

GENERAL SCIENCE

Network Detects Nuclear Tests in Atmosphere

► NUCLEAR TESTS in the atmosphere are readily detectable. If another nation should resume atmospheric nuclear testing, the United States will be the first to know.

Tell-tale reporters such as acoustic waves, X-rays and gamma rays carry the news of nuclear explosion in the atmosphere.

Networks of satellites, mobile ground units, radio receivers, radar and microbarographs are part of the system that can detect an explosion.

The announcement by President Kennedy that the United States will not hold any further nuclear tests in the atmosphere "so long as other states do not do so" is backed by our detection network as well as "our good faith and solemn convictions."

At the commencement exercises at American University, Washington, D. C., the President announced that the United States, Britain and Russia will begin "high-level" talks to rescue a test ban treaty. The talks are scheduled for Moscow in mid-July.

In revealing the U.S. decision not to resume testing the President said "such a declaration is no substitute for a formal binding treaty—but I hope it will help us achieve one."

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PSYCHIATRY

Mental Disease Risk High After Childbirth

► THE FIRST three months following childbirth carry the greatest risk of mental disorder among mothers.

In the first study of its kind in this country, made on 355 women pregnant or recently delivered, a Harvard university team in the School of Public Health reported a definite relationship between childbearing and mental illness.

Compared with other countries the United States looks upon mental derangement following childbirth, called "puerperal psychosis," with distaste. It is an unpopular subject here, Dr. Thomas F. Pugh, who directed the research, told SCIENCE SERVICE.

Dr. Pugh said interest in the subject had been prompted by the fact that it does not appear in the current official psychiatric nomenclature of the United States. The term puerperal psychosis does appear in the psychiatric classifications of disease of England, Wales, Holland and Norway, and in the International Statistical Classification of diseases. Dr. Pugh also pointed out that "mental hospital admission rates for psychosis in the United States among married females of reproductive age have exceeded those for married males of similar age" in various studies, but the reverse has been true for other mental disorders.

Ages of the 355 women ranged from 15 to 44. The smallest risk of mental disease appeared to be in the middle of reproductive life, with the greatest risk at the extreme ages of childbearing.

Manic-depressive psychoses, in which mel-

ancholy alternates with an extraordinary sense of well-being, were found to be greater than the investigators expected, when the whole childbearing period under study was considered.

Working with Dr. Pugh were Drs. William M. Schmidt and Robert B. Reed, with Dr. Bal K. Jerath of the Ludhiana Medical School, India. Dr. Jerath was a student at Harvard when this study was made. Their study was reported in the *New England Journal of Medicine*, 268:1224, 1963.

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SEISMOLOGY

Need Major Earthquake To Test Earth Core Theory

► A MAJOR EARTHQUAKE is needed to help confirm a theory that the earth's solid inner core can be moved.

This is the opinion of Dr. Louis B. Slichter, professor of geophysics at the University of California, Los Angeles. He believes that preliminary clues to movement of earth's inner core have already been noted.

Assumed to be floating in a molten iron fluid, the inner core is thought to have moved toward Japan as the result of a "kick" supplied by the Chilean earthquake of May 22, 1960.

Dr. Slichter is waiting for another strong quake to provide another "kick" whose results can be measured by sensitive instruments.

If these results show that the inner core was displaced, such information would be important in understanding the inaccessible region near the center of the earth, Dr. Slichter said.

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TECHNOLOGY

Human Ear Spots Objects By Sound Signals

► TAKING A CUE from the bats, scientists have developed a sound signal that works for humans.

Using the signal, humans can locate and judge the size of tiny objects at a distance of ten feet. They can tell a closed fist from an open palm, can detect cylinders one-twentieth of an inch in diameter, and can judge the distance of a target within two feet of its actual position.

An electronic device sends out sound beams that can be directed to objects in the surroundings. From the echoes that bounce back, the person is able to locate the object or to compare its size with other objects.

The best echo location signal for humans is the one nature also favors—rapidly repeating high-frequency clicks. Ralph G. Beil of Lockheed Aircraft Corporation, Burbank, Calif., described the "echo location" system to the Acoustical Society of America meeting in New York.

The new method can be used to develop a navigational system for the blind, and may be important in solving problems of submarine detection and identification.

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IN SCIENCE

PUBLIC HEALTH

Sodium in Drinking Water to Be Measured

► BECAUSE LIMITING sodium intake is important in treating patients with congestive heart failure, the U.S. Public Health Service is beginning a study of the sodium content of drinking water in about 3,000 cities and towns in this country. The study will take two years.

Heart patients are told to reduce their sodium intake, but they are also advised to increase their liquid intake, mainly water, to about seven and a half pints a day. Some water supplies contain up to 1,000 milligrams of sodium per liter, an important overlooked source of sodium.

Although congestive heart failure is caused primarily by the inefficient pumping of a damaged heart, the greatest problem in treatment is edema, an abnormal increase in the volume of fluid in body tissues. The swelling or puffiness of edema is primarily caused by excessive retention of sodium by the kidneys. Sodium chloride, or salt, is a common form of sodium.

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MEDICINE

Krebiozen Application Meets FDA Deadline

► KREBIOZEN, the controversial anti-cancer drug, is among some 2,000 investigational drugs for which applications have been filed to meet the June 7 deadline of a new drug law.

A 30-page document applying for "temporary experimental status" for Krebiozen was put in the mail in time for the midnight postmark. This insures continued distribution of the drug on the request of licensed physicians at least until the Food and Drug Administration passes on the application.

An FDA official told SCIENCE SERVICE that he expected Krebiozen to be among the first of the applications to be acted upon.

Dr. Andrew C. Ivy, scientific adviser of the Krebiozen Foundation, and Dr. Stevan Durovic, who first extracted Krebiozen from the serum of horses in 1948, defended its use in advanced cancer patients at a press conference in Washington, D. C.

"We feel that we stand a better chance of getting a fair test by the National Institutes of Health than ever before," Dr. Ivy said.

Asked by SCIENCE SERVICE if advanced patients would be the only ones to be treated if the drug passes National Cancer Institute tests, Dr. Ivy said he saw possibilities of eventually preventing cancer through taking Krebiozen periodically, but no plans had been made to supplant the older methods of treatment, primarily surgery.

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CE FIELDS

PSYCHOLOGY

Golf Game Works Inner Conflicts Out

► **HUSBANDS:** If you are running out of excuses for playing golf on Sundays, psychoanalysis provides a new one.

Tell your wife you are going out to the course to master anxiety about yourself and your close relationships, and to work out your inner conflicts.

For this is the deeper meaning of the game of golf, psychoanalytic studies have shown.

The game is more than a mere recreational pastime. It is a mirror of life's problems, the American Psychoanalytic Association was told in St. Louis, Mo. The game of golf, like one's inner conflicts, can never be completely mastered. This challenge is what makes the game so rewarding—and so frustrating, Dr. Carl Adatto, Louisiana State University Medical School psychiatrist, said.

Specifically, golf means different things to different people, depending on the problems they are facing, Dr. Adatto explained. For one man, making excellent shots in front of a gallery of spectators was a way of expressing his exhibitionism. For another, the 18 holes of golf symbolized steps to maturity. Understanding how their behavior on the course was related to their larger problems helped these people work through the problems, he said.

Golf, like all other play activities, is a way to master the environment, overcome painful experiences and get pleasure from physical functioning. In children's play these meanings are more easily seen, Dr. Adatto reported, because a child is naive. He said the rules and regulations of sophisticated games like golf have obscured their deeper meanings, which can be understood only through psychoanalysis.

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MEDICINE

Leukemic Woman Lives More Than Seven Years

► **WHAT IS BELIEVED** to be the longest survival of an adult patient with acute leukemia was reported by two faculty members of Tufts University School of Medicine, Boston.

A 39-year-old housewife and practical nurse is able to work in a healthy condition more than seven years after her first symptoms of this disease, usually considered rapidly fatal. Survival in adults longer than two years is exceptional.

Massive doses of the corticosteroid, prednisone, is credited with repeated clearing up of the disease in the patient, who at one time was sent to a nursing home expected to die.

The dosage of 1,000 milligrams per day

was eventually reduced to 2.5 milligrams, and the only abnormal condition of the patient in October 1962 seven and a half years after her symptoms began, was extreme obesity. She weighed 214 pounds.

Drs. William Dameshek and W. J. Mitus reported in the New England Journal of Medicine, 268:870, 1963, that use of the drug 6-mercaptopurine had not been successful in their experience, and that their method of choice was treatment with corticosteroids.

They reported treatment of two other adult women patients, 35 and 37 years old, with shorter survival time. One lived 16 months after acute leukemia was discovered, with a complete remission, or clearing up, of the disease lasting one year. The other lived almost three years after the onset of leukemia, with two remissions. Both were treated with prednisone.

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PUBLIC HEALTH

Tap Water Small Fraction Of Child's Fluid Intake

► **THE AVERAGE U.S. child** drinks less than a pint of water a day.

Studies of 797 children from different geographic areas of the U.S. show tap water accounts for less than half of all fluids consumed by infants, and less than one-fourth of the intake for those 12 and older.

The average tap water intake stays the same for all children, but the fluid intake in the form of juices, milk and soft drinks increases with age. Drs. John S. Walker and Frederick J. Margolis of Kalamazoo, Mich., Dr. H. Luten Teate Jr. of Atlanta, Dr. Marvin L. Weil of North Miami Beach, Fla., and Dr. Howard L. Wilson of Los Alamos, N. Mex., reported their studies in Science, 140:890, 1963.

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PSYCHOLOGY

Psychology Cited For Loud Commercials

► **THE "LOUDNESS" of commercials** is merely psychological and subjective, states the National Association of Broadcasters.

At least, that's their subjective opinion. In a protest filed with the Federal Communications Commission, Washington, D.C., the broadcasters pointed out that commercials are aimed to "please," not annoy their audience.

But the broadcasters use some double-talk in their report. They went on to say that "unfortunately," in filmed and recorded commercials, "loudness may be increased unintentionally while trying to achieve . . . a professional sound . . . designed to attract the attention of the listener."

So the subjective listener is right back where he started—holding his own psychological ears. If he still feels that commercials are louder than the rest of the program, he should write a post card to the Federal Communications Commission, Washington 25, D.C. They will be glad to add his opinion to their objective study of the uproar.

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SOCIOLOGY

"Drunk Drivers" Differ From Drivers Who Drink

► **THERE IS a critical difference** between "drunk drivers" and "drivers who drink."

"Drunk drivers," those with serious alcoholism problems, are likely to get into serious traffic accidents and violations. "Drivers who drink" have better safety records, research has shown. Their intoxication is temporary and infrequent, making them less of a traffic menace than the alcohol addicts.

A study of 67 drivers arrested for driving in an intoxicated state in Ann Arbor, Mich., showed 78% had "pathological drinking problems." Most of the pathological drinkers had personality disturbances in addition to their drinking problems, psychiatrists told the 119th annual meeting of the American Psychiatric Association in St. Louis, Mo.

The "drunk drivers" were at the bottom of the social and economic ladder. Whether this means that upper and middle class persons are less addicted to alcohol, more careful when driving under the influence of liquor, or treated less severely by the police when caught is a matter of speculation, the University of Michigan Medical School psychologists said.

Drs. Melvin L. Selzer, Charles E. Payne, Jean D. Gifford and William L. Kelly, who did the study, suggested that alcoholic drivers who are convicted of traffic accidents should be required to "seek treatment" before they are allowed back on the road.

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GENETICS

Colorblindness Spurred Agricultural Revolution

► **COLORBLIND MEN** may have been the leaders of the agricultural revolution that transformed man from primitive hunter to civilized settler.

Colorblindness, geneticists have found, is the only simple inherited defect that has increased as civilization has developed.

For a colorblind man, hunting is a dangerous occupation. The hunter who does not have good red-green vision risks losing his life, his family's food supply or his prestige in the tribe.

This handicap, investigators said, may have been severe enough to make the colorblind hunter turn to agriculture sooner and faster than hunters with normal vision. During a period of transition from a hunting to a nonhunting way of life, they explained, the handicap would turn into a "positive" feature. The new circumstances would allow the genes for colorblindness to increase.

Drs. James V. Neel and Richard H. Post of the University of Michigan Medical School, Ann Arbor, said their theory can be tested by studying colorblind men in today's "primitive" societies. If colorblindness rates go up when the society is in a critical period of change to an agricultural economy, then the theory would be supported. They reported their research in Eugenics Quarterly, 10:33, 1963.

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