

## MEDICINE

## Injections Could Help Breast Cancer Patients

► **BLOOD SAMPLES** are being collected from healthy women volunteers believed immune to breast cancer. The purpose is to extract a substance that can be injected into victims of the disease, hopefully resulting in immunization for them.

The blood samples from healthy women will be studied in an attempt to isolate a subcellular fraction from the white blood cells that will act as a source of sensitivity, and which can be transferred by injection into women who have breast cancer.

The opposite type of research is being done so that transplants of organs needed to replace a vital one will not be rejected.

This is one of many research projects under way at Memorial Sloan-Kettering Cancer Center, which has just issued its annual report. This project comes under the head of immunology, a fourth standard treatment for cancer, the first three being the well-known surgery, radiation and drug therapy.

Although it has been said that one-half of the biomedical world is trying to enhance immunization mechanisms in man and the other half is trying to suppress them, depending upon the medical problem, both areas are being investigated at the center.

With the breast cancer problem, it is assumed that cancer acts as a foreign tissue in the patient, so the aim is to induce or enhance the immune reaction against the cancer, thus promoting its rejection. The problem is to augment the patient's sensitivity.

The 1964 annual report includes individual case studies to show the variety of research being done, including the most recent work with leukemia virus. It highlights clinical investigation and bedside research.

Laurance S. Rockefeller, chairman of the Board of Trustees, and Richard D. Vanderwarker, president of the center, reported plans to create a clinical research facility to occupy three hospital floors in the \$40 million center complex to be completed in 1969.

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## PSYCHOLOGY

## Anti-Individualism Basic To Red Chinese Films

► **ANTI-INDIVIDUALISM** emerged as the basic social theme of 17 Chinese Communist films, made for domestic consumption in China between 1956 and 1962.

John H. Weakland, research associate of the Mental Health Institute in Palo Alto, Calif., analyzed the films before the annual meeting of the American Anthropological Association in Denver, Colo. He was assisted in the study by Stanford University's Studies in International Conflict and Integration.

Mr. Weakland emphasized the importance of the films for American understanding of China.

The United States has no direct access for study of Red China, nor does it have cul-

tural expressions such as movies available for examination.

The 17 films discussed were seen in Hong Kong and Canada. They include several adaptations of Chinese operas, a fantasy, a revue, eight realistic dramas and two comedies.

Communist doctrine did not originate anti-individualism in China, Mr. Weakland noted. It stems from a fundamental cultural attitude (not unique to China), but appears in the films in modern "revolutionary" dress.

For instance, women often appear as strong heroines. They become strong once they are liberated from sexual exploitation by feudal landlords and family-enforced marriages.

However, though they are suddenly freed by the "new order" they do not really become strong until they join a voluntary purposeful group. This holds true whether the group is the Communist Party or an ancient army. Strength derives not from the individual alone, but from the group.

Young people follow the same pattern. First, they are relieved of family controls in the choice of a partner. Sequences of lovers meeting alone in violation of the old restrictions occur frequently. But, typically, the lovers can make only minor and indirect moves toward each other and eventually retreat altogether.

In the end, remarked Mr. Weakland, marriage in New China (as depicted in the films) is not unlike that of Old China. It is a working relationship. Emotional and sexual intimacy, on the other hand, is uncertain and uncomfortable.

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## CONSERVATION

## Wildlife Could Be Great Source of Revenue

► **THE SHY FURRY** and feathered creatures lurking on private lands could be a large source of recreation and revenue if people knew what to do about them.

Rabbits, squirrels, foxes, racoons, deer, grouse, mink, quail and wild turkey are only a few of the wildlife animals that live in the hedges and weeds of private lands in the Tennessee Valley, according to a survey of landowners in the area by the Tennessee Valley Authority and the University of Tennessee, Knoxville.

Only about one landowner in five has made any conscious effort to increase the supply of these animals so that they could be used for food or recreation, the survey showed. The animals can be cared for by limiting hunters, by improving their food, by preserving the bushes and shrubs that the animals use for cover, and by controlling predators.

A third of the landowners said they are willing to take steps of this sort if they can get free technical advice, which is available from a variety of state and federal agencies. Another third said they would take conservation steps if they received financial aid. The remaining third showed no interest in doing anything at all to increase wildlife populations.

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# IN SCIENCE

## PUBLIC SAFETY

## Pilots Should Wait Eight Hours After Drinking

► **A PILOT'S JUDGMENT** can be affected as long as eight hours after drinking alcoholic beverages because of altitude. As a result, the Federal Aviation Agency has proposed a new rule asking them to wait that long before flying. Other crew members also are asked to refrain from performing duties until eight hours after drinking.

The FAA says measurable blood alcohol has been found in some of the pilots examined by autopsy after fatal accidents. They had not been flying commercial passenger planes but were doing general aviation.

Airline companies have even stricter rules, which the FAA emphasizes should not be relaxed by the proposed new rule.

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## PUBLIC HEALTH

## Hope for Amputees Seen In Use of Nuclear Tools

► **NEW HOPE** from nuclear research for some 300,000 amputees who have lost one or both hands or legs was foreseen.

It will come from a "marriage" of the nuclear tools used for handling radioactive materials from a distance, materials too "hot" for direct contact, and the modern prosthetic devices now being perfected for amputees.

The problems of using manipulators for radioactive chemicals and hooks as artificial hands are related, Dr. E. V. Murphy of the Veterans Administration in New York told the American Nuclear Society meeting in Washington, D.C.

The split mechanical hook used as a hand by many amputees bears a close resemblance to the tongs used in remote-controlled manipulators, he reported. The hook may actually be superior to tongs, Dr. Murphy said, since it operates from a single control source, yet can make a variety of motions.

Dr. Murphy compared the hook versus the artificial hand to the advantage an airplane has over a flying device built to resemble a bird. The airplane may take any arbitrary shape necessary for flight rather than being limited to the flapping-wing design of a bird.

A device that looks like a hand, he said, has fewer useful functions than a hook. An artificial hand, for instance, cannot be used to reach into a pocket.

Sometime in the future, he predicted, hooks and tongs will be much more versatile than now and artificial hands will be much improved. He urged continued research and development aimed at an eventual blending of prosthetic devices and manipulators.

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# E FIELDS

## ICHTHYOLOGY

### Built-in Thermometer Gives Fish 'Sixth Sense'

► FISH have a built-in, very precise thermometer which may serve as a "sixth sense," helping to guide their movements.

Dr. Kenneth S. Norris, University of California at Los Angeles zoologist, has studied the thermometer and its function in the opal-eye perch.

He suspects that such a thermometer also determines the range of larger fish, such as tuna, in the open sea. In this way the fish stay within a water mass with a relatively constant temperature range.

In connection with the thermometer, there is a thermostat set at approximately 78 degrees F., and the opal-eye perch seeks a water mass with a mean temperature of 78 degrees.

This causes schools of perch larvae to move from coastal waters into tide pools. There they become independent fish and completely change color, all within a 24-hour period.

At low tide the tidepool warms up, and the perch eat voraciously, burning up a great amount of energy. At high tide the pool is inundated with cold water and the fish retreat under rocks. This affords protection against predators that come in with the tide.

As the perch grow older the thermostat gradually turns down, and the fish leave their cozy tidepool and move out to sea, now at a size that gives them some assurance of survival in a more hostile environment.

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## ARCHAEOLOGY

### Sahara Dried, Divided African Nations, People

► SOME 60,000 OR 70,000 years ago, a cool, dry climate spread over the African Sahara, breaking up long-standing prehistoric settlements called Acheulian and dividing the people to the north and the south.

Until the middle Pleistocene age, the Sahara, with its abundance of water, had been very favorable to Acheulian hunting life. But water became scarce, vegetation changed and the people moved.

It was at this point, believes anthropologist J. Desmond Clark of the University of California, Berkeley, that African man began to separate into distinct cultural and physical groupings. Acheulian populations in North Africa were penetrated and modified by Neanderthal man from Europe and the East. Meanwhile, other Acheulian groups spread south to be replaced by the Rhodesioids.

Both Neanderthal and Rhodesioid men became extinct with the appearance about 30,000 years ago of the genes of modern

man. Thus, the Mediterranean people of North Africa and the basic Negro stock below the Sahara evolved into distinct genetic and cultural groups.

In North Africa, the Acheulian disappeared suddenly in rapid technological advance. An abundance of cutting and scraping instruments, closely resembling those of Palestine and Jordan, replaced the old hand-axe culture.

Throughout the rest of Africa, the Acheulian disappeared sporadically. At the rich archeological site of Kalumbo Falls in Central-East Africa, the final Acheulian has been set as far back as 52,000 years.

Dr. Clark reported in *Science* 150:833, 1965 that at some time around 50,000 B.C., bands of Acheulian hunters entered the Congo basin (later than the Kalumbo Falls settlement). They quickly discarded their axes for wood-working tools, evolving a culture called Sangoan. The Sangoan "tool kit" reflects technical advances that had to be made by people living both in forests and on grasslands.

However, in parts of Ethiopia and South Africa, large herds of game roamed the open land, allowing the population to continue the unselective life of the Acheulian hunter.

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## PHYSIOLOGY

### Cell Research Gets NIH Grant of \$1.2 Million

► AN UNUSUAL GRANT by the U.S. Public Health Service in support of an entire program of research as opposed to a specific project will support five years of work on the cell at a cost of \$1.2 million.

The funds will be administered by Dr. Seymour S. Cohen, chairman of the department of therapeutic research of the University of Pennsylvania School of Medicine, Philadelphia.

Dr. Luther L. Terry, former Surgeon General of the U.S. Public Health Service, is vice president in charge of medical affairs at the University.

Significance of the research, which will be directed to the structure and physiology of the cell in animals and bacteria, lies in the fact that all human tissue is made up of cells, and that the complete understanding of the body, its processes and disease states is linked largely to cell comprehension.

Drs. Leonard Warren, professor of therapeutic research, Margit Nass, assistant professor, and Mary C. Glick, assistant professor, will collaborate with Dr. Cohen in the research to learn more about how cells and parts of cells multiply, and how this multiplication can be controlled. They also will study how viruses, including those associated with tumor growth, multiply.

Drs. Cohen and Warren are lifetime professors under awards of the American Cancer Society.

An especially important area that has come to the forefront of medical research in recent years is the role played by the cell's nucleic acids. Dr. Cohen and his colleagues have made notable contributions to such investigation.

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## GEOLOGY

### Ancient Earth Lifted From Hole in Ocean Floor

► MAN'S DEEPEST PENETRATION into the ocean floor extended 1,050 feet beneath the bottom of the Atlantic Ocean off the coast of northern Florida, and brought up samples of the earth 40 million years old.

The record drilling, supported by the National Science Foundation, was undertaken by the Institute of Marine Sciences of the University of Miami, Lamont Geological Observatory of Columbia University, Scripps Institution of Oceanography of the University of California, and Woods Hole Oceanographic Institution of Woods Hole, Mass.

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## CHEMISTRY

### New Test Determines If Space Matter Has Life

► IN ONLY A MINUTE, a new machine can help determine whether material traveling from space holds a basic key of life, amino acids.

Developed by research chemists at the Weizmann Institute of Science, the machine is a gas chromatograph that registers one peak if the material is derived from living matter and two peaks if the unknown material is inanimate.

The new testing procedure is fast, simple and extremely accurate, according to Dr. Emanuel Gil-Av of Rehovot, Israel, head of the project sponsored by the U.S. Bureau of Standards. Previous methods of analyzing amino acids have been slow and cumbersome. Scientists hope the new method will also prove useful in testing biological, chemical and geochemical specimens.

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## OCEANOGRAPHY

### Diving Chamber Gives Eight-Hour Workday

► FOR THE FIRST TIME, divers can now spend a full eight-hour workday under water in a new diving system.

In the first commercial application of a submersible pressure chamber of Westinghouse Electric Corporation, divers are making repairs at the bottom of the Smith Mountain Dam Lake, 200 feet underwater. Divers, using only scuba equipment, can stay at such depths only a few minutes, and even those with "hard hat" compression equipment can stay for only 20 minutes a day.

The equipment, called Cachalot after the deep-diving sperm whale, consists of a deck or surface pressure chamber, a submersible pressure chamber and all associated equipment needed to support life and the operation itself. Cylinders on the diving chamber contain pre-mixed oxygen and helium that divers breathe while they are working, and lifelines supply divers with the air mixture, communications, power for lights and warm water for their diving suits.

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