

## PUBLIC HEALTH

**Socioeconomic Status,  
Rheumatic Fever Linked**

► DENVER'S REPUTATION as a high-risk region for rheumatic fever and rheumatic heart disease, which often follows the fever, is not due to the altitude.

Dr. William E. Morton of the Colorado State Department of Public Health told the American Heart Association meeting in Bal Harbour, Fla., that the socioeconomic status of persons who have these diseases, which can be fatal, seem to have a more important influence than the geographical features. This is true when data for the rest of the United States are studied.

The San Luis Valley, where rheumatic fever risk is high, is one of the most economically depressed areas in Colorado, Dr. Morton said. He has studied school records in both Denver and the San Luis Valley, as well as the state's selective service records where information on rheumatic heart disease is listed.

"The available evidence," he concluded, "suggests that Colorado's geography has relatively little effect upon rheumatic heart disease occurrence within the state, and that the most important factors are socioeconomic status, ethnic background and age."

At another session, a Duke University researcher told of work his team had done with pigs, giving evidence that pure oxygen under increased atmospheric pressure will raise the chances of recovery of heart attack sufferers.

The pigs in a poke, or in this case a submarine-like compression chamber, called hyperbaric, lived more than twice as many hours after surgery as did experimental swine breathing air at normal atmospheric pressure.

Dr. Robert H. Peter, who reported the investigation, said the Duke group chose pigs because their heart circulation is similar to man's. They used special clips to close off a main coronary artery nourishing the heart, and produced experimental heart attacks closely resembling "coronaries" in humans.

Working with Dr. Peter were Drs. Robert E. Whalen, Mark L. Entman, Henry D. McIntosh and engineer Ronald W. Rau.

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## BIOCHEMISTRY

**Treated Human Skin  
Stored for Two Years**

► HUMAN SKIN can be stored in "skin banks" for nearly two years if it is first treated with solutions of glycerol or the experimental drug DMSO, short for dimethyl sulfoxide.

These protective solutions prevent tissue damage during freezing and thawing, and insure a constant supply for grafting.

Drs. Ronald B. Berggren and Herndon B. Lehr of the University of Pennsylvania School of Medicine, Philadelphia, and South Jersey Medical Research Foundation, Camden, report successful research in skin preservation in the *Journal of the American Medical Association* 194:149, 1965.

When applied side by side on a man's cheek, there was no apparent difference between fresh skin grafts and tissue that had been stored five months, they said. They gradually cooled the skin after it was treated, using a liquid nitrogen freezer to reduce temperatures to as low as minus 320.8 degrees F.

An advantage of long-term storage, the researchers say, is that enough skin can be taken from the donor in one operation to supply regraftings when necessary. This eliminates repeated operations for skin removal.

The investigators said that 12 of 26 transplants of the patients' own skin were permanently successful. Six of twelve transplants from donors, called homografts, were not rejected until at least 10 days had passed. Success was better when the body areas on which the skin was grafted were in good condition.

Skin also can be stored when taken from a newly dead person in the autopsy room of a hospital.

There still are questions about ultracold skin freezing. The idea of skin banks is not new but there has been difficulty in preserving skin for long periods. Human skin deteriorates quickly if it is merely refrigerated and hard freezing often destroys the skin's ability to survive when it is transplanted.

Even with the addition of protective solutions, the amount of time which skin can be stored effectively is not always predictable. Also, it has not been determined how cold the freezing must be to keep skin usable. Storage would be simplified, the researchers said, if dry ice, the temperature of which is minus 110.2 degrees F., could be used instead of liquid nitrogen.

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## METEOROLOGY

**No Increase in Rain  
Found From Seeding**

► CLOUD SEEDING does not increase the amount of rain reaching the ground in southern Missouri, a five-year analysis of rainfall statistics has shown.

A study of rain occurring during the afternoon and early evening was made for the three months of summer from 1960 through 1965. Results were reported to the American Meteorological Society meeting in Reno, Nev., by Dr. Wayne L. Decker of the University of Missouri.

His analysis was based on cloud observations made by Dr. Roscoe R. Braham Jr. of the University of Chicago and his co-workers. Dr. Braham is director of Project Whitetop, a five-year study of the effects of randomized cloud seeding.

Whether or not sprinkling clouds with silver iodide actually increases rainfall has been a hotly debated issue for nearly 20 years.

Most weathermen now agree that random cloud-seeding tests are the only way to determine silver iodide's effects.

During such tests, the clouds to be seeded and those to be used as controls are picked on a strictly mathematical basis.

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**IN SCIENCE**

## TECHNOLOGY

**Envision Ceramics  
Stronger Than Steel**

► CERAMIC MATERIALS many times stronger than steel will be developed if scientists from the United States, Australia, Canada and the United Kingdom have their way.

Research has provided the knowledge that allowed metallurgists to develop steels 400 times stronger than pure iron. The international group of scientists at Martin Company's Research Institute for Advanced Studies, Baltimore, Md., will give the same kind of attention to ceramics that metallurgists have given to improving metals.

If the group succeeds, the non-metal titanium carbide could be made to have a strength of a hundred thousand pounds per square inch at temperatures high enough to reduce most metals to a molten blob.

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## CHEMISTRY

**Chemical Standards May  
Authenticate Art Works**

► A "STANDARDS" KIT for art collectors may be just the thing to put dealers in fake masterpieces out of business.

Under development at Denison University in Grenville, Ohio, is a series of chemical samples to be used in distinguishing real works of art from counterfeits.

When completed, the standards will characterize paints used during various periods and by specific artists.

A tiny sample taken from whatever painting is under analysis can then be matched to the standards and authenticity established.

Dr. William A. Hoffman, who is doing the work with the help of chromatographs from Consolidated Electrodynamics Corporation, reports that the paint sample needed is so small, no harm would be done to the work.

A basic problem has been in the identification of the original paint. Paint not only changes chemically when it dries but aging modifies the paint even further.

For instance an oil first gains weight, then loses weight by polymerization. What is left to posterity, the residue, is not the same chemical as that used by Michelangelo, Raphael or other artists.

Dr. Hoffman hopes to be able to identify the original liquid medium from its residue. When these standards have been established, actual analysis of paintings can be attempted.

Beyond the inestimable value of being able to authenticate a masterpiece, the new standards can be used to prepare paints matching the original for restorations. The study was reported in *CEG Recordings*.

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# E FIELDS

## PALEONTOLOGY

### Skull of Apeman Named Most Ancient Human

➤ A FOSSIL SKULL unearthed by Chinese scientists has been declared the most ancient human of the apeman type so far discovered in the world.

The well-preserved skull belonged to a female apeman about 30 years old who lived about 500,000 to 600,000 years ago, according to Chinese paleontologists Wu Ju Kang, Chou Ming-Chen and Chia Lan-Po.

The scientists pointed out striking differences between this skull and other apeman skulls at a scientific forum held in Peking under the auspices of the Department of Geology and Geography of the Chinese Academy of Sciences.

The ancient skull is broader than that of any other ape skull and has a frontal crest and an anterior nasal spine. The molar teeth are different and it has a much bigger cranial capacity. It has a thicker cranial wall than other skulls found in China and Java, and it has a cranial capacity smaller than that of the Peking man and about equal to that of the most primitive type of Java man. These and other facts demonstrate that the skull is the most ancient human of the apeman type, the scientists said.

The skull was unearthed at Kungwangling, Lantien County in Shensi Province in 1964, and hence is called the Lantien skull. At the time the apeman existed, Lantien was a place of woodlands and grasslands, and had a warmer temperature and higher humidity than today.

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## SURGERY

### Stroke Victims Treated By Neck Artery Surgery

➤ WHEN BRAIN CIRCULATION is blocked by obstructions in neck arteries, even stroke victims can be treated by surgery that scrapes clean the deposits.

This operation has previously been reported as a preventive of stroke when a person has had such warnings as blackout spells or momentary loss of speech. The operation has been performed by Dr. Jesse E. Thompson and his associates at Baylor University Medical Center, Dallas, Texas.

An eight-year follow-up of 400 operations to prevent or relieve threatening or actual strokes shows that neck artery surgery is "safe, definitive treatment" in appropriate cases, Dr. Thompson told the American Heart Association scientific meeting in Bal Harbour, Fla.

The operation is called carotid artery endarterectomy.

"The operation can be quickly and safely carried out," Dr. Thompson reported. In the 400 operations performed by his group, the

overall mortality was only 3.5%. In contrast, the initial death rate from acute stroke is about 20%.

Almost three-fourths of the frank stroke patients studied by Dr. Thompson had a history of "little strokes" or warning symptoms.

"It behooves the patient to consult his physician if he thinks he has had a warning of stroke," he advised. "Likewise, the physician must be aware of recent advances in the diagnosis and treatment of strokes, listen for murmurs over the appropriate arteries, advise X-ray visualization of these arteries more frequently than in the past, and recommend the appropriate surgery when it is indicated."

Without calling attention to the bill passed on heart, cancer and stroke, Dr. Paul Unger of the Miami Heart Institute said that heart attack patients have a greatly improved chance of survival when they are monitored around the clock. The new law establishes centers that could do this for ordinary patients.

Introduction of special facilities, called intensive coronary care units, is one of the latest advances in the treatment of acute heart attacks. A number of hospitals have built them and others are planning to do so.

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## PSYCHOLOGY

### Sidewalk Demonstrators Express Suicide Impulse

➤ THE YOUNG MAN or woman who lies down on the sidewalk in front of the White House is expressing a suicidal impulse as well as a political protest, a British psychiatrist said in Washington, D.C.

Rebels and suppressed peoples throughout history have used the powerful and well understood language of suicide to get their message across, Dr. Erwin Stengel, a professor at the University of Sheffield, told a Symposium on Suicide, sponsored by the George Washington University School of Medicine.

Buddhist monks who burned themselves to death helped destroy the hated Diem regime. Fasts and hunger strikes employ suicide as a threat. The purpose is to make an "adversary guilty of causing the victim's death," Dr. Stengel said.

The psychiatrist told his colleagues that the "demonstrators who lie down in Whitehall or outside the White House and have themselves carried away like corpses express the same sentiments though with less violence against themselves."

Dr. Sheffield attacked the popular idea that Sweden has a higher suicide rate than the United States.

There is reason to believe, he said, that the U.S. rate understates the truth by one-fourth to one-third. Sweden's rate in 1963 was 18.5 suicides per 100,000 population compared to an estimated 11 per 100,000 in this country.

Suicides decrease considerably during war time. The rate is also lower for members of a large family.

Both war and big families correlate with a high homicide rate, he said.

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## GEOLOGY

### Ancient Rocks Hold Key To Supercontinent Theory

➤ THE DATES of ancient rocks along the coasts of South America and eastern Africa may solve the mystery of whether or not the continents were once joined in a huge supercontinent that then split up and drifted apart.

If the ages of the rocks match, the theory of a former large continent will be strengthened, Dr. John Reynolds of the University of California said. If the ages do not match, the supercontinent theory will probably have to be discarded.

Scientists have long argued over the possibility that a large land mass near the middle of what is now the Atlantic Ocean later broke and drifted apart to form today's continents of North America, South America, Africa and Europe.

Supporters of the continental drift theory, who call the supercontinent Gondwanaland, are now using latest scientific advances to match belts of rocks in the continents. A grant for this research has been made by the National Science Foundation to the University of California and its partner, a new institution called the Geochronology Laboratory of the University of Sao Paulo, Brazil.

Scientists supporting the continental drift theory have long based their arguments on similarities in certain continental shapes, particularly those of South America and Africa, which seem to fit together like pieces of a jig-saw puzzle.

Two major rock-dating systems, using radioactive potassium-argon and rubidium-strontium, are being used by the Brazilian Laboratory along the northeastern coast. A concurrent project is being conducted along the African coast.

Geologists and paleontologists at the University of Sao Paulo, which is considered to have one of the most active earth science departments in South America, are administering the Laboratory. University of California scientists are providing professional advice and equipment. Scientists from the Massachusetts Institute of Technology and the Carnegie Institution's Department of Terrestrial Magnetism are also collaborating in testing the continental drift theory.

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## EDUCATION

### Master's Urged as First Engineering Degree

➤ THE AMERICAN SOCIETY for Engineering Education has recommended that the first professional degree in engineering should be a master's degree awarded after five years of college study. If the recommendation is generally adopted, the master's degree will replace the four-year bachelor's degree as the prerequisite for entering the engineering profession. Although the four-year program would be continued, the bachelor's degree would be rated an "introductory" engineering degree.

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