

## MEDICINE

**Find Artery Hardening  
In Two-Week-Old Babies**

► INFANTS apparently begin to develop hardening of the arteries right after birth.

Blood vessel thickening of arteriosclerosis has been found in babies only two weeks old, but is not found in unborn infants.

For a period of three months after birth, blood vessel thickening continues at a rate that would kill at the end of a few years. But after three months, the process is slowed or reversed, and other studies show that hardening of the arteries proceeds gradually thereafter into old age.

These are some of the findings Dr. Henry Moon, pathologist at the University of California School of Medicine, presented at a symposium of the Pacific Coast Section of the Society for Experimental Biology and Medicine in San Francisco. The symposium was dedicated to the late Dr. James F. Rinehart, a pathologist at the school.

Dr. Moon examined arteries of human fetuses, infants ranging up to a year, and young people up to 20 years of age. All died suddenly, usually from accidents. None had histories of heart disease, or lingering illnesses.

If there had been no arteriosclerosis, the intima, or inner lining of the arterial wall, would hardly be measurable — perhaps a couple of cells thick at the age of three months. But Dr. Moon found this lining was almost as thick as the rest of the wall forming the coronary arteries, many times the thickness of a couple of cells, at the age of three months.

Why hardening of the arteries should appear right after birth and why birth should be the dividing line cannot yet be explained, Dr. Moon said.

Simply because the process is universal and develops even in the very young is no proof that it is normal, he noted.

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## PHYSICS

**Device Takes X-Rays  
In Millionth of Second**

► A DEVICE that takes X-rays in a millionth of a second and a microscope that takes pictures of atoms were reported to the American Physical Society meeting in New York.

Dr. W. P. Dyke of Linfield College, McMinnville, Ore., said he had stabilized the emission of electrons from tungsten to generate so many X-rays they can be photographed in a millionth of a second.

Such X-rays could be used to study everything from how a pilot's bones react when he goes through a 20-g bank to a bullet as it is fired from a barrel, blanketed by smoke and invisible by usual photographic methods.

The device resulted from studies made by Drs. Dyke and J. K. Trolon, also of Linfield College, of how electrons evaporate from tungsten in layers only one atom thick by a process known as field emission. Their studies use electrons, whereas those reported by Dr. E. W. Muller of Pennsylvania State University use ions, or electrically charged atoms.

Dr. Muller showed physicists pictures of atoms he is taking almost daily with his field ion microscope. Using them, scientists can actually observe atomic structure instead of depending on theory for knowledge of how atoms in solids are arranged, as they previously had to do.

The pictures confirm that atomic structures based on theory are accurate. The device, heavily insulated to preserve the required low temperatures, operates at very high voltages, and resembles two thermos bottles, one inside the other. Within the vacuum is a fine tungsten wire, its tip, 1,000 times finer than a pin tip, coated with the substance to be studied. The tip's surface, greatly magnified, shows up on a fluorescent screen. For studying chemical reactions and the formation of alloys, the metal of which the tip is made can be changed or different elements can be put on the tip.

When atoms or molecules of a foreign substance strike the needle, the electron emission from the areas they hit is changed from the characteristic pattern the plain needle emits.

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## BOTANY

**Allergy Drugs Used to  
Probe Photosynthesis**

► PYRIBENZAMINE and benadryl, the allergy drugs sometimes prescribed for sniffles and colds, are now being used to investigate the mystery of photosynthesis.

Dr. Jean Gross, University of California at Los Angeles zoologist, has found that these antihistamine drugs destroy chlorophyll in plant-like, single-celled animals known as *Euglena*. Under microscopic examination the chloroplasts, site of photosynthesis, seem to shrink and become indistinguishable from other cellular particles in the presence of the antihistamines.

The action also seems to affect other biological functions of the organisms. Although they continue to reproduce, their rate of multiplication is altered, as is their nutrition.

New organisms produced in the presence of the drug were found to contain no chlorophyll. The chlorophyll does not regenerate in these organisms when they are placed in an antihistamine-free medium.

A better understanding of this bleaching effect by antihistamines may tell us more about the general relationship between chloroplasts and chlorophyll, both of which are involved in photosynthesis, Dr. Gross said.

It also may tell us how these tiny organisms between the plant and animal world acquired photosynthetic ability.

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**IN SCIEN**

## MEDICINE

**Baby Gets Polio  
Immunity Before Birth**

► IF AN EXPECTANT MOTHER gets polio, her unborn child may get enough of the virus to develop immunity, even though the baby when born shows no signs of having polio.

That this can happen is shown by a case reported by Drs. Alexis Shelokov and Karl Habel of the National Institutes of Health, Bethesda, Md., in the *Journal of the American Medical Association* (Feb. 11).

The case is believed the first on record of a baby born without outward signs of polio although born while its mother was in the acute stage of the disease. A number of cases of paralytic polio developing in a baby before birth have been reported.

The present case added to these others confirms the idea doctors have had for some years that an unborn child can be infected with polio virus through the maternal tissues that surround and nourish the baby before birth.

It shows also that the mechanism for developing antibodies was well established, at least in this baby, before birth.

The baby was born while its mother was in an iron lung in Walter Reed Army Hospital, Washington, D. C. The baby was perfectly normal and remained so. The mother was out of the iron lung about three weeks after the baby's birth, but had so much remaining weakness in both legs, one hand and her back that she had to be transferred to a rehabilitation center.

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## TECHNOLOGY

**Test Materials for  
Space Flight Use**

► A "SPACE CHAMBER" to test how metals and other materials withstand conditions found hundreds of miles above the earth's surface is operating in Minneapolis, Minn.

Materials that may be used in artificial satellites and space ships of the future are bombarded by invisible charged particles moving at speeds of Mach 25, or about 20,000 miles an hour.

Even the best presently available metals disintegrate, or "sputter" away, under prolonged attack, scientists at General Mills, Inc., have found.

Special properties are required for materials to be sent to the outer atmosphere, research in the "space chamber" has shown. The momentum and angle at which the charged particles strike the material under test determine its disintegration rate.

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# CE FIELDS

## TECHNOLOGY

### Uranium Dwarfs Gold In South African Mines

► URANIUM PLANTS refining and concentrating uranium ores at the West Rand Consolidated Mines in South Africa are now larger than the older gold mining installations for which the area is known.

This new development in uranium production was announced by Albert B. Mindler, chemical engineer of the Permutit Company, New York. With Dr. A. H. Greer and J. P. Termini, he reported on ion exchange processes by which 95% to 96% of the uranium can be recovered from its ores.

The ion exchange process for uranium recovery has only recently been cleared under security regulations, although the process itself, which is similar to one process for water softening, has been in use for a number of years.

Not only Africa, but Australia, Canada and the United States are using the process in uranium refining, the chemists told the session of the Delaware Valley regional meeting of the American Chemical Society, Philadelphia.

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## ASTRONOMY

### Creation of Earth in First Year of Expansion

► CREATION of the earth and other planets began in the first year after the universe started expanding.

Creation of the sun came after, not before, the beginning of earth's formation.

This reversal of previous theories about the evolution of the universe is suggested by Dr. David Layzer of Harvard College Observatory, Cambridge, Mass.

Little specks of matter combined to form larger ones, gradually growing into clumps from which planets, stars and galaxies evolved. Dr. Layzer calls this build-up process "clustering."

It started when the universe began to expand, according to the Einstein theory, after reaching the highest possible nuclear density, about one million billion grams per cubic centimeter.

The solar system would have formed within a year, when the mean density of matter in the universe was about what it is now in the solar system, Dr. Layzer said.

During the approximately four billion years since that time, very shortly after the universe started to expand, the "clustering" has continued until now it is galaxies which are becoming clumped.

The universe contains millions of galaxies

like the Milky Way, in which the sun is but one of billions of stars.

Dr. Layzer's theory, highly mathematical, completely contradicts that of continuous creation, which holds that matter and stars are being formed all the time.

Dr. Layzer reached his conclusion about small masses gradually growing into larger ones from a study of how double stars, which make up about half of all stars, could have come into being.

He reasoned that if matter was once packed much closer together, formation of such a high percentage of double stars would follow naturally. Other theories have serious drawbacks.

Most theories of star formation in the last 50 years assume stars are formed by a breakdown, or "fragmentation" process. Large masses break up into smaller, self-gravitating ones, which in turn break up into even smaller ones until stars and planets are formed.

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## BIOLOGY

### Predicts Rip Van Winkles May Be Real in 50 Years

► SUCCESS in restoring frozen hamsters to life leads an English scientist to hope the same can be done for humans.

The scientist is Dr. Aubrey Smith of the National Institute for Medical Research, London. On the basis of her experiments, she made the following prediction:

"Perhaps in 50 years, the stories of Rip Van Winkle and the Sleeping Beauty will no longer be fantasy."

Dr. Smith believes many people considered dead after air and sea accidents in frozen areas of the world might have been brought back to life. She has frozen golden hamsters and restored them to life an hour after their breathing and heart-beats have stopped.

"The stopping of heart-beats does not mean an animal is dead," she said.

"Who knows that it might not also be true of humans? When pilots and seamen are in accidents in frozen areas, it is often difficult to locate them. They might be exposed for a long time before being found. Instead of giving them up for dead, I think one should have a shot at resuscitation, as we have done successfully with animals."

In her laboratory, Dr. Smith seals the golden hamsters in a glass jar. As they keep breathing the same air, they become drowsy and fall asleep. Then they are gently cooled and packed in crushed ice. An hour later they are thawed and brought back to normal. Tests show that they suffer no damage to the brain. For a day or two they lose their appetites; that is all.

By treating certain organs with glycerine, Dr. Smith hopes the animals can be stored in a completely frozen state indefinitely. If so, they would still be alive, and no older, when eventually thawed out.

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## TECHNOLOGY

### Device Focuses Infrared Radiation on Oil Film

► A UNIQUE INSTRUMENT that makes it possible to see in the dark has been shown publicly by Baird Associates, Inc., Cambridge, Mass.

The device, which has no electronic circuits, is called an evaporograph, nicknamed EVA. With it a man 200 yards away or a house a mile distant can be seen in total darkness.

Key to the instrument is that different materials radiate varying intensities of infrared, depending upon their temperatures and surfaces. This radiation is always present, and can be detected from a distance of several miles.

In operation, the evaporograph is similar to a camera. It collects radiation from an object and focuses it as an image on an oil film. The oil then evaporates away from each point at rates varying with the amount of radiation received. When viewed in reflected light, these differences in oil film thickness appear as different colors, as oil films on water do.

A thermal picture of the view is thus obtained in color. This picture can be viewed directly or photographed with a camera incorporated in the apparatus. The unit, designed to observe radiation from one to several thousand degrees Fahrenheit, is sensitive to two-tenths of a degree, Baird Associates states.

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## GEOLOGY

### Bending Gravestones Challenge Geologists

► HUNDRED-YEAR-OLD gravestones in the Grove Street Burial Ground, New Haven, Conn., which are bending with the weight of years, have attracted the attention of Yale University geologists.

Made of marble which, local tradition says, came from Italy as ballast in sailing ships, the tall thin stones are found throughout the cemetery. The curvature of some is toward the grave, of others away from it.

Some stones are warped sidewise as well, forming a dish-shaped hollow sometimes as much as two feet across. The bending usually affects only the lower half of the tombstone.

Curved stones are more usual among the markers dated around 1830 and 1850, although one stone dated 1884 is curved five degrees. The amount of bending does not seem related to the stone's age.

Force of gravity aided by weathering is held accountable by Harald Drewes, E. T. Ruppel and F. G. Lesure of Yale's geology department, who report their examination of the stones in the *American Journal of Science* (Feb.). Although explaining the flexibility of the stones, the scientists note this theory does not completely explain the saucer-like warping.

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