

## CHEMISTRY

# Bomb Products Are Known

Chemists have determined what the products of the fission of an atomic bomb are. Element 61 is yet to be named. Other research is reported.

*Highlights of the annual American Chemical Society meeting, held last week in Atlantic City, N. J., are presented in this issue.*

► **JUST WHAT** happens when an atomic bomb fissions and what chemical elements are formed in the big smash-up or uranium 235 atoms are now known.

The American Chemical Society meeting in Atlantic City, N. J., was told by Dr. Aristid V. Grosse, now of the Houdry Process Corp., that 34 different elements have been detected among the fission products of the kind of uranium that can be made into a bomb.

Four elements, neodymium, barium, zirconium and molybdenum, account for nearly half of the weight of the uranium split asunder with great release of atomic energy. More than 10% of the weight reappears after the fission in each of these elements.

Two elements that do not occur naturally, because they are radioactive and thus destroy themselves, are produced in substantial amounts in uranium fission. These are element 43, recently named technetium, and element 61, as yet unnamed.

For each hundred pounds of uranium 235 fissioned, 2.6 pounds of technetium and 4 pounds of element 61 are produced.

This means that at Bikini, where two bombs were exploded, several pounds of each of these hitherto non-existent elements were manufactured and let loose in the world.

The chemists determined the amounts of elements formed by measuring the results of controlled fission or production of atomic energy in the large structure, called an atomic pile, in which slowly moving neutrons (electrically neutral atomic particles) cause the splitting of the uranium atoms in a controlled manner. The results should, however, apply in essential features to fast neutron fission such as occurs in the atomic bomb, whether it is made of uranium or plutonium.

*Science News Letter, April 26, 1947*

## Element 61 Naming Delayed

Christening of element 61 was expected to take place at this meeting but has been delayed probably until the fall meeting of the American Chemical Society. The discoverers of the element,

who worked together on the Manhattan atomic bomb project, are not yet ready to decide on the name since some of the information they wished to announce at the same time is still being kept secret.

*Science News Letter, April 26, 1947*

## Radioactive Chlorine

Chlorine, one of the elements in common salt, can be made so radioactive by exposure to neutrons in the atomic pile that one radioactive form of it will keep on giving off radiation for more than a million years. Dr. Ralph T. Overman, of the Monsanto-operated Clinton Laboratories at Oak Ridge, Tenn., reported on four activities produced by very long neutron irradiations of various chlorine compounds in the Clinton Laboratories chain-reacting pile.

Since Bikini bombs bombarded the salty sea water with neutrons, this means that some of the radioactive chlorine produced has a half-life of a million years and the effects of the Bikini bombings will be felt in this way for longer than a million years.

*Science News Letter, April 26, 1947*

## Steel Wastes Combined

Once in a while marriage of a pair of wastrels results in the reform of both of them. Something of this sort may be realized in the chemical world by the combination of two troublesome waste-products of the steel industry, coke oven ammonia and spent pickle liquor, proposed by Dr. Richard D. Hoak of the Mellon Institute of Industrial Research, Pittsburgh.

Pickle liquor is a sulfuric acid solution used to remove oxide scale from new steel. At the end, it still contains some uncombined acid, together with a quantity of mixed iron compounds. Dr. Hoak's suggestion is to run the ammonia into the spent pickle liquor, producing ammonium sulfate, which is valuable in both agriculture and industry. The iron residues he would put back into the blast furnace, for re-extraction.

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## Oleomargarine Good Food

The perennial dispute over oleomargarine came in for another round of discussion in a paper by Dr. Paul Gyorgy of the University of Pennsylvania school of medicine. He pointed out that in feeding experiments laboratory rats thrived just as well on skim milk



**NAVY TRANSPORT**—This helicopter, recently unveiled by the Navy, was designed during the war for rescue work. It can travel 100 miles an hour and carry a crew of two plus eight passengers.