ment of Science in St. Louis, by the Jesuit Seismological Association.

Each shell is named for the seismologist who first described it; ribbons lead from the various layers to samples of minerals illustrating the kind of stuff they are made of. All the familiar rocks of the earth's surface crust occupy a space not much thicker, proportionately, than a rather heavy coat of paint.

Science News Letter, February 8, 1936

ZOOLOGY

Unusual Obituary Tells of Death of Oldest Chimpanzee

UNUSUAL among obituary notices is one published in *Science* (Jan. 31), telling of the death of the oldest chimpanzee in captivity. Jimmy, aged about 40 years, died on Nov. 28 in the Philadelphia Zoological Garden.

Michael I. Tomilin, who had Jimmy in charge and who writes his death notice, believes he died of "old age." Jimmy came to the Philadelphia Zoo in 1931 from the late Mme. Rosalina Abreau's private primate colony in Havana, with the reputation of being a "tough customer." At Philadelphia he gradually became quite manageable, and during the last months of his life, evidently due to senility, he was gentle.

Yale University's Psycho-Biological Department was willed Jimmy's body by Mme. Abreau, and as a result science expects to have new information about old age in one of man's relatives.

Science News Letter, February 8, 1936

RADIO

Tiny Radio Sets Help Handle Long Freight Trains

LOW-powered radio transmitters are being used experimentally on at least one eastern railroad for communication between locomotive and caboose on long freight trains, it was disclosed in New York City recently by S. G. Ellis before the meeting of the American Institute of Electrical Engineers.

Tests covering 18 months' time, 36,000 miles of travel and with the radio in operation for a total of 1,800 hours were described by Mr. Ellis of the Westinghouse Electric Company. The tests were made on the New York, New Haven and Hartford Railroad.

The transmitter used had only 15 watts power and a range of only a few miles. Tests were satisfactory for freight trains of 130 cars in length.

Science News Letter, February 8, 1936

PHYSICS

First Synthesis of Naturally Found Radioactive Substance

Radium E Built Up by Bombarding Bismuth With Heavy Hydrogen Particles at 12,000-Mile-an-Hour Velocity

MAN HAS at last been able to make a radioactive substance that occurs in nature.

By powerful bombardments of a common substance there has been created synthetically in the radiation laboratory of the University of California a form of radium.

This first synthetic production of any naturally occurring radioactive substance is the accomplishment of Dr. J. J. Livingood, research associate.

The substance which he has created for the first time by artificial laboratory methods is radium E, one of the intermediary products in the slow decay of ordinary radium to lead. The amount of radium E so far obtained is almost infinitesimal, but careful checks leave no doubt as to its identity.

Synthetic radium E was obtained by Dr. Livingood through the bombardment of the common, inert substance bismuth with deuterons at an energy of approximately five and a half million electron volts.

This product behaves exactly as does natural radium E. Tests have shown that it decays with a half-life of five days by emitting electrons and is converted into polonium which continues the decay by emitting alpha particles at a half-life rate of about one hundred forty days. The end product of this process is lead, though tests so far have been limited to determining the type and rate of radiation.

This new step in the transmutation of matter was taken in the laboratory of Prof. E. O. Lawrence, using the eighty-five ton cyclotron or atomic disintegrator designed by him which has already been successful in transmuting more than a third of all elements known to man.

The conversion of bismuth, heaviest nonradioactive element, into radium E, is considered final proof that the apparatus will induce changes in every kind of matter. The deuteron bullets used in bombarding substances to be transmuted are the nuclei of double-weight hydrogen atoms obtained from heavy water costing approximately $600 a pint.

These bullets are shot from the cyclotron at velocities of twelve thousand or more miles per second at the rate of one hundred thousand billion per second. Substances placed in the path of this barrage are disintegrated or fundamentally changed in nature. Recently platinum was converted into gold.

Seventeen different research centers throughout the world have reported that they are building or planning to build replicas of the atom disintegrator at the University of California. Three of the centers are in Russia, two in England, one in Japan, one in Denmark, and ten in the United States, namely the Universities of Michigan, Chicago, Rochester, Washington, Illinois, Cornell, Princeton, Purdue, Columbia, and the Franklin Institute.

Science News Letter, February 8, 1936

CHEMISTRY

Onions' "Breath" Measured For Strength by New Method

ONIONS can now have the strength of their "breath" measured.

Stated in slightly more technical terms, a definitely quantitative measurement can be made of their pungency, by a new distillation process devised by Hans Platenius, a young research scientist at Cornell University. Mr. Platenius's technique is no mere chemical stunt, either; anyone who has ever bought or sold onions in quantity knows that strength or mildness in onions is reflected in cold cash on the hard cobblestones of the produce marketplace.

The Cornell onion-"breath" measuring system is based on the fact that the pungency of an onion depends on a sulphur-containing oil. There is very little of this in an onion. One mass analysis some years ago used up more than five tons of onions and yielded less than half a pound of the oil. But it goes a long way.

The oil, which is known chemically as allyl-propyl-disulphide, contains about 43 per cent. of sulphur by weight. Hence, any method which will measure