in coloring, is more than twice the age of previously known specimens, the famed dinosaur eggs of the Gobi desert being about 100,000,000 years old and the oldest known to science previous to the present discovery.

It is one of the most primitive eggs ever laid on land. Prior to that time animal eggs had always been deposited in water, a feature retained from the fish ancestry of the amphibians. Unhatched, and preserved with but little distortion, the fossil gives an accurate conception of the egg's original shape and also of the character of the shell, which is slightly cracked in various places. A microscopic study of this shell is now under way to determine the structure of the limy covering.

May Be Ophiacodon

The egg cannot be definitely associated with any particular animal, but it is believed to be that of a large lizard-like animal known as *Ophiacodon,* a creature with an exceptionally large head and short limbs, measuring about six feet from snout to tip of tail. The partial skeleton of an animal of this kind was found near the egg.

Scientists have been searching in this region since 1878 for fossils but until the Harvard expedition not even a fragment of a fossil egg was discovered. The fossilization of such a delicate object and its preservation for such a long time must have required unusual circumstances.

A huge inland sea is believed to have existed during the Permian period, covering much of the states of Texas, Kansas and Oklahoma, with animals living along its shores. That these animals were present in great numbers is shown by the remains of thousands of fossils found in these "badland" patches of today.

Laid Near Water

The egg was probably laid close to the water and was quickly covered by the accumulating clays of the shore line, along with the bones of other animals carried in by the water, there to begin fossilization, it is believed.

Additional hundreds of feet of sediments eventually left the egg deep under ground. After lying there for a period of 225,000,000 years the fossils have now come to light through the gradual erosion of the overlying deposits. These ancient sea beaches are quite numerous regions of the Southwest, varying in color from vermilion to dark maroon and occasionally purple. The deposit is mostly joint clay and sandstone with several thin layers of limestone.

What is probably one of the best fossil skulls of its kind ever found in this area, that of an *Eryops,* a salamander-like amphibian about eight feet long, was also brought back by the expedition, which was headed by Llewellyn Price and Theodore White, both of the Museum staff.

The skull is 26 inches long and 14 inches wide, and exceptionally well preserved. The exact relationships of the skull bones to each other can be discerned, since the skull was not crushed by the weight of the overlying clay and sandstone. It will also be possible to determine the size of the brain and thus the nervous organization of the animal, as well as the creature's place in the fauna of its time.

The egg has already been placed on exhibition at Harvard and the fragments of the skull are being assembled for display in the museum.

Science News Letter, December 15, 1934

MEDICINE

Tuberculosis Test Material Isolated in Pure Crystals

Victory in Sixty Year Battle is Considered Great Advance in Medicine's Warfare Against White Plague

A GREAT advance in medicine's warfare on the great white plague, the obtaining of tuberculosis test material in pure crystals, has just been made by Dr. Florence Seibert of the Henry Phipps Institute, Philadelphia.

For 60 years scientists have been endeavoring to isolate in pure form this substance of the tuberculosis bacillus. It, like tuberculin, allows the making of a simple skin test to tell whether or not a person or animal has tuberculosis. The new purified substance will be of immediate application to human patients.

Scientists have known for 60 years that this substance was there in the TB "germ" and they have been using it in tuberculin tests on man and in vast programs of tuberculosis eradication in cattle to insure a safe milk supply. But it has never before been available in pure form.

The isolation of this new substance, called the purified protein derivative of the tubercle bacillus, may be likened to getting out of the pancreas pure crystalline insulin for treating diabetes. Using the old tuberculin would be like using a preparation of the whole pancreas to treat diabetes. The insulin would be there but so would many other substances. Old tuberculin contained the tuberculosis detective, but it also contained many other things.

To produce this important protein substance, tubercle bacilli were grown on an inorganic medium and by special chemical methods the pure crystalline substance was isolated. Dr. Seibert has reported technical details of the isolation in the *American Review of Tuberculosis* (Dec.) Her work was done under the auspices of the medical research committee of the National Tuberculosis Association, largely supported by Christmas seal sales.

Science News Letter, December 15, 1934

PHYSICS—AERONAUTICS

Stratosphere Balloons Rising to 17 Miles

THE working of small unmanned stratosphere balloons sending back continuous reports by radio from altitudes of over 17 miles was described by Prof. J. M. Benade, distinguished Indian physicist from Forman Christian College at Lahore, India, to the American Physical Society.

Prof. Benade who is the "right-hand-man" of Prof. Arthur H. Compton on the radio-balloon phases of cosmic ray research and inventor of the method reported to the Society with Dr. R. L. Doan of the University of Chicago.

The apparatus transmitting stratosphere temperature, pressure and cosmic ray intensity weighs only ten pounds, said Prof. Benade. Temperature and pressure data are transmitted by radio signals controlled by two magnetic vibrators, each of whose motion is de-

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