

PHYSICS

Atomic Energy Produces Chemical Reaction By Heat

Reported for the First Time When New York University Scientists Produce Explosion Near Atomic Bombardment

THE HEAT produced by the release of atomic energy from the splitting of uranium has been made to create a chemical reaction for the first time, it is reported. (*Physical Review*, May 15)

Scientists of Washington Square College, New York University, have demonstrated that nitrogen iodide can be made to explode when placed near uranium being split by bombardment with neutrons.

The chemical action thus set off is believed caused by the heat released from the splitting uranium atoms. Chemically the reaction is without practical or commercial importance because nitrogen iodide is known to be a very unstable compound which will explode if dropped or otherwise carelessly handled. However, the experiment is perhaps a historic one in this field of research.

Dr. Eugene Feenburg, theoretical physicist, devised the experiment which was carried out by Prof. Walter A. Schneider and R. C. Waddell of N. Y. U. and Dr. Dixon Callihan of the College of the City of New York.

In other studies made on the fascinating problem of the nature of energy released from uranium, scientists of Columbia University reported:

1. The fission products of uranium splitting fly off sufficiently to pierce 2.2 centimeters of air, nearly an inch. Another group, having a range of 1.5 centimeters, was also noted.

2. Two gaseous products (yet unidentified but perhaps inert gases like krypton and xenon) are given off when uranium is split. Both these gases seem to be radioactive with a half-life decay of 35 seconds and five minutes respectively. The short-lived gas is apparently created when barium is produced as the other splitter particle. The chemical element associated with the longer-lived gas seems to be rubidium.

3. The sum of the energies of the two splitter particles comes to a total of 175,000,000 electron volts. This is considerably less than the 200,000,000 electron volt energies predicted for the fission process by theory. The difference is

probably due to considerable energy being used for the excitation of the splitter fragments which results in the emission of neutrons, gamma radiation and electrons.

The Columbia researches were carried out by Drs. E. T. Booth, J. R. Dunning, G. N. Glasoe, F. G. Slack and J. Steigman.

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ARCHAEOLOGY

Ancient Health Resort Gave Modern Treatment

GERMAN archaeologists have finished digging at the famous health resort of Pergamon in Asia Minor. The ancient spa in its day had such a reputation that its clients included emperors of Rome. If its ruins are still hiding any secrets of Greek health lore, they will remain undetected for the time being.

The Germans have been interested in Pergamon since 1873, when a German civil engineer found a piece of sculptured frieze during some road digging. That find led to excavation of the mag-

nificent altar of Zeus, a six years' task. In 20 years more, the altar was reconstructed in all its grandeur in its own museum in Berlin. It is known as the largest monument of Greek sculpture in existence.

Pergamon's shrine to Aesculapius was an entire sanatorium lay-out of buildings, outside the city. Here, the archaeologists have most recently explored the basement of the healing temple—the sanatorium proper. In the sacred precinct, the patients dreamed, hoping to be visited in sleep by the healing touch of the divinity.

The sacred fountain of the shrine has been located. It is near the center of the campus. The fountain came to light when the explorers traced a tunnel which led out from the basement of the healing temple. They found that this was a subway route for patients to the spring.

At this health resort, as at other Aesculapian centers, the world's early health seekers blended faith treatment with the most matter of fact physical therapy. They took sun baths, mud baths, drank the waters, exercised as directed, and diverted their minds with music and with plays in the theater.

There were about 200 temples of Aesculapius, and three of them were elaborated into sanatoria famed through the Mediterranean world. All three have been investigated archaeologically: Pergamon by Germans; Epidaurus by Greeks; the shrine on the Island of Cos by Italians.

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