

MEDICINE

Ulcers Linked to Heart Disease

► THE DIET that soothes the ulcer may increase the heart disease, a University of Michigan, Ann Arbor, biostatistician said after research with 1,300 ulcer patients in nearby Detroit. Dr. Richard D. Remington found that premature deaths from hardening of the arteries were markedly higher in this group than in the general population. Some characteristics of ulcer patients, or of their treatment, he said, appear to accelerate the process causing these premature deaths. However, since most of the 1,300 patients were Jewish men, Dr. Remington said there is still a scientific question whether the increase in heart disease deaths results from the ulcer diet or from some other factor unique to Jewish men.

• Science News Letter, 84:136 Aug. 31, 1963

PSYCHOLOGY

Both Sexes' Daydreams Show Need of Love

► LOVE IS a main need expressed in men's and women's daydreams, studies of college students have shown, but there the resemblance between the sexes ends.

In men's daydreams, Dr. C. W. LaGrone of Texas Christian University, Fort Worth, found, a drive for new experience is dominant. In women's daydreams affiliation is the main need.

According to their needs, he explained, men's daydreams of love focus on the physical aspects, while women's are tied to marriage and family.

Reporting tests on 96 female and 123 male college students in the *Journal of Consulting Psychology*, 27:270, 1963, Dr. LaGrone noted differences in the subject matter of their daydreams, as well as in the needs expressed.

Men, he found, were more accepting of their own daydreams than were women.

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CHEMISTRY

Lattice Defects Studied In Copper Single Crystals

► THE RELATION between chemical etch pits on a metal surface and defects present in the metal lattice was investigated by A. W. Ruff Jr. of the National Bureau of Standards, Washington, D. C.

In this work, transmission electron microscopy was used to examine specimens made from single-crystal copper foils that had been exposed to a specific aqueous etching solution. Extended line defects in the metallic lattice known as dislocations, as well as etch pits extending into the metal surface, were readily discernible.

The study showed that dislocations in these copper specimens are preferentially attacked by the solution but that all dislocations do not give rise to pits, as had previously been believed.

Dislocations have an important effect on the mechanical properties of metals, and

considerable research has been undertaken in the past few years. Sometimes an etching method has been employed to locate these defects emerging on the metal surface, and thus to relate surface pitting to substructure. However, a direct correspondence has not been conclusively established for metals.

The present work was undertaken to determine whether such a relationship could be found by a combination of chemical etching and electron microscopy techniques.

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AGRICULTURE

High-Yield Barley Resistant to Disease

► A NEW BARLEY, notable for high yields and resistance to disease, has been developed and tested by the U.S. Department of Agriculture's Agricultural Research Service and the California Agricultural Experiment Station.

The new strain has proved highly resistant to many diseases. It has consistently yielded 21% to 27% more grain per acre than varieties such as Atlas and Winter Tennessee in wide use today.

Named Grande because of its strikingly large heads and seeds, the new barley should be available to commercial growers in time for the 1965 growing season.

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ZOOLOGY

Right Whales Seen In Wrong Waters

► TWO GIGANTIC ANIMALS bearing the improbable name of right whales were spotted for the first time in the Gulf of Mexico.

Right whales, normally found in temperate and north temperate regions, previously had been reported on occasions as far south as Florida's east coast, but never in the Gulf. At one time these whales were common in the North Atlantic, but by 1750 hunters had reduced them to near extinction.

When right whales flourished, they were sought eagerly because they are slow swimmers, float when they are killed, and are rich in whalebone and blubber. They were named "right whales" to distinguish them from less profitable types, which were "wrong whales."

The two whales observed in the Gulf of Mexico were 40 to 55 feet long, charcoal black with whitish patches low on the head near the eye, and had a cleft on the side of the mouth. They had no dorsal fins, and had a ragged patch on the head in front of the blowhole.

Three observers followed them for over an hour and at one point were within 12 feet of one whale. From the observers' descriptions, Joseph Curtis Moore of the Chicago Natural History Museum and Eugenie Clark of Cape Haze Laboratory, Sarasota, Fla., identified the animals as right whales and reported the sighting in *Science*, 141:270, 1963.

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IN SCIENCE

SPACE

Shuttle Ferry to Space Stations, Satellites Seen

► A DELTA-WINGED space taxi could be ready within the next five years to blast-off, pay visits to artificial satellites and glide home in two parts, a Douglas Aircraft Co. engineer said.

M. W. Root, designer of the vehicle which Douglas calls Astro, described it at the summer meeting of the American Institute of Aeronautics and Astronautics in Los Angeles.

Mr. Root said Astro, a combination rocket, spaceship and airplane, would be ideal as a shuttle for ferrying people and supplies to and from space stations, for spying on the earth and things in space and for repairing unmanned satellites.

Astro would be a pair of triangular-winged vehicles joined together at blast-off. One part would serve as a booster for the other.

The two stages would separate at an altitude of 45 miles. The booster, piloted by one man, would glide to earth and land at a base within 450 miles of the launch point.

The spacecraft, containing two men, would continue into orbit, complete its mission and then descend, exposing only its flat bottom to absorb the reentry heat.

The broad surface of its wing would act as a brake during reentry. After a glide phase, it would land like a light transport plane at about 125 miles an hour.

Mr. Root estimated that a fleet of 12 boosters and 24 spacecraft could make 240 flights a year and, over 10 years, put 89 million pounds of material into orbit 300 miles up at a cost of \$41 a pound of payload.

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FORESTRY

New Method to Prevent Dutch Elm Disease Spread

► A NEW WAY to prevent the spread of Dutch elm disease from the roots of one tree to another was reported by a Milwaukee forester, Gordon Z. Rayner.

Dutch elm infection can spread from one tree to another when the roots grow together underground. The diseased tree's roots can be isolated from those of nearby healthy trees by drilling a series of holes 30 inches deep and nine inches apart around the diseased tree. The holes are then filled with a fumigant that kills a small section of the roots.

Removing a diseased tree may hasten the spread of Dutch elm disease to a nearby tree, Mr. Rayner said. The tree that remains standing seems to draw the infection by suction. Only by isolating the diseased tree by killing some of its roots before removal can a chain reaction be prevented among adjoining trees.

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CE FIELDS

PHOTOGRAPHY

Infrared Colored Photos Available in One Minute

► COLORED PHOTOGRAPHS of an infrared image of a scene can now be made in one minute using an evaporograph developed at Baird-Atomic, Inc., in Cambridge, Mass.

The evaporograph is a device to change infrared energy into visual wavelengths by condensing oil on a thin membrane. The difference in oil thickness causes white light to be reflected as different colors, thus giving a visible image of the view as seen by heat waves.

The colors, although not a true visual representation, contain vital information on the amount of radiation. The device can be used in industry for the quality control of honeycomb materials and evaluation of optical materials.

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OPTICS

Sunglasses of Future May Also Be Useful Indoors

► TOMORROW'S SUNGLASSES may well be equally useful indoors. An optical material developed by the American Optical Company becomes darker or lighter when exposed to different intensities of light.

The brighter the light, the darker the material. In the presence of strong sunlight or glare from a welder's torch, the material becomes almost black—in less than a thousandth of a second. When the light grows dim, the material slowly becomes more transparent.

Expected to be useful to astronauts, industrial workers and others, the material can be manufactured with response times, recovery times, strength and color sensitivity varying over a wide range.

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GEOGRAPHY

Texas Shrinks, Missouri Grows in Outer Space

► IF YOU WERE to peer upon the United States from a satellite 400 miles up, it would look like one of those exaggerated maps of the New World drawn by the early explorers.

Florida would be short and pudgy, Lake Michigan bigger than Lake Superior, and Missouri bigger than Texas. Our largest state, Alaska, would not even be seen.

Erwin Schmid, a mathematician for the U.S. Coast and Geodetic Survey in Washington, D. C., figured out what the view would be, using the principles of descriptive geometry.

He imagined the satellite to be directly above the intersection of the 40th parallel North and the 95th meridian West, a point in Missouri near the Kansas and Nebraska borders.

An astronaut 400 miles above there would be able to see both the East and West Coasts, but both would appear badly flattened. He could see a distinct, but skinny Cuba to the south and a small Hudson Bay to the north.

So far, the highest a man has gone into space has been 176 miles. That was Astronaut Walter Schirra's apogee. The Russian record is 158 miles.

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ENGINEERING

Explosive Rockbolts Help To Promote Mine Safety

► MINES previously considered unsafe or hazardous can be made workable with a new rockbolt developed by the Department of the Interior's Bureau of Mines.

Designed especially to be effective in soft rock formations, it will work where conventional rockbolts fail. It contains an explosive charge whose detonation causes the bolt to expand, enabling it to grip the rock along its entire length, instead of just at the tip.

This gives much firmer hold on the rock. Using such bolts, a strong rock structure that will increase safety and efficiency in existing mines can be formed, allowing mining where previously impossible due to unsound rock.

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STATISTICS

U.S. Science-Technology Manpower Is 2.7 Million

► THERE ARE approximately 2.7 million persons in the United States today employed in fields related to science and technology.

They make up about 3.6% of the U.S. labor force, and include scientists, engineers, technicians, and teachers of science and mathematics at the secondary school level. They are employed by government, industry, and private colleges and universities, and do work in fields of research, administration and instruction.

Due to the increased emphasis on science and technology since World War II, the number of persons in these fields is increasing proportionately faster than the U.S. population as a whole. Since 1940, the U.S. population has increased from 132 to 190 million, and the labor force has grown from 56 to 76 million—gains of 43% and 36% respectively—while the science-technology manpower has shot up from 860,000 to 2.7 million—a 214% increase.

By 1970, only seven years from now, there are expected to be four million employed in the science and technology fields. This number represents 4.7% of the projected labor force, and assumes a continued annual increase of 5% to 6% in these fields.

These figures and others were reported in "Profiles of Manpower in Science and Technology," published by the National Science Foundation in Washington, D. C.

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BOTANY

Tiny Weeds Demonstrate Plant's Response to Light

► WEEDS of thumbnail size have shown why some plants need short days and long nights to flower.

The tiny weed, known as *Chenopodium rubrum*, is fully grown in less than a month, and 200 of the plants can be grown in a five-by-ten-inch flat. Its responses to light are the same as the larger plants often used for experiments, M. J. Kasperbauer of the Department of Agriculture's Pioneering Research Laboratory, Beltsville, Md., reported in *Agricultural Research*, 12:8, 1963.

In order to show the short-day effects on plants, one dish of chenopodium was exposed to ordinary light for 18 hours each day while another dish was exposed only eight hours a day for a week. Then the second dish was exposed to 18 hours of light a day.

Two weeks after the experiment started, the chenopodium plants originally exposed to short days and long nights flowered and produced seeds. The other plants, after another month, grew several feet without flowering.

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ZOOLOGY

Chicken Snakes Attracted To TVA Equipment

► THE TENNESSEE Valley Authority is having problems with snakes. For some unknown reason the local chicken snakes find TVA's high voltage equipment irresistible.

There are several theories about what causes this attraction. Some think the snakes are attracted by the equipment's infrared radiation, for instance.

Whatever the reason, the results are clear. When the snakes get mixed up in the works, they cause short circuits and other undesirable happenings that benefit neither the equipment nor the snakes.

Plans for stopping the invasion include spreading snake repellent powder and building an ultralow electrified fence.

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MEDICINE

Coughs Increase With Cold and Humidity

► SCIENTIFIC PROOF that coughs go up as the temperature goes down was offered by a Texas scientist.

Weather effects on the number of prescriptions written to relieve coughs during two years in two Dallas hospitals were reported at the meeting of the National Tuberculosis Association and its medical branch, the American Thoracic Society, in Denver. There were 5,698 anti-cough prescriptions, ranging from 2.3 to 16.8 a day, with cold and humidity causing the greatest number. Dr. Robert C. Loudon of the University of Texas Southwestern Medical School, Dallas, reported the findings.

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