

ect has involved problems in vacuum, electron emission and insulation techniques. It has also required 20,448 turns of No. 24 copper wire wound on a copper pipe to make the electromagnet, which is the "heart" of his apparatus. Irving reports that even on a lathe the winding took three days.

Irving has also experimented with rockets and rocket fuels, built a small computer that can be used as a teaching aid, and put together a cardiograph using a beam of light, a mirror and a photo-electric cell for recording pulses.

Reports to Nobelist

► INVITED BY Nobelist Glenn Seaborg to work at the University of California's Radiation Laboratory, 18-year-old Neil Logan Nininger carried out his research project so successfully that he was asked to report on it to the Laboratory faculty.

Neil's special project concerned finding a way to make tantalum carbide filaments which can be used successfully in laboratory instruments. He controlled temperature and pressure until he was able to form filaments that would not break when touched and would not burn out below the melting point of 4,000 degrees centigrade.

He first met Dr. Seaborg during his sophomore year at Tamalpais High School, Mill Valley, Calif., when he appeared on a television program with the Nobelist who has been co-discoverer of most of the elements found since World War II. Dr. Seaborg was so impressed with Neil that he offered a summer fellowship at the Radiation Laboratory. He asked Neil to return last summer and again this coming summer.

Plant Photography

► TIME-LAPSE photographs of sundews can be used to make an original and unusually interesting study of this common but little-known swamp plant which devours insects.

Richard Melton Burger of Jamaica (N.Y.) High School gathered sundews, *Drosera intermedia*, from "bogs and pine barrens, between the honeysuckle, blueberry and bog spruce" and carefully carried them home in a plastic bag. After replanting them in a terrarium, he used his specially constructed time-lapse camera to study exactly what happens when an unwary fly lights on a sundew.

He kept careful time records of changes and movement in the leaf blades, stem, and dozens of independent tentacles of the little plant when it was stimulated by such "stand-ins" for an insect as a crumb of meat, a thin copper wire, a glass bead and casein dust.

Richard found that when an insect stops to investigate the leaf of a sundew, the plant is stimulated to action by the varying pressure of "a groping leg or a beating wing."

When the insect has been captured, its protein content acts as the chemical stimulus which is necessary to its being digested by the plant.

Science News Letter, February 22, 1958

PUBLIC HEALTH

Fallout Hazard Increasing

► THE AMOUNT of cancer-causing strontium-90 in the bones of children will reach four times its present level by 1977 even if there are no atomic tests in the future. Past tests will rain fallout on the earth.

This prediction, based on the most complete survey yet published concerning concentrations of strontium-90 in man, is made in *Science* (Feb. 7). Even with this increase, however, the levels will be far below what is now believed to be the highest permissible concentration.

Drs. J. Laurence Kulp and Arthur R. Schulert, Columbia University's Lamont Geological Observatory, and Dr. Walter R. Eckelmann, now at the Carter Research Laboratories, Tulsa, Okla., made the study on more than a thousand samples of human bone received from about 30 stations in a world-wide network.

They wanted to understand the movement and uptake of strontium-90 while the levels in man and his environment are still relatively small compared with natural background radiation. Their survey is supported by the Atomic Energy Commission.

When atomic and hydrogen bombs are tested, radioactive debris that includes strontium-90 is spewed high in the atmosphere. Some of it falls to earth's surface relatively soon, but there remains a huge reservoir stored in the stratosphere, which sifts earthward only over a period of years.

The radioactive strontium-90 can replace calcium, first in the soil. Plants then absorb the strontium-90 as they grow, as do the cows eating the plants. Eventually it lodges in man's bones through his diet, particularly milk and cereals. There, in large enough amounts, it can cause cancer.

The scientists found that, if bomb tests continue at about the recent rate, the level of strontium-90 in the bones of persons living in northeastern United States will reach 200 times the present level by the year 2100. This increase would make the concentration level then twice that now believed to be the maximum permissible.

They measured strontium-90 levels as the number of micro-micro-curies, or trillionths of a curie, present in a gram of calcium. One curie is a unit of radiation.

For any location studied, they found, the strontium-90 content of adult bone is independent of age. Only one or two percent of bone in adults is exchanged or remodeled each year.

The regional differences in the strontium-90 levels in human bone are much smaller than the differences in total fallout. The level for the Southern Hemisphere when it reaches equilibrium will be about one-half that for the Northern Hemisphere.

The average concentration of strontium-90 in the skeleton for most of the world population at the end of 1956 was about two-tenths of a micro-micro-curie. The average for North American or European children was about seven-tenths of a micro-micro-curie, ten times higher than that for adults.

The highest permissible concentration for a large population is set at 100 micro-micro-curies.

For the more than a thousand samples analyzed, strontium-90 concentrations were about 15% higher for the average female than for the average male. The samples are believed to represent 70% to 80% of the world's population.

Science News Letter, February 22, 1958



CHAMBERS AT SARDIS—An expedition, sponsored by Cornell University, Harvard University and the Bollingen Foundation under the auspices of the American Schools of Oriental Research, will soon attempt to uncover the ruins at Sardis on the Turkish west coast, a city once ruled by King Croesus.