

## ARCHAEOLOGY

**Moving of Stonehenge Stones Explained**

► A NEW SOLUTION to the problem of how the huge boulders were transported and set up in circles at the celebrated religious monument at Stonehenge, England, has been suggested.

The outcrops of the so-called sarsen stones of Stonehenge that are nearest to Stonehenge are some 21 miles away, but a probable route mapped out by Dr. Patrick Arthur Hill of Carleton University, Ottawa, Canada, is "essentially downhill" for 17 of its 21 miles.

Some of the sarsen stones weigh as much as 50 tons and at the time they were moved into place, in the early Bronze age about 1500 B.C., there were supposedly no wheels in Britain, no beasts of burden and, other than rawhide, no rope.

If the climate of Britain in 1500 B.C. was somewhat colder than it is today, the great stone blocks might have been dragged to Stonehenge on sledges over ice, packed snow or even slush, Dr. Hill suggests in *Science*, 133:1216, 1961. The best surface for heavy-duty transportation would be "ice roads" made from snow packed by the repeated passage of sledges or by the spraying or spilling of water. Such roads have been used in northern Europe and North America for centuries.

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## MEDICINE

**Surgery Still Best For Curing Cancer**

► SURGERY remains paramount as the method of curing cancer in spite of advances in the use of drugs and radiation, Dr. Irving M. Ariel of the New York Medical College told the International College of Surgeons North American Federation meeting in Chicago. But radical surgery should be "rational."

Some 3,000 surgeons from 16 countries heard Dr. Ariel evaluate the super-radical operations that have been done in the past 15 years.

"For many years three routine operations were performed," he said. "These were radical mastectomy (breast removal), hysterectomy (removal of the uterus) and resection (or removal) of rectal cancer."

"In the mid-forties improved surgical care and antibiotics made possible resection of any part of the body, from a technical standpoint, but some of the super-radical procedures should be abandoned."

Super-radical surgery for pancreatic cancer that has spread to some structures has shown such poor results that it should be given up, the surgeon said.

Once the surgery and other specific anti-cancer treatments have been carried out, the remainder of the management of the patient is in the psychological field, Dr. Edward M. Litin, consultant, section of psychiatry, Mayo Clinic, Rochester, Minn., said.

"If we are ever to negate the notion that a

diagnosis of cancer is equivalent to death, which is far from true in a significant number of cases," Dr. Litin advised, "we must stop acting like it ourselves and discuss cancer freely and honestly, but always hopefully with our patients."

Dr. Litin advised regular visits to show a continuing interest and to guard against the onset of depression. Physicians are often amazed at the way patients adapt to the knowledge that they have cancer, he said.

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## PSYCHIATRY

**"Chronic Helpfulness" Impairs Treatment**

► CHRONIC HELPFULNESS on the part of a mental patient, although it is welcomed by the hospital staff because such patients make valuable workers in the ward, has been found to interfere with the patient's treatment.

The American Psychiatric Association meeting in Chicago learned this from a report by Sheila Rouslin, a graduate fellow at Rutgers University, New Brunswick, N. J.

"Chronic helpfulness," Miss Rouslin explained, is not to be confused with spontaneous assistance that is prompted by a patient's wanting to do something for others. "Chronic helpfulness" is prompted by a feeling of compulsion. When the compelled help is given, the patient feels no satisfaction but instead has a feeling of being used.

When the patient contributes his work because he is driven by chronic helpfulness, the work is accepted by the staff as helping the treatment of the patient and because the hospital also has a manpower problem.

Actually this kind of work helps neither the patient nor the hospital. The patient is not helped because staff encouragement of the compulsion to work interferes with treatment. The hospital is not helped because the patient remains in the hospital, thereby increasing the hospital's financial burden.

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## SPACE

**Venus Rocket Thrust Exceeds U. S. Five Times**

► THE RUSSIAN Venus rocket probe launched Feb. 12 probably developed a thrust five times greater than the present best efforts of the United States in the same field.

A five-stage rocket, originally weighing 800 tons, lifted off the launching pad in the Venus shot, Dr. Jozsef Sinka, Hungarian space scientist, reports in a translation by the U. S. Joint Publications Research Service in Washington, D. C. The first three stages sent the probe into orbit.

The rocket thrust was probably around 2,000,000 pounds, much greater than the United States most powerful rocket, the 360,000-pound thrust Atlas. The Saturn currently being developed has a 1,500,000-pound thrust, but it will not be used for a probe until at least 1964.

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**IN SCIENCE**

## GEOPHYSICS

**Moon and Sun Gravity Affects Earth's Crust**

► THE STRONG SOLAR and lunar gravitational pull affects the regions of the earth's crust responsible for the development of pressures that build or tear down mountain ranges throughout geologic history, Dr. F. P. Belyankin of the Ukrainian Soviet Socialist Republic Academy of Sciences has found.

Scientists will soon be able to predict how the earth's crust will look in the future as well as in the past, the Russian scientist states in a translation by the U. S. Joint Publications Research Service in Washington, D. C.

The stresses and strains triggered in the earth's crust by the gravitational pull are highly complex, varying from region to region. Towering mountain ranges and great deserts react differently under this constant pull, the scientist noted, creating their own processes that trigger earthquakes, erode mountains or fracture rocks.

This attraction by the moon and sun also creates the well known earth "tides" or bulges in the earth's crust. The crust, which is about twice as rigid as steel, actually rises and falls a few inches in a manner similar to the ocean tides.

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## SPACE

**Echo Problem Haunts Space Age Satellites**

► AN ECHO PROBLEM in radio communications that was solved nearly 40 years ago has bounced back to haunt space age communications satellites.

Future satellite communication systems relaying two-way telephone conversations across the oceans and continents will be hampered by an echo caused when a voice travels to its destination and back to the person speaking.

This problem, which was solved on the ground as early as 1922, will force speakers to talk at a slower rate, stutter or stop all conversation, R. P. Haviland and A. J. Vadasz of General Electric Company told a symposium on global communications in Chicago.

Satellites whirling around the earth at a 6,000-mile altitude would lessen, though not eliminate, the echoes, the scientists said.

Although "fewer satellites are needed for relay purposes when the orbit is at higher altitudes," the echoes would greatly increase because of the greater distances, and create confusion, they reported.

About ten satellites would be needed to lessen the echo effect, the scientists concluded.

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# CE FIELDS

## MEDICINE

### Air Pollution Blamed For Chronic Lung Disease

► CHRONIC LUNG DISEASE and air pollution are linked by enough circumstantial evidence to start control programs now, a U.S. Public Health Service official reported.

Vernon G. MacKenzie, chief of the division of air pollution, demanded action to clear the air of such pollutants as wastes and smoke from industry, exhausts from motor vehicles, incinerators improperly run, coal furnaces incorrectly operated, and the burning of debris or leaves in yards of homes.

Techniques available to control most types of air pollution are not being used, Mr. MacKenzie told a public health session of the National Tuberculosis Association meeting in Cincinnati, Ohio.

The country should not wait for positive proof of the relationship between impure air and chronic lung disease, the speaker said. Effective control programs should be started "just as our forebears did a hundred years ago on the basis of circumstantial evidence linking filth and intestinal communicable diseases."

Only 106 communities of 6,000 needing control programs are doing anything effective, Mr. MacKenzie said. Of the city population, 90% live in localities with air pollution problems.

The Federal Government should give vigorous leadership in expanding research on the causes, effects and control of air pollution, he recommended. It also should assist states and communities in developing programs and in calling their attention to the problem, he said.

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## MEDICINE

### Balloon Used in Stomach To Photograph Cancer

► BALLOON PICTURES taken inside the stomach can reveal whether or not a patient has cancer.

A total of 352 patients with stomach complaints swallowed small deflated balloons after swallowing or getting injections of radioactive phosphorus. The balloons are coated on the inside with a light-sensitive emulsion, making it virtually a photographic film.

The balloon is inflated in the stomach and left there for four hours, when it is deflated and removed.

Cancer takes up more phosphorus than does healthy stomach tissue adjacent. The radioactive phosphorus concentrated in the cancer produces a dark spot on the film on long exposure within the stomach.

The American Cancer Society, which helps to support this research under the

direction of Dr. Owen H. Wangensteen, of the University of Minnesota Hospitals in Minneapolis, reported that other measures devised by surgeons working with him were also helping some patients with internal cancer.

Radioactive dyes have been given to patients by the surgeons, who with the help of a scanning system have ferreted out hidden cancer colonies in the liver. Radioactive iron also has been given to detect digestive tract bleeding.

Since 1949 the Wangensteen group has been taking a "second look" at operated areas within cancer patients. From four to nine months following the original operations, they have opened up the patient and searched for evidence of cancer.

In one-half of the patients there was no sign of recurrence, but in the other 50%, cancer colonies had come to life. One patient had seven "looks" in four and a half years, but on the seventh, he was declared cancer free.

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## PUBLIC SAFETY

### Drownings in Bathtubs Swell Accident Toll

► MORE THAN TWICE as many persons drown in bathtubs as in swimming pools or in other water on home grounds, the National Office of Vital Statistics, U. S. Public Health Service, Washington, D. C., reports.

The most recent annual report (1958) shows that 140 children and adults drowned in bathtubs, whereas 62 met death in swimming pools, 57 in cisterns, wells or cesspools. A total of 407 home drownings included those in other bodies of open water, and miscellaneous specified and unspecified places.

Warren W. Morse, analytical statistician, said about three-fifths of those who died were less than five years old and that half were no more than two years old. In every eight drownings, one person was five to 19 years old and one was 20 to 44 years old.

Swimming pools are more likely to be protected from small children, which accounts for the fact that only 39% of those who died in swimming pools were under five years of age.

Among unexpected types of drowning at home, were one of a ten-month-old child in a five-gallon bucket and those of one-year-olds in a five-gallon can, a bucket and a 20-gallon crock.

The statistician pointed out that 55% of 96 persons 20 years old or over, drowned in bathtubs, 25% in swimming pools and 20% in wells, cisterns and cesspools.

Among other open bodies of water around home that caused deaths by drowning were a lake, a creek, a hole filled with water, four ditches and five fishponds.

Deaths from accidental drownings in the United States during 1958 totaled 5,605, almost 11% of the 47,300 deaths from all nontransport accidents. The statistics are published in Public Health Reports, 76:452, 1961.

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## PSYCHIATRY

### Phone Suicide Warnings Are Calls for Help

► EVEN THE MOST desperate person contemplating suicide is usually willing and even anxious to receive help in preventing his contemplated act.

This was found by the Suicide Prevention Center of Los Angeles in handling the large volume of telephone calls warning of impending suicides. Marvin N. Kaphan, psychiatric social worker, and Dr. Robert E. Litman, psychiatrist-director of the Center, reported how the Center operates to the American Psychiatric Association meeting in Chicago.

As the calls come in, they are taken by the psychiatric social worker. In this the psychiatric social worker has the close collaboration of a psychiatrist. An unusual degree of initiative and responsibility is, however, required of the social worker. Of all psychiatric emergencies, the suicidal crisis is the gravest, the Suicide Prevention Center workers said.

Simultaneously and swiftly, the social worker at the telephone must give the caller support until help can arrive. A rapid evaluation of the psychiatric condition of the person threatening suicide must be made. Information on the social situation must be obtained.

Out of the experience at the Center, guides have been evolved for evaluation of the suicide risk. These include a brief schedule of critical information and a group of psycho-social patterns about which the person handling the emergency needs data.

The report was made as an aid to the general practitioner who sometimes must handle such emergency telephone calls, the investigators said. Calls may come from the person contemplating suicide, from a relative, or from some other interested person.

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## ASTRONOMY

### Supernova Found In Southern Sky

► A SUPERNOVA, a star that suddenly explodes to many million times its original brightness, has been discovered in the constellation Virgo, which is visible in the southern sky at about 9:00 p.m. EST.

The supernova is too faint (11th magnitude) to be seen without a telescope six inches or larger. It belongs to a galaxy (star system) very distant from the Milky Way galaxy in which the sun and its planets are located.

Supernovae occur only once every several hundred years in each galaxy. They can be observed from earth several times a year since they occur in various galaxies.

The newly discovered supernova, located in the galaxy called NGC 4564 is of spectral type one, which means it will fade rapidly, it was reported to Harvard College Observatory, Cambridge, Mass. The supernova was discovered at the Astronomical Observatory in Padua, Italy, on May 9.

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