

PUBLIC SAFETY

One of 14 Barrels Leaks In AEC Disposal Test

ONE OF 14 barrels leaked dye when dumped overboard recently in tests of packages used to bury radioactive isotope wastes at sea. (See SNL, July 25, p. 51.)

But the U. S. Coast and Geodetic Survey, which conducted the tests for the Atomic Energy Commission, said the barrel did not split open. No simulated waste materials were released. The drum had been filled with brilliant yellow dye for testing the integrity of the barrels underwater.

The barrel was seen leaking aboard the Survey ship Gilbert even before the underwater test. The barrel was photographed by Survey skin divers as it plunged to its rocky resting place in the mouth of Buzzards Bay off the coast of Massachusetts.

Two other barrels let out the dye, but these were not considered "leakers" because small holes had been purposely drilled into them to permit equalization of pressures as they sank through 90 feet of water.

The Survey tests did disclose that the AEC has been ultra conservative in prescribing its dumping policies for licensed users of radioactive isotopes. Sampling of an actual Atlantic Ocean dumping ground 20 miles east of Boston revealed no radioactivity present after eight years' use.

The AEC said it requested the tests to make certain that these disposal techniques were safe—that no water, fish, or ocean bottom-living organisms were being polluted with radioactivity.

"If our cities had been as careful to check what was happening when we started dumping sewage into our rivers," said Survey oceanographer Harris B. Stewart, "we wouldn't have the pollution problem we have today. I think the AEC is being farsighted and conscientious in running these checks," he said.

Science News Letter, August 1, 1959

HEREDITY

Gene Radiation of One Parent Harms Offspring

RADIATION DAMAGE to just one parent can turn up as a harmful mutation in the offspring.

A study of fruit flies shows that there is "indeed a significant amount of damage produced when mutation is in the heterozygous condition," Dr. Irwin H. Herskowitz told SCIENCE SERVICE. The principles of this research apply to humans as well as fruit flies, he explained.

Many scientists have believed that in order for a harmful mutation to show up, a "double dose" of mutation was needed, the St. Louis University biologist said. This means that even if one of the male's genes was damaged by radiation the damage would not show up in the offspring unless the female's gene was similarly damaged. Dr. Herskowitz believes he has shown that the damage will show up even when only one gene of the two that determine a characteristic, such as blue eyes, is damaged.

First generation flies, offspring of irradiated flies, showed as much damage from irradiation to the female germ cell, or oocyte, as from irradiation to the male germ cell.

This research, reported by Dr. Herskowitz and Robert C. Baumiller in *Science* (July 17) is part of a 20-year study of the effects of radiation on mutations.

Evidence was also found that nutritional stress, being semi-starved or undernourished, increased the harmful effects of heterozygous mutations.

In the present study a radiation dose of 3,000 roentgens was used. Whereas this would be lethal for humans, Dr. Herskowitz said, it is about midway to the 5,000-roentgen dose at which fruit flies will no longer reproduce. Further studies will be made to determine the effects of lower radiation doses, to see what happens to mutations and how long the damage is retained in the offspring.

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MEDICINE

Body Withstands Forces That Crush Airplane

THE HUMAN BODY, frail as it appears, is nevertheless capable of withstanding forces that could crush an airplane.

A 155-pound workman who fell 150 feet from a scaffold on a large smokestack survived an estimated 162 "g's" when his body hit the ground.

Hugh De Haven and Ruth M. Petry of Cornell University Medical College concluded that with reasonable, engineered protection and proper support, it is probable that the human body "can easily tolerate forces that will completely demolish most aircraft now in use."

The report, originally made in 1948, was condensed by A. Howard Hasbrook and reissued by Cornell's Aviation Crash Injury Research "because of the increasing interest in human tolerance to impact loads, particularly in relation to crash landings of manned space vehicles."

The workman landed on his left side in loose rubble near the base of the stack. He bounced or rolled over a 30-degree slope toward a concrete retaining wall, then dropped another ten feet to a lower level where he was found by several witnesses. The depression made by his body at the base of the stack was eight inches deep.

He sustained fractures of the left ankle, a chip fracture of the right ankle and a linear fracture of the left lower jaw. He complained of chest pain for less than 36 hours. His recovery was rapid.

The man said after the accident that when he found himself falling he "figured this is it" and closed his eyes and relaxed. But the investigators found evidence of shock because the man did not remember hitting the ground and had only a hazy recollection of the events between the time of impact and time of his arrival at the hospital.

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IN SCIENCE

MEDICINE

One Shot of Pollen Protects From Hayfever

SOME HAYFEVER SUFFERERS can get seasonal protection against this allergy by taking one sizable injection containing ragweed pollen.

The average hayfever sufferer usually visits the allergist's office before the high pollen season begins. The doctor gives a series of 15 mild pollen-containing injections. When the season arrives, the patient is effectively protected. In many cases, this course of repeated treatment over the years creates an effective resistance.

However, many people dislike making numerous trips to the doctor's office.

Now, Dr. Ethan Allan Brown of Boston has applied the one-shot technique of Dr. Mary Loveless of New York City to 685 persons. The single dose injection protected 572 patients. The patients exhibited no symptoms of hayfever during the entire pollen season, from August to October, of 1958.

Of the original 685, however, 113 did develop some symptoms. A report of the entire study appears in the *Annals of Allergy* (May-June).

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GEOLOGY

Sleuthing Uncovers Unusual Earthquake

SCIENTIFIC SLEUTHING has uncovered an unusual earthquake, not listed in any standard records, that occurred near the gold mining town of Wonder, Nev., in 1903.

The earthquake caused a break in the earth's surface as long as 12 miles, known as the Gold King fault. In 1954, parts of the same break were reopened, from a fraction of an inch at the north end to two feet near the south end of the 1903 fault.

The two displacements on the same break are one of the only four known examples of surface cracking along the same line within historic times in the United States. Since the second cleavage occurred only 51 years after the 1903 break, it confirms the high likelihood of earthquake activity along the 118th meridian in Nevada and California.

Details of the 1903 Wonder earthquake are reported in the *Bulletin of the Seismological Society of America* (July) by David B. Slemmons and Vincent P. Gianella of the University of Nevada, Karl V. Steinbrugge of El Cerrito, Calif., Don Tocher of the University of California, Berkeley, and Gordon B. Oakshott, chief, California State Division of Mines, San Francisco.

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E FIELDS

PALEONTOLOGY

Museum Bone Found to Be 35,000,000 Years Old

See Front Cover

A TINY piece of bone that has been in the American Museum of Natural History in New York for 50 years has been identified by a Princeton University paleontologist as being 35,000,000 years old.

Thus, it is part of the oldest specimen yet discovered of a skull of the higher primates, the group that includes monkeys, apes and man.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows the one-inch wide bone fragment, left, with a complete skull of the small monkey, the Golden Marmoset.

Measuring less than an inch in diameter, the bone was deposited in a quarry in Egypt in the Early Oligocene Age. It was found about 50 miles southwest of Cairo about a half century ago by an American Museum-sponsored expedition. Not until Princeton's Dr. Elwyn L. Simons recently explored a partially studied research collection in the American Museum, however, was the importance of the bone fragment realized.

Several scientists regard the find as a reinforcement of the belief that there were several kinds of monkey-like animals living in Egypt in early Oligocene times, Dr. Simons reported.

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ZOOLOGY

Mosquito Bite Reaction Said to Be Allergic One

THE "BUMP" that results when a mosquito bites is an allergic reaction.

It is not, as many persons including scientists had believed, the result of the insect's injecting a poisonous substance that irritates the skin.

Tests with laboratory animals and some humans show that they can be sensitized to mosquito bites by injections of mosquito extract or by repeated exposures to mosquito bites. The immediate reaction, described as the appearance of a "soft, whitish wheal" surrounded by a red area, occurs only in sensitized animals, Dr. J. A. McKiel of the Canadian Department of National Health and Welfare reports. This indicates an allergic response.

Injecting rabbits and guinea pigs with mosquito extracts failed to produce any toxic symptoms in the animals, Dr. McKiel says. The suggestion made by some scientists that mosquitoes inject histamine into the wound and that this causes the immediate bite reaction is also "untenable," he says. Injections of a histamine compound failed to

raise wheals in either bite-sensitive or normal animals.

Analysis of extracts prepared from mosquitoes at various stages in the insect's life cycle shows that the allergenic material develops late in the transformation of the mosquito from larva to adult. Dr. McKiel found that the male mosquito, while he does not take "blood meals," does contain the same allergenic material as the female.

About 7,500 mosquitoes were cut up, separating the head and thorax or "chest" from the abdominal region, to discover the origin of this allergenic substance. It is limited to the head-thorax region, Dr. McKiel says, probably in the salivary glands.

Comparison of reactions to the bites of different species of mosquitoes indicates that the allergenic material is very complex. The evidence is against its being a single, simple chemical compound, Dr. McKiel concludes.

Details of his study appear in the *Canadian Journal of Zoology* (June).

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PUBLIC HEALTH

Health for Peace Bill Moves to Committee

NON-POLITICAL supporters of the International Medical Research program urge swift adoption of the Health for Peace Bill in the House.

Gen. Omar Bradley, testifying recently before the health and safety subcommittee of the House committee on interstate and foreign commerce, urged that the United States grasp the initiative in an all-out global attack on those diseases that threaten mankind.

The bill is designed to enable the U. S. to support medical research abroad in the quest for life-saving answers to America's number one and two killers, heart disease and cancer, plus other deadly disabling ailments.

The Army general urged passage of the bill during the present session of Congress. Dr. Howard A. Rusk of New York University's Bellevue Medical Center and former American Medical Association president, Dr. Gunnar Gundersen of the Gundersen Clinic, La Crosse, Wis., were among others who testified.

The bill has already passed the Senate as the International Health and Medical Research Act of 1959.

This legislation would create within the National Institutes of Health a new National Institute of International Medical Research with an annual appropriation of \$50,000,000.

These funds would be directed toward the undertaking and support of research and an exchange of information on research, training of research personnel and improvement of research facilities throughout the world.

Non-governmental leaders would be appointed to a National Advisory Council for International Medical Research. This group would establish policies, make recommendations and approve grants and loans under the program.

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EDUCATION

Intelligence Can be Created, Educator Says

INTELLIGENCE may be increased or created by using new ideas of perceptual psychology.

Although it has been thought that the intellectual capacity of a person at birth can be changed very little by environment and experience, Dr. Arthur W. Combs, professor of education and psychology at the University of Florida at Gainesville, contends that rather than being limited, intelligence is a "function" that can be increased by helping a person to broaden and deepen his perceptions.

In "Learning More About Learning," a publication of the National Education Association, Dr. Combs explains that because an individual's perceptions cannot be affected directly, new ways of teaching must be devised that will emphasize the student's inner development rather than outside coercion. This will help him to find important personal meaning in whatever material is to be learned.

To factors generally accepted as determining intelligence, such as the physical endowment, age and experience of an individual, Dr. Combs adds four new ones: need, values, self-concept, and threat. He theorizes that a person will perceive what he needs, values and feels appropriate to himself, while a sense of threat actually will hinder his perception.

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GENERAL SCIENCE

76 of 2,026 Russian Publications Available

SEVENTY-SIX JOURNALS from the more than 2,000 being published in the Soviet Union are now available in English translation.

The sources of Soviet scientific literature, its availability in the U. S., and the current translation programs of professional, academic and Government agencies are described in a National Science Foundation survey.

In addition to translations already underway, approximately 10,000 pages of scientific material will be translated next year by scientists in Israel, the survey reports. Also, foreign currencies credited to the U. S. within certain countries may now be used for scientific information purposes such as translating.

So far, cover-to-cover translations, rather than selecting particular articles, has proved to be the most economical method.

The survey includes a discussion of Soviet information sources and some of the problems the Russians have in providing their own abstracts and carrying on related publication activities.

The NSF survey, "Providing U. S. Scientists with Soviet Scientific Information," is available on request from the Foundation's Office of Science Information Service in Washington.

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