

ENGINEERING

Nuclear Pile Will Not Support Chain Reaction

➤ A NUCLEAR pile that will not support a chain reaction, the first of its kind at a university, will be built at New York University.

Costing only a few thousand dollars instead of the hundreds of thousands for large reactors, the new nuclear reactor was designed particularly for laboratory use.

The installation, to be tested this summer at Brookhaven National Laboratory, consists of a five-foot tank of water in which two tons of uranium rods are placed. New York University has applied to the Atomic Energy Commission for approval of the uranium loan.

Polonium and beryllium, the neutron sources, will be housed beneath floor level and can be hoisted to the reactor by remote control. The reactor will operate at a three-hundredth of a watt, compared with the 500 million watts generated by Consolidated Edison's recently proposed nuclear power plant.

Neutron intensity will be in the range of 100 million neutrons per second, sufficient for experiments irradiating foil. Such water tank studies are similar to those preceding the chain reaction at the University of Chicago in 1942 that ushered in the atomic age.

A new program leading to a degree of Master of Nuclear Engineering has been authorized by New York University's College of Engineering, Dean Thorndike Saville announced. A second new degree, that of Bachelor of Engineering Sciences, has also been authorized.

Science News Letter, June 11, 1955

AGRICULTURE

Sex Hormones Produce Fatter Lambs Faster

➤ MORE LAMB chops produced faster for less money are obtained from treating meat-producing animals with sex hormones.

"The use of sex hormones," reported W. S. Wilkinson of the Virginia Agricultural Experimental Station, "may be the most effective development to date for increasing meat production with greater profit to the producer."

Although it is still a controversial subject, Mr. Wilkinson said, researchers have found that testosterone, a male sex hormone, and both natural and synthetic estrogen and progesterone, female sex hormones, increase the rate of body weight gain and reduce the amount of feed required per pound of gain.

A combination of two naturally occurring female sex hormones is now available commercially, Mr. Wilkinson told a meeting of the Virginia Academy of Science in Harrisonburg, Va. Recently a Minnesota experiment confirmed the combination-hormone's ability to increase rate of gain for lambs and increase feed conversion without

affecting the carcass grade or bringing about harmful abnormalities.

Earlier experiments, he reported, showed that a synthetic female sex hormone, when implanted as a pellet under a lamb's skin, caused the lamb to gain 40% faster and require only 72% as much feed as untreated lambs to make a pound of gain. This man-made sex hormone, however, produced some undesirable effects. Researchers are now testing this hormone to correct its adverse effects on lambs.

The hormones are not retained in the lamb carcass to any extent, he said, and the meat is completely safe as a food.

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OCEANOGRAPHY

Electronic Fish Device Tells About Ocean's Floor

➤ A TORPEDO-SHAPED electronic fish has been developed that can supply continuous information about the ocean to scientists.

Known as a telemetering depth meter, the device can pick up such data as the depth of underwater gear and ocean current flow. It is described as unique in that it uses the ocean rather than the air as its metering medium.

A signal from the underwater unit, which is compact and self-contained, is detected at the surface by a hydrophone connected to a sonar or low frequency radio receiver in the ship.

The carrier signal from underwater is "tuned in" at the ship much as a broadcast is tuned in on a radio. This, in turn, is decoded to recover the original information just as music or speed is detected and reproduced by a radio set.

Once submerged, the gear operates without attention for long periods of time, it was reported.

It can also be easily towed behind a trawler or other ship.

Developed at the Woods Hole Oceanographic Institution, Woods Hole, Mass., the new device was described in *Deep-Sea Research* (1954, Vol. 2) by Willard Dow.

Science News Letter, June 11, 1955

DENTISTRY

Dentist Reports New Local Anesthetic Good

➤ GOOD RESULTS with a new local anesthetic were reported by Dr. Leonard M. Monheim of the University of Pittsburgh School of Dentistry in the *Journal of the American Dental Association* (June).

He found it has greater pain-killing power than procaine and two other local anesthetics, butethamine and metabutethamine. Consequently, less of it need be used. It also has a low order of toxicity.

The new local anesthetic is called Primacaine HCl by the manufacturer, Novocol Chemical Manufacturing Co., Inc., New York.

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ORNITHOLOGY

Baby Birds Now Leaving Nests

See Front Cover

➤ CITY-DWELLERS, AS well as their country cousins, can now take delight in suddenly finding baby birds where so recently there were one, two or more eggs in that private nest.

The two mourning doves shown on cover of this week's SCIENCE NEWS LETTER symbolize baby birds everywhere, with their hungry stares and wide-eyed amazement at the new world they have discovered. Soon these two young fellows will become adults.

Often, mourning doves, found from southern Canada to Mexico, will be seen flying in pairs. The birds' nests, usually not as compact as the one in this photo, can be found in trees, shrubs or on the ground.

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BACTERIOLOGY

Kitchen Trick Saves Time, Money for TB Fighters

➤ TAKING A tip from housewives, TB fighters at the Veterans Administration Hospital in Oteen, N. C., have been able to save time, money and space in keeping tuberculosis germ cultures for testing anti-tuberculosis drugs.

The tip is to use aluminum foil, bought at the grocery and used much as the housewife does to preserve food.

William E. Dye, research bacteriologist who adapted the foil for his laboratory, and his assistant, Mrs. Dorsie B. Ford of Blowing Rock, N. C., described it at the Society of the American Bacteriologists meeting in New York somewhat as follows:

First, make a little wooden mold that has nine round depressions cut into it, about four-fifths of an inch across and one-fifth of an inch deep. After washing your hands, press a piece of aluminum foil over the mold and into the depressions to duplicate the mold. Place the pressed foil in a petri dish, sterilize it and dry it with heat.

Then put the "jelly" of the culture, with its TB germs, into the depressions. Finally, place a petri dish cover over the foil, turn it upside down, slip it into a plastic bag (so as to retain the moisture) and the culture of bacilli is ready for its "incubator," where the germs develop and react to complete the test.

When the tests are finished, salvage the petri dish and bags, throwing the aluminum foil away. No time is spent scouring or sterilizing test tubes or bottles.

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CE FIELDS

MEDICINE

Jaundice Reaching Top Ranks in Germ Diseases

➤ A RELATIVE newcomer among diseases has rapidly reached into the top ranks among the leading communicable, or catching, diseases, statisticians of the Metropolitan Life Insurance Company announced in New York.

The disease is known medically as infectious hepatitis. Laymen call it jaundice. It is believed caused by a virus.

About 50,000 cases were reported in 1954, about one and a half times the total reported in 1953 and nearly three times the total for 1952, the statisticians said. Cases reported so far this year have fallen off somewhat but are still about the 1953 level.

Although the disease strikes at every period of life, its highest incidence is among school-age children. A fortunate aspect of the problem, the statisticians said, is that only a very small proportion of the cases end fatally, and these occur mostly at the ages past midlife. Altogether, there are only about 800 deaths a year from the disease in the United States, which is equivalent to only one death per 200,000 of population.

Difficulty of controlling the disease is increased by limited knowledge concerning the causative germ, and the fact that the disease does not respond to chemicals, antibiotics or any other specific treatment.

"Despite these difficulties, hepatitis is to some extent amenable to control," the statisticians reported. "Gamma globulin has proved effective in preventing cases among persons exposed to the disease, and outbreaks in institutions and camps can be reduced by greater attention to personal hygiene and environmental sanitation."

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MEDICINE

Mumps-Like Ailment From Radioactive Iodine

➤ AN ATTACK of swollen glands, like those in mumps, developed in a patient getting radioactive iodine treatment for cancer that had spread from a thyroid gland cancer. The case, reported by Drs. Robert G. Rigler and Paul W. Scanlon of the Mayo Clinic and Foundation in Rochester, Minn., is apparently the only one on record.

The patient, a 50-year-old housewife, had swollen glands on both sides of her face and moderately severe pain when she opened her mouth or swallowed, just as in mumps. She had no fever, however, and she had previously had real mumps, so the doctors felt sure the attack was due to the radioactive iodine treatment.

Ice bags and an aspirin-type pain-relieving drug helped and the mumps-like condition cleared up within 48 hours, so this rare complication of the treatment is not a serious one.

In the case reported, the thyroid gland had been completely removed and apparently there was so little thyroid tissue left even in the cancer that had spread that most of the dose of radioactive iodine concentrated in the salivary glands. This caused the inflammation with the mumps symptoms.

The case was reported at a Mayo Clinic Staff Meeting.

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MEDICINE

Relieve Arthritis Pain By Blood Pressure Drug

➤ PAIN AND other symptoms of arthritis have been relieved by a drug used to lower high blood pressures, Drs. Warren D. Platt and Irving H. Steinberg of Springfield, Mass., reported in *Annals of Internal Medicine* (April).

The drug is hexamethonium chloride. It blocks nerve impulses that cause blood vessels to constrict, which is why it is used to lower blood pressure. When the blood vessels are free of the nerve impulse, they do not constrict and blood can go through at lower pressure.

Such arthritis symptoms as abnormal sweating, coldness, blueness of skin and tingling of hands and feet are also symptoms of blood vessel constriction. This led the Springfield doctors to try hexamethonium chloride on arthritis patients.

It helped some, but symptoms came back when the drug was stopped.

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MEDICINE

Health Risks of Smoking Evaluated

➤ THE RISKS to health and long life from tobacco smoking are given a "rough evaluation" by eight authorities in the book, "The Biologic Effects of Tobacco."

Available information is incomplete but enough is known to state the following, Dr. Joseph Garland, editor of the *New England Journal of Medicine*, said in the book's foreword:

"The relation of cigarette smoking to thromboangiitis obliterans, for instance, is well established. There is little or no evidence that tobacco is an etiologic (causative) factor in other vascular diseases or in diseases of the upper gastrointestinal tract, but once they are established tobacco affects their clinical course unfavorably. Statistical evidence from various highly reliable sources points toward a causal relation between tobacco and cancer, with the likelihood that a combination of factors is necessary for the effect."

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PSYCHOLOGY

Teacher Told to Kiss Threatening Bad Big Boys

➤ "WHY DON'T you threaten to kiss them?" the visitor asked the little gray-haired woman teacher frightened by two bad big boys in her class who threatened to kiss her whenever she corrected them.

The little woman had earned an enviable reputation as teacher through years of experience. The trouble was that the bad boys in her eighth grade class were too old for the class, being 19 and 17 years. They were still in eighth grade because they were feeble-minded and could not get the necessary grades for passing to high school.

The visitor was Dr. Frederick W. Brown, coordinator of special classes at Sewanhaka High School, Floral Park, N. Y. This and other experiences convinced him and school principals that mentally retarded children who were over age for grade schools should be given a chance at high school.

With special counselling and the chance to take part in school activities with boys and girls their own age, they can be helped to learn a little more and to gain better morale and make a better social adjustment.

How well the program has worked was reported by Dr. Brown to the American Orthopsychiatric Association in *Mental Health* (April).

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INVENTION

Pilot's Escape Capsule Is Almost Foolproof

➤ AN ESCAPE capsule for pilots flying supersonic aircraft that spells the difference between life and death not only in the air, but on the sea, has been patented.

Normal cockpit instruments and controls are carried in the capsule, which is clamped to the fuselage. When the pilot must abandon his craft, he pulls a release control and the pod-like capsule is propelled off the aircraft. A small parachute helps stabilize the capsule and pilot to earth. The inventors point out that if the larger chute becomes fouled, the pilot can move the overhead canopy forward and abandon the capsule, using his personal chute.

If the capsule and cargo land at sea, the pilot drops his battery, which is waterproof, into the sea as a stabilizer. The waterproof pod, which can be stored with rations and life-saving gear, then becomes a "boat."

The capsule was developed by Edward H. Heinemann, Alfred M. Mayo and Harold L. Walpole of Los Angeles, Calif. Assigned to the United States of America as represented by the Secretary of the Navy, the three inventors claim that for the first time, the capsule permits a pilot to escape from an airplane flying more than 600 miles per hour and above 45,000 feet. The device received patent No. 2,702,680.

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