



WAR SOUVENIR

This is the x-ray picture that revealed the knife blade, white streak in upper left corner, in Mr. Sherry's brain.

MEDICINE

Lameness Traced to Knife Blade in Brain

FOR OVER fifteen years James P. Sherry of Rochester, N. Y., carried a knife blade buried in his brain without knowing it.

Recently, severe headaches and lameness in one leg led him to seek medical aid. Dr. Charles S. Gallaher, of the medical department of the Eastman Kodak Company where Mr. Sherry is employed, examined the man, detected an abnormal condition of the eye on the side opposite to the lame leg, suspected a brain abscess and took an X-ray picture, which showed the knife blade in Mr. Sherry's brain. A fine scar was then found on his scalp. Removal of the blade by surgical operation resulted in the patient's complete recovery.

Strangely enough, Mr. Sherry was not only ignorant of the blade's being in his brain, he did not even remember ever suffering a head injury. The only possible explanation is that the blade entered his brain at the time of a war injury. Mr. Sherry was struck on the elbow by shrapnel in the Argonne. For hours afterward he was dazed. Mr. Sherry and his medical attendants believe that the knife blade was in the same shell and was driven through the skull by the same burst, probably going in red hot and cauterizing the wound it made.

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CHEMISTRY

First Chemical Proof Obtained For Artificial Transmutation

Reaction Shows That One Element Turns Into Another; Three New Radio-Elements Now Introduced to World

THE FIRST chemical proof of the artificial transmutation of the elements has been obtained by M. and Mme. F. Joliot, working at Mme. Curie's famous Institute of Radium in Paris. Mme. Joliot in her scientific work uses her maiden name, "Irene Curie." She is the daughter of Mme. Curie.

This achievement came as the result of the Joliot's discovery a few weeks ago of artificial radioactivity. Alpha particles or helium atom hearts from naturally radioactive polonium, when flung at aluminum, boron and magnesium, resulted in emissions of positrons even after the bombardment was stopped. In the case of boron the activity continued for nearly 15 minutes. This was hailed as an important step in understanding the structure of the atom.

The positron is the recently discovered positive electron, now considered one of the ultimate particles of matter.

The theory of the mechanism of the artificial radioactivity is that the helium atom combines with a boron atom forming a nitrogen atom which is unstable and disintegrates into a stable carbon atom with the emission of a positron.

The Joliot's used a strong radioactive source and succeeded in getting about 100,000 atoms of the artificially radioactive element, which is nitrogen in the case of the attack on boron. This may seem to be a large number of atoms but it is a very small amount of material upon which to perform a chemical experiment. And they had to work fast in order to complete the reactions before the activity disappeared.

They irradiated a small amount of the chemical compound, boron nitride. They then produced ammonia gas by heating this activated boron nitride with caustic soda. Tests upon the ammonia showed that it was unusual. The artificial radioactivity had forsaken the boron and had traveled away with the ammonia. This was proof that the radioactive element formed is nitrogen. Similar experiments were performed with aluminum by dissolving irradiated alu-

minum in hydrochloric acid and finding that the activity is carried away with hydrogen gas that can be collected.

Here was chemical proof of transmutation, one element turning into another, the modern realization of the old dream of the alchemists. It was good proof also that the helium heart or alpha particle is captured in these reactions.

Three new kinds of chemical elements can now be introduced to the world. The unstable, radioactive forms of nitrogen, silicon and phosphorus made in the transmutation of boron, magnesium and aluminum are the new radio-elements. The Joliot's propose special names for them: radionitrogen, radio-silicium, radiophosphorus.

They suggest that these new elements and others similar to them will be formed when physicists try other experiments in atomic rearrangements with the aid of atomic projectiles. For instance, radionitrogen might be formed if an ordinary carbon atom captured a deuteron, and this event would be followed by the emission of a neutron. The deuteron is the nucleus or heart of heavy-weight hydrogen (deuterium) while the neutron is the electrically neutral particle which is about as heavy as a hydrogen atom. It is probable that this suggestion will be tested at Berkeley or Pasadena, Calif., where experiments with deuterons have been very successful.

Science News Letter, March 3, 1934

ASTROPHYSICS

Greatest Sun Heat Set At 21 Million Degrees

TEMPERATURE of the sun: Average—12,000,000 degrees. Maximum—21,000,000 degrees. These figures are on the Centigrade scale used by scientist.

This is the latest solar heat report announced by Sir Arthur S. Eddington, the British astronomer-physicist, as the result of calculation made according to the latest theory.

These high temperatures represent a reduction from the 1924 Eddington esti-