



NEW WONDERS FOR TOURISTS

Ice-laden sea photographed from the deck of the Soviet ice breaker *Sibiriakov* on its epochal voyage from Archangel to Japan through the Arctic ocean, which was accomplished in six weeks during the past season. This is the first time a vessel has completed this passage in one season. The ship's propeller broke twice, forcing the *Sibiriakov* to make the last stages of the voyage under crudely improvised sail.

PHYSICS

Einstein Backs Lemaitre Idea That Cosmic Rays Are Birth Cries

PROF. ALBERT EINSTEIN has given his scientific blessing to the ingenious theory proposed by Abbé Georges Lemaitre that cosmic rays are birth cries of the universe and the radiations from the super-radioactive primeval matter that existed when the universe was young.

Abbé Lemaitre, the young Belgian priest-cosmologist, first proposed this idea of cosmic ray origin in 1931. He has now expounded it to Pasadena, Calif., scientists with Prof. Einstein in his audience.

The father of relativity commented upon the Lemaitre "birth cries of the universe" theory by saying that "if matter is shortlived Lemaitre's theory is inevitable" and that besides no other theory agrees so well with all observations.

Abbé Lemaitre declared that cosmic radiation contains a thousandth of the total existing energy. He views the commonest elements as analogous to alpha rays that are emitted by radium.

The difference of interpretation of the nature of cosmic rays existing between Dr. Robert A. Millikan and Dr. A. H. Compton was touched upon by Abbé Lemaitre. He explained that beta particles or electrons must show latitude ef-

fect which, moreover, seems to exist. This upholds the Compton idea. But Abbé Lemaitre added that experiment shows that a preponderance of cosmic rays consists of photons or radiations like light rays. This upholds the Millikan idea.

The original energies of the "universe's birth cries" radiation have been greatly degraded by the red-shift effect, Abbé Lemaitre explained. This is the effect that when observed in the spectra of the far-distant nebulae indicates that the universe is expanding at a tremendous rate. Abbé Lemaitre was the first to enunciate the expanding universe theory later sponsored by De Sitter, Einstein and other "universe makers."

The essential fact of the sort of elliptical space that physicists and astronomers now visualize mathematically is that the object farthest from the observer is the back of his head, Abbé Lemaitre declared in a lecture. And in an expanding universe such as Prof. Lemaitre postulates on the basis of astronomical observations, the back of the observer's head is receding from him at an enormous rate.

In a billion years all the nebulae will have receded beyond the reach of tele-

scopes, Prof. Lemaitre said. Radioactivity will have become a legend. Similarly other radioactive processes may have died out in ancient time so that man can never know of them.

Science News Letter, January 21, 1933

PHYSICS

Boron Atom Smashed By British Physicists

BORON is the latest chemical atom to be smashed at the famous Cavendish Laboratory, Cambridge, England, by Drs. J. D. Cockcroft and E. T. S. Walton, who last year smashed lithium in a similar manner with a release of atomic energy.

Bombarding boron atoms with speedy hydrogen atomic hearts, they obtained electrically charged helium atomic hearts or alpha particles. Twenty-five times the number of helium atoms were obtained from the boron bombardment than had previously been obtained with lithium. But as yet the atom smashing is not a useful process in a practical way since roughly only one alpha particle is emitted for every two million proton hydrogen hearts flung at the boron by an electrical potential of 500,000 volts.

The Cambridge physicists wrote to *Nature*: "The ionization produced by the particles suggests that they are alpha-particles and the energy of the main group would support the assumption that a proton enters the boron nucleus (of atomic mass eleven) and the resulting nucleus breaks into three alpha-particles."

Science News Letter, January 21, 1933

PHYSICS

X-Rays Made As Cosmic Rays Plow Through Gas

A NEW PROCESS of X-ray generation, caused by the passage of a swiftly moving electrified particle through gas, has been reported to the American Physical Society by Dr. Gordon L. Locher, National Research Fellow at the Bartol Research Foundation of the Franklin Institute.

Dr. Locher discovered the new process of ionization while investigating the nature of the cosmic rays.

Part of the charge in an ionization chamber such as used for measuring the cosmic radiation is caused by characteristic X-radiation generated by the passage of the cosmic radiation particle through it, according to Dr. Locher's new theory.

Science News Letter, January 21, 1933