dr. Spies stressed, "are composed chemically of the air we breathe, the water we drink and the food we eat. Every day of our lives the substances of our bodies are being replaced in intricate combinations and these substances must come from water, air or food. Few persons indeed know, from a chemical point of view, how to feed themselves correctly.

"The answer as to how it should be done is not simple. It must begin with the acquiring of greater knowledge which will come from broader and more intensive research into human nutrition and metabolism. Finally this knowledge must be transmitted through the physicians who are the guardians of the health of the people. At the present time physicians see patients in the last stages of disease and only too often there is nothing to advise.

"Until recently it was not known that diseases were specifically related to diet, but within the past few decades we have practically eradicated such scourges as scurvy, beriberi, pellagra, pernicious anemia, nutritional macrocytic anemia, sprue, rickets, from large portions of the earth."

Science News Letter, November 22, 1952

AERONAUTICS

New Airplane Needs Only Short Runway

➤ SAFER FLYING by private planes is promised with a new aircraft now in production at Norwood, Mass. It requires only a short runway for take-off and landing, and can travel through the air at a slow speed, comparable with the medium speed of an automobile on the highway.

The new plane, known as the Helioplane, is being manufactured by the Helio Aircraft Company of Norwood. It was designed by a staff member of the Massachusetts Institute of Technology with the aid of a Harvard University professor, both experts in aviation. Otto C. Koppen is the MIT designer; Dr. Lynn Bollinger is the Harvard man.

A military version of the airplane has been under construction for several months and will be ready for delivery to the U. S. Air Force before the close of the year. The civilian model, now in production, will be ready for commercial use early in 1953. It will be called the Courier model.

It is an all-metal plane, powered by a 260-horsepower Lycoming engine, that will be able to cruise at 150 miles an hour but can be throttled down to a speed of 35 miles even with a full load. It can operate comfortably with full load from a 100-yard strip. It has very large flaps to permit slow landings, and leading-edge automatic slats to eliminate stalls in slow flight.

Science News Letter, November 22, 1952

MARINE BIOLOGY

Fish Sounds Indicate Where Catch Is Good

➤ FISHERMEN MAY be able to locate and identify schools of commercial fish, long before they would be found otherwise, by using underwater listening devices.

During exploratory cruises in the Gulf of Maine this summer, a group of U. S. Fish and Wildlife Service scientists, directed by Virgil E. Harris, made underwater recordings of the sounds of schools of fish. After analyzing them, work will be started to develop listening devices particularly sensitive to the sounds of fish of commercial importance.

Science News Letter, November 22, 1952

IN SCIEN

MEDICINE

Anti-TB Drug Promising In Leprosy Treatment

➤ "ENCOURAGING" RESULTS in treating Hansen's disease (leprosy) patients with the new anti-TB drug, isoniazid, were reported to the American Society of Tropical Medicine and Hygiene meeting in Galveston, Tex.

The report was made by Drs. Fernando Latapi and Obdulia Rodriguez of Mexico City, Dr. Jose Barba Rubio of Guadalajara, Mexico, and Dr. Santiago Castro Estrada of the Squibb Institute for Medical Research, New Brunswick, N. J. The drug used was Squibb's brand of isoniazid, Nydrazid.

Most of the patients studied suffered from the lepromatous type of the disease. All of these showed improvement. Nodules on the skin decreased in size and numbers. In some cases they almost completely disappeared. New ones did not develop. Sores inside the nose and eyelids also improved. Microscopic examination of the leprosy spots on the skin showed changes resulting from the isoniazid treatment.

The patients lost a little weight during the first weeks of treatment but most of them subsequently gained more than they had lost. There were no toxic reactions from the drug and the few lepra reactions that occurred were so mild that they were no problem.

"The results obtained," the doctors stated, "justify the continuation and widening of this study."

Reason for trying isoniazid in treatment of this disease is that certain drugs, such as the sulfones, that are active against the tuberculosis germ have been found useful in treating leprosy, or Hansen's disease.

Science News Letter, November 22, 1952

NUTRITION

Chilling Tropic Fruits Causes Vitamin C Loss

➤ EXPOSURE OF tropical fruits like pineapples and bananas to near-freezing temperatures causes loss of vitamin C, or ascorbic acid, Dr. Erston V. Miller and Alan S. Heilman, biologists at the University of Pittsburgh, reported.

They found that pineapples kept just above freezing for a week lost almost 40% of their vitamin C content. It has been noted before that tropical fruits lost vitamin C during chilling, but this was thought to be due to a general decomposition of the fruits, not cold alone. This experiment proved that cold alone can cause vitamin C loss, the scientists said. They report details of their work in *Science* (Nov. 7).

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CE FIELDS

MEDICINE

Cigarettes Play Part In Heart Circulation Ills

➤ CIGARETTE SMOKING, already blamed by some as a cause of lung cancer, may also play a part in causing heart and blood vessel diseases.

Calling it a "contributing factor" rather than a primary cause of heart and blood vessel diseases, the *Journal of the American Medical Association* (Nov. 8) calls for "intensive investigation" of the relation between the two.

Doctors should pay more attention, says the AMA journal, to "a nicotine-containing agent that is used by the public in amounts equal to, if not greater than, any other drug."

Smoking one or two cigarettes, it is pointed out, causes release into the blood stream of a pituitary gland hormone in quantities sufficient to constrict the heart arteries of dogs and presumably also of man. Alcohol does not uniformly prevent blood vessel constriction and drinking a cocktail will not necessarily nullify the blood vessel constricting effects produced by smoking.

Science News Letter, November 22, 1952

GENERAL SCIENCE

Russians Push Training Scientists and Engineers

➤ THE RUSSIANS are making intensive efforts to catch up with the western world in the number of scientists, technicians, engineers and doctors they have, recent Soviet publications reveal.

College and graduate school attendance has almost doubled in ten years, and has gone from 734,000 in 1948 to 974,000 in 1952. This does not include military institutions of higher education. The comparable American figure is 2,225,000.

These and other figures "open up possibilities of profound new developments in science, technology and other fields," according to Demitri Shimkin of the Russian Research Center, Harvard University. "It is a phenomenon that permits of no complacence on the part of the West," Dr. Shimkin states.

In 1950, 21,000 Russians were studying for Ph.D.'s—last year this country produced some 35,000 Ph.D.'s. Russia now has some 475,000 engineers and natural scientists in manufacturing, construction, transportation and communication. We have an overall total of 450,000 engineers and 200,000 natural scientists.

Graduates from technical and other specialized secondary schools have also gone up in the Soviet Union. In 1940, 164,000 students graduated, in 1948, 252,000. This rise has continued.

Soviet schools are turning out physicians, dentists and pharmacists in ever increasing numbers. Net increase in these fields was 26,000 in 1949. Numbers graduating in these fields in 1951 in the United States were 13,800.

This is substantial evidence of "a rapid rate of increase in that country's professional labor force in recent years," Mr. Shimkin commented in *Science* (Nov. 7).

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BIOPHYSICS

Chemicals Promise Aid To Ray-Damaged Bones

➤ SIX READILY available chemicals may be useful in treating damaging radioactive material which accumulates in bones, according to Dr. Norman S. MacDonald of the University of California at Los Angeles Atomic Energy Project.

It was indicated in tests with rats that three of the agents—ethylene diamine tetraacetic acid, casein hydrolysate and pectin—would be very effective in such therapy. Three others—glucuronolactone, oxypolygelatin and polyvinyl pyrrolidone—showed enough promise to merit further study.

Such therapy, said Dr. MacDonald, would be particularly important in the case of radioactive material which might enter the body through the mouth, by inhalation or through wounds. Radioactive isotopes from such material are deposited in the bone, seriously affecting the normal functions of bone marrow.

Several of the substances are being investigated in studies elsewhere for possible use as blood plasma substitutes. If proved successful in both capacities, they will have a dual function in case of atomic warfare.

Science News Letter, November 22, 1952

NUTRITION

Blend 30% Coffee Husks For Satisfactory Brew

➤ INDIAN SCIENTISTS have discovered that coffee husks, now discarded as waste in the processing of coffee berries, can be blended with whole coffee to make a highly satisfactory brew.

Combinations up to 30% of roasted husks with coffee beans will make a good beverage, report C. P. Natarajan, D. S. Bhatia, and V. Subrahmanyan of the Central Food Technological Research Institute, Mysore, India. This can mean valuable savings as the husk represents 30% to 40% of the whole coffee berry.

Chief use for the husk would be as a substitute for chicory. Indians are very fond of strong, bitter, chicory-laden coffee, and import about a million pounds of it annually. Use of coffee husks, which is strong and potent in caffeine, could be of substantial economic benefit for India.

Science News Letter, November 22, 1952

PHYSICS

Antineutrino Discovery Theoretically Required

➤ THE LITTLE atomic particle that is not there—at least it has not been experimentally demonstrated even though it is required by theory—should have a running mate, the antineutrino.

Prof. H. Primakoff of Washington University in St. Louis told the National Academy of Sciences meeting there that the neutrino, long postulated as necessary, is by a preponderance of present evidence accompanied by an opposite sort of particle, the antineutrino.

When an atomic nucleus disintegrates with the emission of two electrons, they are accompanied by two antineutrinos, unless the life of the decay is longer than seems probable.

But neither the neutrino nor the antineutrino has yet been discovered.

Science News Letter, November 22, 1952

CHEMISTRY

Petroleum Increasing In Chemical Importance

➤ THE GROWING importance of petroleum as a raw material for the production of chemicals was emphasized at the American Petroleum Institute meeting in Chicago by T. S. Petersen, president of Standard Oil Company of California.

The petroleum industry today produces about one-quarter of the nation's organic and inorganic chemicals, he said. In ten years that figure will likely rise to 50%, he predicted. In spite of the rapid growth of the petrochemical industry, it consumes less than one percent of the total petroleum production.

One of the more spectacular evidences of the value of research is the birth of the petrochemical industry, Mr. Petersen stated. The swift perfection and adoption of chemical synthetics quickly ran away from the coal-tar and agricultural industries. They could not supply sufficient raw materials, so the oil industry stepped into the breach.

Among chemical supplies provided by the oil industry, Mr. Petersen cited the tremendous production of nitrogen fertilizers now making land more productive as well as the industrial alcohols made from petroleum. Grain and sugar long used for making alcohol are now available for food. Petroleum detergents are threatening to take over the packaged-soap market, freeing fats and vegetable oils for other uses.

The growing use of petroleum and its products for traditional uses, as well as in the petrochemical field, is promoting a search for more oil deposits. In our unending search for additional oil and natural gas, he stated, we are turning more and more to science. We are turning to geology, geophysics, engineering, paleontology, geochemistry, micropaleobotany and a host of other specialties.

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