

MINERALOGY

**Are Gold and Silver
On the Silvery Moon?**

➤ GOLD and silver have been found in a tektite, which is a small glassy stone believed by some to be a chip off the moon. Billiton, the island in the Java Sea where the tektite was picked up, has no gold or silver of its own.

In the single specimen reported, the quantity of the precious metals was very small. However, the presence of even a small quantity, in a stone of presumed lunar origin, suggests that there may be gold and silver on the moon, says Jack De Ment, research chemist, in the *MINERALOGIST MAGAZINE* (Dec.) published in Portland, Oreg.

Tektites have baffled scientists for many years. Their glazed appearance and the fact that they are found in a broad belt girdling the central region of the earth, have been explained in a variety of ways. The latest theory, not accepted by all authorities, was advanced by Dr. H. H. Nininger in 1946. Dr. Nininger believes that tektites result when fast-moving meteorites crash into the moon's surface, causing molten bits of matter to fly into space. Chips flung with sufficient force and in the right direction come within the earth's gravitation pull, and fall to earth.

The Billiton tektite that yielded evidence of gold and silver, was studied by Baron R. J. de Touche Skadding. It was subjected to spectroscopic analysis by Drs. R. H. Bell and A. C. Hawkins of New York.

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MEDICINE

**Study Diabetics Under 25
For Artery Hardening**

➤ YOUNG diabetics under the age of 25 are the ones in whom doctors should study the problem of hardening of the arteries, or arteriosclerosis as doctors term it.

This reversal of the idea of the artery disease being an ailment of middle age and old people comes from the distinguished authority on diabetes, Dr. Elliott P. Joslin of Boston.

In diabetics, the artery condition starts early and in one group of patients killed more than half before the age of 25, Dr. Joslin stated at the meeting of the American Medical Association in Washington, D. C.

The average length of life for diabetics of all ages is 14 years and five months from the onset of the disease. This is three times what it was 50 years ago and can be doubled in the next 50 years without any new discoveries, Dr. Joslin said.

Of a group of 50 patients whose diabetes started in 1925, 30 are still alive and "going strong," he said. Two of them had tuberculosis but recovered from it and are now

holding jobs. One developed cancer of the intestines, was operated on and is still living. Not one of them has developed gangrene, which is one of the dreaded complications of diabetes that is not controlled by proper treatment.

Four more diabetics have just been added to the 10 who have already received gold medals for having followed doctor's instructions so carefully that they have lived with diabetes for 25 years without developing any signs of degenerative disease that could be detected by X-rays, doctor's examination or eye examination.

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PHYSICS

**Sound Waves Are Industry
And Laboratory Tools**

➤ SOUND waves too rapid to affect the human ear as sound are being used by chemists and engineers in a great variety of applications ranging from examining steel for flaws to assisting chemical reactions.

Ultrasonics is the name applied to these high-pitch sound waves. It is possible to shoot them through 30 feet of steel and find a small flaw, the American Institute of Chemical Engineers was told by Dr. Dudley Thompson, Virginia Polytechnic Institute, Blacksburg, Va. Among chemical applications, they are employed in the emulsification of various liquids, mercury and water, and of molten metals and water.

In the perfume industry, ultrasonic emulsification is used to avoid the use of organic solvents that might be harmful to the skin. Improved fuel for automobiles and other internal combustion engines may come by emulsifying small quantities of water and water solvents in hydrocarbons by means of ultrasonic waves. Easy ignition or anti-detonating properties would be promoted, it is thought.

In addition to detecting flaws in metals, measuring the thickness of metal sheets, and in chemical processes including emulsification, the use of ultrasonics in submarine signaling and submarine detection was suggested by Dr. Thompson.

It is suggested, he said, that the phenomenon of ultrasonic signaling might be applied in a manner analogous to the photo-electric cell. It is indicated, he stated, that a change in the physical properties or the nature of the liquid would cause a change in an ultrasonic signal passed through the liquid.

The desire to perfect a method for applying ultrasonics to submarine detection has resulted in much investigation in this country and abroad during the past three decades. Underwater applications of ultrasonics have now been extended to include depth-finding and the determination of submerged obstructions.

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AGRICULTURE

**Prize Cows' "Milk Veins"
Unrelated to Milk Output**

➤ "Milk veins" and "milk wells", long a guide in judging prize cattle, have little or no relation to a cow's milk-producing ability.

This time-honored criterion of the judging ring was shattered by W. W. Swett and C. A. Matthews of the Bureau of Dairy Industry. A detailed study of almost 200 cows of the Beltsville, (Md.) experimental herd showed that no correlation exists between milk production and the presence or size of veins or wells on the udder and abdomen.

These findings resulted from a larger study on the structure of the udder and the blood and milk circulatory systems. Studies show that 400 pounds of blood passes through the udder for each pound of milk produced. This would amount to 20,000 pounds of blood for a cow producing 50 pounds of milk a day.

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CHEMISTRY

**Off Flavor Milk Is
Not Cow's Fault**

➤ IF the milk tastes odd, don't blame the cow, says Dr. C. Jensen, head of the dairy department of North Dakota Agricultural College.

If there is an off flavor to your milk, the chances are that neither the cow, the farmer nor the milkman are at fault. Most flavor change takes place after the bottle has been left on your doorstep.

"Off flavor in milk may not always be the responsibility of the producer and processor," Dr. Jensen said. For example "oxidized flavor" is a reaction produced when milk is exposed to light. Half an hour to an hour of indirect sunlight, and a much shorter exposure to direct sunlight, is enough to produce this "oxidized" effect.

Dr. Jensen stressed that this does not affect the nutritive value of the milk but merely renders it less palatable. To avoid it, he suggests either that the milk be put away immediately after delivery, or else that some provision be made so that the milkman can place the milk inside the door or in a container away from sunlight.

Another source of strange milk flavor, he pointed out, is strongly-flavored foods placed close by in the same refrigerator. Such foods should be segregated if possible or at any rate be kept tightly covered.

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CI FIELDS

BIOCHEMISTRY-MEDICINE

Protein Is Key Problem Of Life and Disease

► THE key problem in the world today is the protein problem, Dr. Dorothy Wrinch, lecturer in physics at Smith College, Northampton, Mass., declared.

"Wherever there is life, there is protein," she stated.

Protein chemicals, most familiar to the layman in foods such as meats and eggs, "have functions which are denied to all other substances," Dr. Wrinch pointed out.

"They control our heredity through the genes in the chromosomes. They control the utilization of food through enzymes which are also proteins. They are the essential factor in polio and a host of other virus diseases. They are also the essential element in the control of disease by immunization (vaccination) for the anti-bodies, too, are proteins."

The atomic bomb, which emerged to almost everyone as an accomplished fact, was built upon the "quiet work of research scientists working in remote laboratories," and brought to fruition by the vast war project, Dr. Wrinch pointed out.

Right now, only a few scientists have the background for solving the key problem of the proteins. But, Dr. Wrinch said, "each of us, by mobilizing public opinion to call for an attack on this great problem which is worthy of its supreme objective, can help towards its solution."

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CHEMISTRY

Citrus Fruits May Be Saved by "Breathing" Tests

► A NEW type of oxygen analyzer, based upon a similar machine developed for the U. S. Army medical corps during World War II, may help to save thousands of dollars worth of California, Texas and Florida citrus fruit which is now lost through poor storage.

Developed by Dr. Jacob Biale of the University of California at Los Angeles, the machine measures the "breath" of oranges, lemons, grapefruit, avocados and other subtropical fruit.

Fruit breathes like human beings in the sense that it takes in oxygen and gives off carbon dioxide, points out Dr. Biale. The oxygen determines how long the fruit will last in storage.

The newly-developed oxygen analyzer measures the oxygen content of incoming and outgoing air in specially devised storage jars with no interference from other common gases. It is capable of keeping

such a record of 24 jars simultaneously.

This device enables Dr. Biale and his assistants to keep track of the respiratory processes of fruit under varying temperatures and in combinations of gases piped into the fruit. The machine is also used to measure respiration in atmospheres high in carbon dioxide and low in oxygen, as well as the effects of ethylene, a gas used to hasten the ripening of fruit.

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CHEMISTRY

Radioactive Cosmetics Test Effect on Skin

► COSMETICS are now being made radioactive in order to study the effects of various preparations on human skin.

Cold cream, such studies have already shown, does not penetrate the skin. The cream was made with carbon 14 and its penetration, or lack of it as it turned out, was determined by Geiger counter.

The possibility of skin penetration by other components of the cream which were not tagged with the radioactive carbon is not ruled out. Tests of creams containing hormones, iodine or mercury derivatives will be made next, Dr. Louis C. Barail and Joseph J. Pescatore, of the U. S. Testing Co., Hoboken, N. J., stated in their report to the Society of Cosmetics Chemists in New York, N. Y.

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AERONAUTICS

New York-Los Angeles In One Hour by Rocket

► FLYING from New York to Los Angeles in less than an hour via rocket ship waits only on the building of the rocket. Rocket expert Dr. Hsue-Shen Tsien told the American Rocket Society that such a rocket is within the grasp of present day technology.

The passenger rocket-liner, said the Chinese-born scientist, would reach an altitude of 27 miles on its initial thrust in a matter of minutes, and then would glide the rest of the way. Although top speed would be 9,140 miles per hour, the rocket could land as slowly as 150 miles per hour.

Research done at the Daniel and Florence Guggenheim Jet Propulsion Centers at California Institute of Technology and Princeton have contributed to the solution of the basic technological problems, according to Dr. Tsien, who is Robert H. Goddard professor at the Caltech center.

Dr. Tsien states that research will solve the problems of designing an engine which can take the terrific heat generated and of insulating the rest of the rocket ship from that heat. The ship would weigh 50 tons, and 37 tons would be fuel load. It would be 80 feet long and nine feet wide, with small wings to achieve a reasonable landing speed, he estimated.

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BIOCHEMISTRY

Blood Has More Sugar In Winter Months

► HUMAN blood gets sweeter, has more sugar in it, in the winter.

This was discovered accidentally by Drs. Lois F. Hallman and Elsa Orent-Keiles, U. S. Department of Agriculture nutrition scientists.

They were studying the effects of breakfast when they found that the amount of sugar in the blood before breakfast increased progressively with the colder months of the year and was definitely higher in the winter than during the summer months. The work was done over a two-year period on nine women laboratory workers of average weight and height, moderately active and considered in good health. Their ages ranged from 28 to 48 years.

Whether the seasonal difference in blood sugar is due to variations in diet or to differences in the body's handling of food is not known.

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MEDICINE

Aureomycin Is Successful In VD Cases

► DISEASES from canker sores to gonorrhea and pneumonia are being cured by the golden yellow mold drug, aureomycin. A summary of latest reports of the uses and effectiveness of this drug is being shown to physicians at the American Medical Association meeting in Washington, D. C., by Drs. Raymond W. Cunningham, A. C. Dornbush, B. M. Duggar and B. K. Harned of Lederle Laboratories, Pearl River, N. Y., where the drug is made.

The drug was 100% successful in 20 unselected cases of gonorrhea, when given by mouth over a two-day period. A single injection of 300,000 units of penicillin in oil and wax achieved 90% success in another 20 unselected gonorrhea cases. One patient with gonorrhea who was not helped by 20 injections into the muscles of 300,000 units of penicillin in oil and wax recovered rapidly when given aureomycin by mouth.

Aureomycin has been reported successful, the doctors said, in all five venereal diseases and is useful as a general prophylactic for these when taken by mouth.

The pain of canker sores and other more serious inflammations of the gums stops quickly and the sores soon disappear when aureomycin is given, two dentists found. Removal of impacted wisdom teeth when there is acute or subacute inflammation of the gums around the crown of the partly erupted teeth has been a controversial subject among dentists. But patients with this tooth and gum condition were able to have the impacted teeth removed without complications after the operation when aureomycin was given.

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