

RADIOLOGY

X-Ray Diagnoses Disease Mimicking Brain Tumor

➤ SEVENTEEN PATIENTS, mainly young women, underwent successful surgery at Montefiore Hospital, New York, for a disease condition mimicking brain tumor, it was reported to the Radiological Society of North America in New York. Diagnosis by a series of X-rays revealed "pseudotumor cerebri," Drs. Harold G. Jacobson and Jerome H. Shapiro reported.

The mimicking disease can be treated by a simple surgical incision to tap the collection of cerebro-spinal fluid that has collected in the lower part of the brain. Headaches in both diseases result from displacement and crowding of normal tissues. The "pseudo" tumor, although not as formidable surgically as brain tumor, can destroy sight unless it is found and corrected.

Dr. Thomas E. Johnson of St. Paul, Minn., who also spoke, said that most radiologists in community hospitals can now modify standard X-ray equipment to get satisfactory results in studies of the circulation of the legs, abdomen, kidneys, chest, arms or even head.

Blood vessels do not show up normally on X-ray films and must be filled with radiopaque dye, a technique worked out in large hospitals where patients formerly had to be sent because of complex procedures. Now, by injecting the dye into the artery or vein so that the natural flow of blood carries it throughout the area to be studied, a radiologist can locate a narrowing or malfunction precisely enough to permit surgery or other treatment, Dr. Johnson said.

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PSYCHIATRY

Jailing Mentally Ill Could Be Eliminated

➤ THE "ANTIQUATED, barbaric practice" of jailing the mentally ill could be eliminated in two years by the simple expedient of setting up an emergency room for such patients in every hospital in the country.

Frazier Cheston, president of the National Association for Mental Health, said at its meeting in St. Louis, Mo., that when the police are called to take care of a member of the family who has gone berserk, a doctor should accompany the officer. The disturbed person should be taken to the emergency room and quieted with anti-depressant pills or tranquilizers until his case can be properly analyzed.

Five per cent of U.S. general hospitals have already admitted mental patients, and communities are getting used to the idea.

Short-term hospitalization has become increasingly possible because of calming drugs that make patients tractable at home. As a result, Blue Cross as well as commercial insurance companies are broadening their policies to include the mentally ill on a 21- to 120-day basis.

But there is no short cut to curing the mentally ill, Dr. Paul Hoch, psychiatrist and

commissioner of the New York State Department of Mental Hygiene, said.

Important as the research on anti-depressant drugs may be, pills are no panacea for more deliberate treatment by a trained psychiatrist. He said intensive short training of such nonpsychiatric workers as nurses, sociologists and even psychologists is no substitute for the six or eight years required for psychiatric work.

The argument that small mental hospitals should replace the big cumbersome buildings also was scored by Dr. Hoch, who pointed out that there is no simple administrative solution to the problem of treatment.

Among the hopeful new experiments with mental patients is one by Dr. Floyd S. Cornelison Jr., the University of Oklahoma Medical Center in Oklahoma City, in which scores of mental patients have been helped by seeing and hearing themselves on sound film made during their sickest periods.

Reported as most hopeful was the work on blood abnormalities in schizophrenics by Drs. Charles Frohman and Jacques Gottlieb of the Lafayette Clinic in Detroit. It is generally accepted now that treatment can be given medically once the enzyme or missing energy factor is isolated. Then the inability to meet the stress of life may be overcome.

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TECHNOLOGY

New Suction Device Tested for Navy Use

➤ A NEW KIND of suction anchor to hold objects to the ground without touching it is being tested by the U.S. Navy. It works in reverse on the same principle as that used by vehicles to glide over land or water on a cushion of air.

A vehicle that rides on air is called a ground effect machine, or GEM. The air cushion is created by fans or compressors and trapped under the vehicle by a circular curtain of air.

Now A. P. Kelley of AiResearch, Phoenix, Ariz., under a government contract has invented a kind of suction cup that uses the same principle in reverse.

An upward-blowing fan, located in an opening in the top of a bell-shaped body, provides the suction. Another dome, enclosing this bell-shaped body, forces a recirculation of the fan discharge and creates a GEM-type air curtain around the edge of the low-pressure area below the body.

The resulting machine is a large "suction cup" that does not touch the ground. A model five feet in diameter has been built and tested to demonstrate the principle, the Office of Naval Research in Washington, D. C., has reported.

A suggested application of the suction device is to reduce the heavy counterweights on crash cranes used on aircraft carrier flight decks. Another application could be to reduce the weight of tow tractors on carrier flight decks.

Mr. Kelley calls his device a MEG, which is GEM spelled backwards.

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IN SCIENCE

MILITARY SCIENCE

Union of Democracies To Reduce Nuclear Threat

➤ THE CONTINUING East-West arms race and the implied threat of nuclear war demands a "Federal Union" of the democratic nations of the world now, Dr. Harold Urey, Nobelist in chemistry, said in Washington.

Such a union now would neither be easy nor would it free us entirely from the possibilities of war or the loss of our political freedom, the Nobelist said. But, in his view, "It is the most likely development which will enable us to avoid both of these catastrophic possibilities."

Such a federation would increase the prosperity of all members of the free world federation and would, thereby, put us ahead in the cold war, Dr. Urey said.

"From the position of enormous strength that would result for the Western world with such a political organization, there would be no need to attack the Communist bloc," he said. It would enable the free world to wait more patiently for the "evolution of democracy in the USSR and China," while trying to preserve the status quo of complete national independence will lead in the immediate years ahead most probably to World War III, he warned.

Dr. Urey was honored by the Washington Chapter for his support of the American Technion Society's program to establish three new chemical engineering pilot laboratories on the campus of the Technion-Israel Institute of Technology.

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CHEMISTRY

New Glass Will Tint Itself Blue in Sunlight

➤ GLASS AUTOMATICALLY tints itself blue in sunlight and returns to clearness out of the sun. This is the possibility for the near future.

Store windows, glass-walled office buildings, automobile windshields and even space vehicles would use the new type of glass. The secret of the color change lies in molybdenum compounds. For more than a century it has been known that acid molybdate solutions changed color when exposed to light.

Recent research at the Climax Molybdenum Company, Detroit, has shown that the molybdenum compounds in a plastic turn blue if placed in a beam of light. The original color is restored when the light is removed. The research has been with acrylic plastic but is believed applicable to glass. Research is now being done by glass manufacturers with photosensitive molybdenum and tungsten compounds. They are added directly to the glass or are placed in an organic layer between two glass sheets.

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E FIELDS

ZOOLOGY

Zululand Rhinos in U.S. May Become Parents

► **BARRING ACCIDENTS** and the threat of nuclear war, the Square-lipped rhinoceros population in New York may jump 50 percent in 1964.

Malamba and Qagaza (more than two tons of family from Zululand) may be "expecting." If so, it will be 17 to 18 months (February, 1964) before the great event occurs, Joseph Davis, assistant curator of mammals, New York Zoological Park, revealed, violating sacred doctor-patient confidence in the interest of promoting scientific knowledge. The Square-lipped rhino mother usually gives birth to one calf.

Overpopulation in Zululand brought the pair of rhinoceroses to the Bronx Zoo last September. Their homeland, the Umfolozi Game Reserve in Africa, was being threatened on its borders by an invasion of the human population.

The pair, Malamba, a 1,900-pound male, and Qagaza, a 2,800-pound female, was bought for approximately \$8,400 by the New York Zoological Society. They are kept in 25-by-25-foot stalls in the Elephant House. On the Umfolozi Reserve 30 to 42 rhinoceroses per square mile was considered a crowded condition.

The Bronx Zoo rhinoceroses belong to the southern race, the largest group of land animals next to the elephant. An average adult weighs three tons, while larger ones may reach the four-ton bracket.

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RADIOLOGY

1962 Iodine-131 Levels In Milk Found High

► **FALLOUT** of cancer-causing radioactive iodine-131 in milk from nuclear bomb tests this year went considerably above the so-called acceptable daily limits recommended by the Federal Radiation Council in many parts of the United States.

A report issued by the U.S. Public Health Service reveals that the average daily levels of iodine-131 in milk in Palmer, Alaska, were more than seven times the amount considered "an acceptable health risk." In fact, the 12-month total for Palmer was above the yearly limits.

During various periods in July, August and September of this year iodine-131 levels in milk went above recommended limits in Kansas City, Mo.; Omaha, Neb.; Des Moines, Iowa; Minneapolis, Minn.; Laramie, Wyo.; Spokane, Wash., and Salt Lake City, Utah. Only Utah and Minnesota took active countermeasures to reduce exposure of their populations to iodine-131.

In cooperation with the milk industry,

public health authorities in both states withdrew fresh milk showing high levels of the radioactive contaminant, processed it into various storable dairy products that could be used after the six to eight weeks it takes for iodine-131 to decay substantially.

Iodine-131 is a known cause of thyroid cancer to which children are four to eight times more susceptible than adults. Milk provides most of the daily intake of iodine-131 by infants and children. It has, fortunately, a half-life of eight days, so that in 48 days it is virtually eliminated by decay.

The PHS tabulations indicate that strontium-90 fallout in milk from nuclear testing this year has remained below acceptable FRC limits. This element is a known cause of leukemia and bone cancer. It is found in many foods other than milk and exposure tends to be cumulative in effect. It has a half-life of over 27 years so exposure to it for children and adults is lifetime.

According to the Federal Radiation Council, "any possible health risk which may be associated with exposures, even many times the guide levels, would not result in a detectable increase in the incidence of disease."

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VETERINARY MEDICINE

Horses Threatened by Disease From Tiny Ticks

► **BECAUSE OF A TICK**, a horse can be lost.

The bloodsucker reportedly is the primary carrier of an often fatal horse disease called equine piroplasmiasis, which appeared for the first time in this country last year. The blood disease caused by a parasitic organism is better known on islands in the Caribbean, Central America and northern South America.

Though the disease in the U.S. thus far has been localized in southeastern Florida, Dr. Norvan Meyer, chief of the emergency disease eradication section, Department of Agriculture, cautioned horse owners across the country to take precautionary steps against ticks and other potential carriers. The illness, confined exclusively to horses, cannot be caused without them.

"Because the disease is relatively new in this country, we cannot definitely say the tick is the only vector, though the tropical horse tick seems to be the most common," Dr. Meyer said.

While horsemen are advised to be on the lookout for carriers as well as symptoms that resemble those of swamp fever, veterinary scientists are looking for a drug to eliminate the parasite from the blood. Near Miami, veterinarians Dr. George T. Edds of the Florida Agricultural Experiment Station and Dr. Charles B. Plummer of the Agricultural Extension Service want a drug to treat the disease and eliminate the carrier state of the infected animals.

Though race horses have been unaffected to date, because of the care generally taken by breeders to keep ticks away, the runners are by no means immune from equine piroplasmiasis, Dr. Meyer reported.

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CHEMISTRY

Detect Mislabeled Liquor With Atomic Isotopes

► **RADIOACTIVE HYDROGEN**, tritium, has allowed the Internal Revenue Service to prove that 95 per cent of 250 whiskeys and brandies imported during the past three years were improperly labeled as to age—and Uncle Sam, thanks to atomic energy, made the producers label them correctly.

All liquors contain tritium, or triple-weight hydrogen, and age determinations up to 75 years can be made because this isotope loses half its activity every 12.25 years.

Atomic energy is also being used with astonishing success in fighting crime, the American Nuclear Society was told in Washington.

A very sensitive method of nuclear detection—called neutron activation analysis—is being applied in fields ranging from positive identification of individuals to tracing opium and determining the source of water in wells.

Infinitesimal amounts of gunpowder residues taken from the hands of persons who have recently fired a gun have been measured, although they could not have been identified by any other known method.

One case that could mean several billion dollars in taxes to the Government involves dating water in Texas. Plaintiffs had asked a court for cost depletion allowance on irrigation water. Using radioactive tritium, the triple-weight isotope of hydrogen, scientists found that the average age of water in the area was about 75 years, although the plaintiffs had claimed that very little of the water table is recharged from rain water.

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TECHNOLOGY

Nuclear Reactors to Make Extra Fuel Needed

► **NUCLEAR REACTORS** that make more atomic fuel than they consume are needed for the future if the United States is to have the vast amounts of energy required by upcoming generations.

The so-called "breeder" reactors would allow use of nearly all the nuclear fuels, uranium and thorium, rather than the present less than one per cent, Dr. Glenn T. Seaborg, chairman of the Atomic Energy Commission, reported to President John F. Kennedy.

Breeders are fed non-burnable uranium and they make fissionable plutonium that can be "burned" atomically as a reactor fuel.

The report resulted from taking a "new and hard look" at the role of nuclear power in the U.S. economy as requested last March by the President.

The report sees a vigorous national nuclear power program for the future without interfering with a growing coal industry. Even assuming an optimistic forecast of nuclear power development, the use of coal by the rapidly expanding electric generating industry will increase severalfold over the next 40 years, the report predicted.

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