

PUBLIC HEALTH

Fallout Minimized?

► THE MINIMUM FALLOUT WEAPON announced by Atomic Energy Commission chairman Lewis L. Strauss is probably a baby fusion (so-called hydrogen) bomb triggered by the minimum size of a fission (plutonium) bomb.

From the standpoint of its debris, fusion bombs of light elements (probably deuterium, tritium, lithium, etc.) are less poisonous to the atmosphere than the earlier A-bombs of heavy fissioning elements.

The localized bombs, dubbed more "humanitarian" in the Strauss statement, would presumably eschew the wrapping-around of uranium that was presumably used in at least one of the early H-bomb tests.

The outer layer of raw uranium, mostly isotope 238, is fissioned by the immense heat of the H-bomb explosion to change into medium weight atomic elements, some of which, like strontium 90, are poisonously accumulative in the bones and maintain radioactivity for periods from a man's lifetime to thousands of years. These are the elements that are most worrisome as air poisoners.

The light elements do not have such dangerous debris. Double and triple weight hydrogen would build up in fusion to somewhat heavier elements, still light-weights in the atomic family. Beryllium which could be formed is rated poisonous, but not so long-lived.

U. S. authorities have told practically nothing about the fusion H-bomb and the possible peaceful power use of fusion. The Russians have revealed much more. Naturally we can not be too sure about what has been told or what is being surmised.

The AEC announcement of the reduced fallout weapons is evidently a foil for the pressure from the Soviet Union to limit or stop atom bomb tests and use because of the widespread danger of radiation fallout to present populations and future generations.

In addition to the design and composition of the nuclear weapons that may limit fallout, the AEC announcement suggests that the way atomic bombs are set off can be made to localize them.

Science News Letter, August 4, 1956

MEDICINE

Cut Down Blood Fats

► PATIENTS with too much cholesterol in their blood, believed related to artery damage in some persons, will be treated with large daily doses of nicotinic acid, if their doctors follow results of a study at the Mayo Clinic and Foundation, Rochester, Minn.

The study is reported by Drs. William B. Parsons Jr., Richard W. P. Achor, Kenneth G. Berge, Bernard F. McKenzie and Nelson W. Barker in *Proceedings of the Staff Meetings of the Mayo Clinic* (June 27).

Nicotinic acid, also known as niacin, is the B vitamin needed to prevent pellagra. It is in enriched white bread and flour.

The Mayo scientists, however, gave very much larger amounts of it to patients with too much cholesterol and other fatty materials in their blood. It was given in capsules, or pills, three or six times daily.

The cholesterol in the blood decreased "significantly" in nine of 13 patients observed for 12 weeks and in three of five other patients observed for four weeks.

The pattern of the fatty materials called lipids in the blood changed toward normal in the majority of patients treated.

Heretofore, doctors have tried low fat diets, dried thyroid, certain vegetable sterols such as sitosterol, and large doses of female hormones in efforts to reduce the cholesterol in the blood. Although each of these has partly or completely corrected the disturbed blood fat condition in some patients, results with each treatment have often been variable and even disappointing.

So the search has continued for a simple, safe way to reduce blood cholesterol, even though there is no positive evidence this would prevent the development or arrest the progress of the artery condition, atherosclerosis.

More recently, it was found by a group of scientists elsewhere that nicotinic acid reduced blood cholesterol when given for 24 hours. The Mayo scientists decided to try the effects of long term treatment.

Every patient given the large doses of nicotinic acid suffered the side effects of flushing and itching, but these lessened rapidly after a few days.

Science News Letter, August 4, 1956

PUBLIC HEALTH

Seek Tests to Diagnose Polio and Tell Immunity

► WITH THE SALK vaccine protecting thousands from polio this summer, the fight on the disease is turning toward simple tests to diagnose the disease, other simple tests to tell who is immune to it, and methods of overcoming the after-effects in those stricken in past years.

Of the nearly \$2,000,000 in grants announced by the National Foundation for Infantile Paralysis, much is going toward the search for simple polio tests, better vaccines, and improvements in respirator and other kinds of care for patients.

For example, the California State Department of Public Health at San Francisco is getting more than \$32,000 for research toward a simple and practical test for polio diagnosis, and for other research.

Some of the \$259,969 awarded in three grants to Johns Hopkins University, Baltimore, will go to search for a simple and effective diagnostic test for polio. Mount Sinai Hospital in New York gets \$33,703 for research toward a practical test to determine whether or not a person is immune to polio.

More than half a million dollars of the \$1,952,155 awards go to the eight respirator centers the foundation supports. These eight awards reflect efforts by the foundation since 1950 to rescue polio patients with paralyzed breathing systems from dependence on mechanical breathing devices.

Science News Letter, August 4, 1956

MEDICINE

Surgery for Rauwolfia Patients Hazardous

► SURGICAL PATIENTS with high blood pressure taking Rauwolfia relaxing drugs for the condition should not be given the drug for two weeks before a scheduled operation, three doctors suggest.

A study of 40 hypertensive patients being treated with Rauwolfia who underwent various operations showed 16 had severe drops in blood pressure and slowing of heart rate.

Drs. Charles S. Coakley, Seymour Albert and John S. Boling of the George Washington University Hospital, Washington, warn of the hazard in the *Journal of the American Medical Association* (July 21). Emergency surgery, they say, can be performed by using drugs that block nerve response, such as scopolamine.

Science News Letter, August 4, 1956

CHEMISTRY

Absorbent Clay Structure Similar to Plastics

► MONTMORILLONITE, the highly absorbent clay used to soak up waste fission products for safe disposal, owes its great absorbent power to a network of the clay constituents and water molecules formed in somewhat the way plastics are built up by polymerization.

It is a peculiarity of these clays that on drying and kneading they become more liquid, while either exposure to water vapor or heating makes them set to a jelly-like consistency.

Studies on the behavior of such clays has led Drs. V. R. Damerell and E. Milberger of Western Reserve University, Cleveland, Ohio, to the conclusion that attractive forces between aluminum ions in the clays are the basis of the network formation. Their research is reported in *Nature* (July 28).

Science News Letter, August 4, 1956