RADIOLOGY

Cancer Treatment Uses Radiation and Laser

➤ THE COMBINED USE of radiation and laser energy shows promise as a future cancer treatment, the American Radium Society meeting in Phoenix was told.

Only one patient so far has been reported receiving the treatment, but the success of the test confirmed more detailed studies on tissue samples, Dr. James T. Helsper of Pasadena, Calif., said. He cautioned that his report must be regarded as early and experimental, but he said the results were sufficiently encouraging to deserve further study.

The patient had extensive reticulum cell sarcoma of the skin that was controlled by radiation therapy, but which was causing a drop in the white blood cell count because of the extent of the disease. Less radiation energy was needed when combined with laser treatment, with consequent improvement in the patient's condition.

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MILITARY SCIENCE

Jungle Soak-Up Of Radio in Viet Nam

➤ U. S. MILITARY forces fighting in Viet Nam have very likely already benefited from results of basic research on how jungle vegetation soaks up radio waves.

A handy portable radio transmitter that would normally transmit or receive radio messages for five miles may carry only one mile or so when tropical growth is heavy. Although this problem was noted during World War II, research on it was dropped until about three years ago.

Now scientists are trying to develop an automatic index that would tell just how far radio signals can be transmitted or received in such jungle surroundings as found in Viet Nam. Their aim is to set up rules that can be used not only for tropical situations but would be tailor-made for any area.

The problem is being attacked by way of "systems analysis," Dr. L. G. Sturgill of Atlantic Research Corporation, Arlington, Va., said. With K. G. Heisler Jr., also of Atlantic Research Corporation, he reported to the International Scientific Radio Union meeting in Washington, D.C., results of research on "radio propagation in tropically vegetated environments."

Systems analysis involves considering the factors that put a soldier at a particular place at a particular time with his specific equipment. If the equipment does not perform as expected, the fault may be neither with the soldier nor his gear, but with how they were matched to the tactical mission.

The answer, hopefully, Dr. Sturgill said, is to do something either for the equipment or the soldier's position, or both, so that the problem does not arise. This is, in effect, applying probability theory to battlefield tactics.

The theory applies also to such problems as movng through a jungle, Dr. Sturgill said. Scientists would like to know for instance, whether it is possible to build a vehicle that could just "drive through" a jungle.

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ZOOLOGY

Seals, Sea Lions See Prey in Dark Waters

➤ SEALS AND SEA LIONS, which feed at night, are able to capture some of their prey because their victims glow in the dark or because their supper is lighted up by nearby organisms, the plankton that glow when disturbed.

Another method seals use to attack their prey is to go under their victims so that they are silhouetted against the lighter water above.

The eyes of the sea animals are sensitive to very low light intensities and are suited for use at night and in deep water, reported Dr. Edmund S. Hobson, University of California at Los Angeles and member of the U.S. Fish and Wildlife Service.

Since their hearing is also well developed, and these animals are quite vocal, it has been suggested that certain sea lions are able to capture prey in darkness by using an echo-ranging sense. Subsequent work has not supported this theory, he reported in Nature, 210:326, 1966.

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TECHNOLOGY

First Floating Nuclear Power Station Sails

➤ THE WORLD'S first floating nuclear power station, complete except for installation of its nuclear fuel supply, left Mobile, Ala., on a 1,000 mile voyage to a berth on the Potomac River.

There, Martin Company technicians will prepare the power plant for operation, install its reactor core, and then put the completed plant through a series of extensive tests before turnover to the U.S. Army.

The 10-million-watt power station, officially designated MH-1A but named the Sturgis for the late Lt. Gen. Samuel D. Sturgis, former chief of engineers, is built within the hull of a jumbosized World War II Liberty Ship.

The 442-foot-long, 10,000-ton vessel will be towed around the southern tip of Key West, up the East Coast to the Chesapeake Bay, and into the Potomac River to Fort Belvoir.

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IN SCIENC

GEOPHYSICS

Gulf of Mexico May Become a Continent

➤ SOME of the world's small ocean basins, such as the Gulf of Mexico, the Bering Sea, the Sea of Okhotsk and the western Mediterranean Sea, may eventually become so filled with sediment that they become continents.

These basins have only small areas, but they contain nearly as much sediment as the enormous basins of the world and a far greater volume of sediment than the deep-sea trenches, said H. W. Menard, Office of Science and Technology, Executive Office of the President, in Washington, D.C., to the annual meeting of the American Geophysical Union in Washington, D.C.

Thick layers of sediment and sedimentary rock accumulate on the oceanic crustal bottom to depths of more than six miles. If sedimentation continues, these basins will fill up and eventually become part of the continents.

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MEDICINE

Persistent Pain Relief Seen in New Research

➤ RELIEF for severe, persistent pain such as is caused by cancer or serious injuries to the nervous system, is expected through a technique being developed in the form of a miniature implantable electronic device.

It is not yet ready for human use, but laboratory studies reported by a group of Cleveland scientists at a meeting in St. Louis, Mo., of the Cushing Society, an association of neurosurgeons, have been successful.

Up to now, narcotics, which are often not effective, or cordotomy, which means cutting part of the spinal cord, have been the usual methods for relieving unbearable pain. But surgical pain relief currently available destroys some part of the nervous system.

The new device will be smaller than a dime, implanted at an area of the spinal cord where its mild, nonpainful stimulus could block the pain stimuli coming from other parts of the body and prevent them from reaching the brain.

Drs. C. Norman Shealy, Norman Taslitz and Donald Becker of Western Reserve University School of Medicine, a part of the University Medical Center, are collaborating with Thomas Mortimer, a graduate student in engineering design center at Case Institute of Technology.

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E FIELDS

OCEANOGRAPHY

Japanese Use Sound To Lure Fish Schools

➤ THE SOUNDS FISH make when they are feeding can be used to lure schools of the same kind of fish to a position from which they can be driven into a net.

This new method of increasing fishing efficiency has been successfully tested by Japanese scientists. In artificial ponds, recorded sounds of carp feeding attracted other carp, an international symposium on marine bioacoustics at the American Museum of Natural History in New York was told.

Marine fish also responded when their own feeding sounds were played back. However, schools dispersed when sounds of dolphins were played back, Tomiju Hashimoto and Yoshinobu and Forestry, Tokyo reported.

The underwater acoustical equipment was successfully used to lure carp in all the experiments. Yellowtail fish, jack mackerel and barracuda also could be driven into a net with the recorded sounds.

Sound waves can be used to estimate the size of the fish in a school as well as the efficiency of the catching gear, D. H. Cushing of the Fisheries Laboratory, Suffolk, England, told the symposium. Both estimates are of basic importance to commercial fisheries.

One type of sonar can be used to detect the sounds made by porpoises, and it is likely that the porpoises hear the sonar, Frank J. Hester of the Bureau of Commercial Fisheries, La Jolla, Calif., reported.

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GENERAL SCIENCE

Researchers Fear Animal Restrictions

➤ WITH THE INCREASING number of animal care bills before Congress, medical researchers are worried that they might get hog-tied along with the petnappers.

"Many of the proposals advanced to date to Congress would greatly inhibit, if not prohibit, animal experimentation—the only avenue to the conquest of cancer, heart disease, arthritis, etc." said Dr. Maurice B. Visscher, president of the National Society for Medical Research and chairman of the department of physiology, University of Minnesota, Minneapolis.

"Contrary to what some individuals and organizations would like the public to believe—we support constructive efforts by Congress to improve facilities for animal care and handling while not impeding the essential contribution made by animal experimentation," Dr. Visscher told the National Association of Science Writers in Atlantic City.

"Some sort of petnapping bill probably will be enacted this year," he said. "It is our hope that Congress will see fit to pass a bill which is limited to theft of household pets. We are convinced that regulation of care and treatment of animals in research facilities has no place in this current legislation."

The House Agriculture Committee has sent the Poage (D-Texas) petnapping bill, H.R. 13881, to the floor of the House. This "purports," said Dr. Visscher, to regulate the procurement, transportation, and handling of dogs and cats by animal dealers. Though it was vastly improved over the original Poage bill, the revised version singles out dogs and cats intended for use in research.

"This is discriminatory," he said, "and we would like to see coverage broadened to include all dogs and cats without reference to use."

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MEDICINE

Report on Epilepsy Cure Misleading

➤ THE EPILEPSY Foundation has cautioned that recent reports of a complete "cure" for epilepsy were misleading, although it said some "very interesting" work is currently being conducted in the field of epilepsy research.

The "cure" reports arose when Dr. Takashi Hayashi, of the Keio University School of Medicine, Tokyo, told an international symposium on biochemistry and therapeutics in New York City that injection of an amino acid called gamma-amino-beta hydrobutyric acid (GABOB), along with another substance, homocarnosine, completely cured epileptic seizures in as many as 84% of the cases treated.

The Foundation has been deluged with phone calls for more information about the treatment.

A Foundation spokesman said Dr. Hayashi's paper was interesting, but that a "lack of controls minimizes the value of the reported results." The spokesman said, however, that previous workers have reported some success in controlling seizures with a similar compound known as GABA (gamma aminobutyric acid) and that the present report will encourage other workers in the field to investigate the possible benefits of GABOB further.

Although Dr. Hayashi reported significant numbers of persons whose seizures had apparently been arrested by the treatment, he did not mention the incidence of seizures, the clinical pattern, or the etiological (causal) factors, nor was the duration of treatment given, the TEF spokesman said.

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ARCHAEOLOGY

Abu Simbel Now Lifted to New Site

➤ THE HUGE stone blocks of the temples and statues of the Egyptian Abu Simbel monument are now all lifted and stacked in their new site on a cliff 200 feet above their original riverbed site.

The complete work of reconstructing the 30-century-old temples may be finished by spring of 1969—a year earlier than anticipated.

The temples and the colossal statues of Ramses II have been carefully cut into 940 numbered blocks, weighing 20 or 30 tons each.

Six years ago, UNESCO launched a campaign to save the temples from the waters of the Nile River which are rising as the Aswan Dam is being constructed.

The salvaging of Abu Simbel was made possible by contributions from 52 nations responding to UNESCO's appeal. It is being carried out by public works contractors from France, Germany, Italy, Sweden and the United Arab Republic.

In recognition of the U.S. Government's contribution of several million dollars to the Abu Simbel operation, the UAR Government has allocated the temple of Dendur to the United States. This temple, originally located about 50 miles south of Aswan, was built by the Roman emperor Augustus in 30 B.C.

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SPACE

Agena Circling Earth Awaits Gemini 10

➤ AN AGENA target vehicle is circling the earth 16 times a day as it waits for a second rendezvous with Gemini astronauts.

Used in last month's Gemini 8 mission to perform history's first docking in space, the Agena will be found still coursing the globe by the Gemini 10 astronauts.

At the time the Gemini 10 astronauts find this Lockheed-produced Agena, it will have traveled over 44 million miles, and will have circled the earth more than 1,900 times.

The Gemini 10 astronauts are not scheduled to dock with the Gemini 8 target vehicle. This has never been the plan. But they will locate it with their spacecraft, and photograph it. The Gemini 10 astronauts, like the Gemini 9 pilots, will dock with an Agena to be launched on the same day their spacecraft is put into orbit.

The Agena target vehicle proved in last month's Gemini 8 flight that it is a stable platform for docking with another spacecraft, that its engine can be restarted in space numerous times and that its orbit and position can be changed and precisely controlled.

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