

PUBLIC SAFETY

Driving Hazardous in Fair Winter Weather

► FAIR, COLD WINTER weather may be welcomed by drivers, but it is no friend of traffic safety records, according to Dan F. Schutz, safety director of the Wisconsin State Motor Vehicle Department.

"We cannot operate safely at summertime speed and with summertime abandon, even though the weather may be fine," Mr. Schutz said. The longer nights provide special hazards to overconfident drivers. Frequently, frost forms on bridges and overpasses. Lower visibility, headlight glare, driver fatigue and drivers who have been drinking make the winter night a thing of danger.

Mr. Schutz said that winter daylight can also be tricky, since the sun is lower and more blinding. Even when the sun is at a driver's back, he noted, it is in the eyes of every oncoming driver.

He cited as other wintertime driving dangers:

1. A tendency to become drowsy when the heater is turned on high in a tightly closed car.
2. The failure of warning sounds to be audible in a closed car above the inside noise of passengers or car radio.
3. The film of moisture that collects and freezes on car windows and reduces visibility, especially when the car is crowded.
4. Dangerous stalls in front of fast, oncoming traffic, resulting from driving before the car engine is warmed up.
5. The sluggishness of car controls before the car is thoroughly warmed up, resulting in the inability to react quickly and surely in case of emergency.

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MEDICINE

One Out of Three Cancer Patients Is Being Saved

► ONE CANCER PATIENT out of three is now being saved. The gain in lives saved amounts to 42,000 lives a year for the past ten years.

The 1961 Cancer Facts and Figures of the American Cancer Society says there are more than a million Americans who are alive and without evidence of cancer at least five years after diagnosis and treatment.

There are 600,000 more who have been treated and who will probably be counted cured when five years have elapsed after the end of their treatment. However, curing one out of two who get cancer today is the immediate goal.

Death rates from lung cancer continue to show an increase, although those for uterine cancer have declined, and death rates for most forms of cancer have been stabilized.

If present trends continue, 1,000,000 children now in school will die of lung cancer before they reach 70. In 1961, an estimated 37,500 Americans will succumb to this kind of cancer, 32,400 of them men; 5,100 women.

Although there are more than 180,000 women alive who have been saved from uterine cancer, some 14,000 women die from it each year. The United States death rate from this form of the disease has declined 40% in the last 25 years among white women and 25% among Negro women. The Society credits the decline to earlier diagnosis and treatment.

Most of the 14,000 deaths from uterine cancer each year are unnecessary because new detection and treatment methods make this type of cancer nearly 100% curable, the booklet says.

The ratio of men to women dying of cancer continues to be greater for men, which has been true since 1949. The ratio in 1961 will be about 54 men to 46 women.

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SEROLOGY

Gamma Globulin Fades In Germ-Free Animals

► GAMMA GLOBULIN, the blood serum fraction that has been used to ward off polio, virtually disappears when an animal is free of germs.

Dr. Bernard S. J. Wostmann of the University of Notre Dame, Notre Dame, Ind., reported in New York that there is a small amount of gamma globulin in the newborn germfree rabbit, but it disappears rapidly. The same is true of guinea pigs, except that the disappearance is a little slower.

Rats, mice, goats and sheep born under germfree conditions have very limited amounts of gamma globulin in the blood at birth, and although this amount does not decrease significantly, it does not rise any higher until the animal is taken out of the germfree environment.

Apparently the body requires a few days to produce large quantities of gamma globulin after birth, however. A baby goat accidentally infected at birth took 15 days to build up large amounts of this disease-fighting substance, Dr. Wostmann reported at a New York Academy of Sciences meeting.

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TECHNOLOGY

Sonics in Die Casting Strengthen Aluminum

► APPLYING SONICS to die casting, engineers of Adams-Millis Corporation, High Point, N. C., have developed a new process by which aluminum machinery parts with much greater tensile strength can be made by the die cast method.

Aluminum parts made by the process are reported to have at least a 30% greater tensile strength and fewer defects than conventional castings. The process, called Vibrocast, is also said to be applicable to the casting of copper, brass and other non-ferrous metals.

Using the new process, parts that previously had to be made of brass or steel in order to withstand high pressures can now be die cast of aluminum, including aircraft wheels.

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EDUCATION

More Science Teachers To Engage in Research

► MORE THAN 650 college and high school teachers will be actively engaged in scientific research next summer, thanks to recent National Science Foundation grants. The grants are intended to strengthen science education on all levels through the teacher's "learning by doing" actual scientific research.

Grants totaling more than \$1,300,000 were made to universities and colleges to provide research programs for the science teachers. The teachers will help carry out research projects of a university or college department and work directly with the scientists in charge of the projects.

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BIOCHEMISTRY

Base Fat Measurements On Carbon-14 Principle

► DOCTORS HAVE FOUND a new way to tell how much of a patient is fat and how much is lean body weight. The technique is based on the same principle used in the carbon-14 "atomic clock" dating method, except that radioactive potassium, rather than radioactive carbon, is measured.

The potassium method was developed by Dr. Gilbert B. Forbes and James Gallup and John B. Hursh of the University of Rochester's School of Medicine and Dentistry, Rochester, N.Y. The basic assumption is that potassium is found only in lean tissues and that each pound of lean tissue, whether from a fat or thin person, contains the same amount of potassium. Both potassium-40, which is radioactive, and normal potassium are present in the tissue, and the percentage of each remains fixed.

By measuring, with a whole body scintillation counter, the gamma rays emitted from the radioactive potassium in a patient's tissues, the investigators can calculate the number of lean pounds in the body.

Studies of 50 children and young adults show that the new method compares favorably with the popular skin-fold method for determining fatness.

In subjects studied so far, calculated fat content was 16% to 48% of total body weight in males and 24% to 67% in females.

"It is of interest that females tend to have a higher fat content for a given weight/height ratio than do the males," the researchers report in *Science*, 133:101, 1961.

The main advantage of the technique is that it requires no pills or injections of radioactive material and involves no hazard to the patient. The method can also be used to determine the proportions of fat and lean in a cat, a rabbit, a rat, a guinea pig or even in a canned ham.

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CE FIELDS

GEOPHYSICS

Earth's Dust Cloud Came From Moon

► THE DUST CLOUD that encircles the earth several thousand miles out in space is formed of dust scattered from the moon when it is hit by meteorites, a United States scientist has suggested.

Dr. Fred L. Whipple of Harvard College Observatory, director of the Smithsonian Astrophysical Observatory, Cambridge, Mass., says that space experiments should "readily" show whether or not his theory of a lunar origin for the dust cloud is correct.

The existence of a high concentration of interplanetary dust orbiting the earth has been indicated recently from information gathered by rocket, satellite and space probe vehicles having instruments that detect the sounds the dust particles make when hitting the vehicle's surface.

Of four possible explanations for the origin of the dust cloud, Dr. Whipple believes that the lunar theory is the most "tenable." From this theory, a generally eastward motion of the particles in the dust cloud is predicted. This motion could be detected from space experiments, he reports in *Nature*, 189:127, 1961.

Compared to the density of true interplanetary space, the concentration of dust particles in the cloud surrounding the earth is perhaps 100,000 times as high, Dr. Whipple says.

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PSYCHOLOGY

Young Baboon Can Count, May Learn to Add

► A YOUNG BABOON named Cowboy is making history at the University of Maryland's psychopharmacology laboratory, College Park, Md. He can count—at least when he is hungry.

Cowboy has been taught to push a button that turns on a light. The color of the light—orange, red, green, blue or white—determines how many beep tones, coming from a sound box hooked to the light switches, he must let pass before he pushes a second button that stops the sound and releases a food pellet.

If he pushes the second button before enough beeps have sounded or after too many, for the particular light color, he gets no food. Each beep lasts for two seconds, but the time between them varies. This keeps the baboon from merely marking total time before pushing the second button.

Cowboy now has the system down pat. He eats as he chooses and gets all the food he wants by pushing the proper buttons about 200 to 300 times a day. Usually, about 50 button pushes in one session release enough food for a meal.

At present, the baboon is required to keep track of no more than five beeps at one time. He may have to think a little harder in the future, however. Although his trainer, Dr. Jack Findley, assistant professor of psychology, is reluctant to state that his pupil can actually count, he hopes to teach Cowboy to add.

This may be done by turning on two different colors of lights at the same time and teaching the animal that he must stop the sounds only after the sum total of the beeps produced by each individual light has passed.

When the baboon has learned the more complicated task, Dr. Findley plans to give him mild stimulants, such as dexadrine and caffeine, to study their effects on performance, and to develop a technique applicable to the testing of newer drugs.

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BIOLOGY

Living Insects Found On Antarctic Plateau

► A FEW DOZEN hardy insects and mites have been found 6,000 feet above sea level in the Mt. Gran area at the head of Mackay Glacier about 90 miles from McMurdo Sound, Antarctica.

Keith A. J. Wise, a New Zealander working under a National Science Foundation grant for the Bernice P. Bishop Museum of Honolulu, came across the arthropods at what is believed to be the highest altitude at which insect life has been encountered on Antarctica.

While he was on a field trip, Mr. Wise found approximately two dozen collembola or springtails, a type of primitive wingless insects, under loose rocks on a surface of the plateau that was free of snow. In the same general location he also found about a dozen free-living nonparasitic mites.

Both insects and mites are arthropods, belonging to the phylum arthropoda. But mites are not insects, having four rather than three pairs of legs in the mature stage.

The springtails found by Mr. Wise were all white, whereas specimens he had previously encountered at Hallett Station, about 300 miles farther north, were all black. Both black and white varieties were found at Mt. Suess.

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TECHNOLOGY

Reinforced Asphalt Omits Steel Wire Fabric

► REINFORCED ASPHALTIC concrete resurfacing of a mile and a half of cracked highway has been completed for test purposes by New York State. Steel wire fabric used for reinforcement was deliberately omitted from some of the 40-foot-long slabs in the stretch of test highway. A new continuous strip photographic process recorded the condition of the highway before repair. A similar photographic record will be taken in several years so that a side-by-side comparison may be made to check the steel fabric's effectiveness in reducing cracks.

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BIOCHEMISTRY

Unique Plasma Fraction Checks Copper Poisoning

► CERULOPLASMIN, a blue copper-protein found in the blood, may be the factor that protects the human body against the hazards of copper poisoning.

Activities ranging from working with copper to drinking beer and eating oysters, both of which have a high copper content, place the average person in danger of copper poisoning, Drs. Irmin Sternlieb and I. Herbert Scheinberg of Albert Einstein College of Medicine at Yeshiva University reported in *New York*.

The level of the copper-bound protein in blood is highest in adults in late pregnancy. It reaches a lower peak in old age. It is also at a high level in disease conditions such as heart-muscle damage caused by insufficient blood flow, overactivity of the thyroid gland, tumor of lymph glands, infections and after sex hormones are given.

No one knows why the ceruloplasmin level rises under these circumstances, the investigators reported at a New York Academy of Sciences conference. But the fact that the level falls in patients with poor protein balance may mean that a protein deficiency is involved.

Studies of patients with Wilson's disease suggest that ceruloplasmin plays a part in warding off copper poison, they said. If this is true, this plasma fraction is the only one with such powers, for all others known protect against bacterial and viral disease.

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EDUCATION

World Affairs Role Urged for Colleges

► AMERICAN UNIVERSITIES and colleges must play a more active role in world affairs. Their help is urgently needed to contribute to the nation's understanding in international matters and to assist in the educational systems of the rapidly developing countries of Asia, Africa and Latin America.

A report issued in New York by a top-level committee from Government, industry and universities, called upon American institutions of higher learning to show new leadership and initiative in meeting their expanding responsibilities as centers of learning and service. The report also urged greater support to the universities from the Federal Government, state governments, industries and private foundations.

One important recommendation was the establishment of a new organization that would coordinate all the educational planning and development in world affairs.

The report, "The University and World Affairs," was prepared by the Committee on the University and World Affairs. Included were Dean Rusk, then President of the Rockefeller Foundation; Arthur S. Flemming, then Secretary of Health, Education and Welfare; and Senator J. W. Fulbright of Arkansas.

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