

Strong tea dust is boiled and reboiled, and the resulting beverage is taking the place of the morphine and cannabis formerly consumed by many laborers, reports the London correspondent of the Journal

of the American Medical Association, who gives as his authority Russell Pasha, chief of police of Cairo. (*Journal American Medical Association*, June 8).

Science News Letter, June 15, 1935

PHYSICS

Einstein's Equivalence Law Is Again Proved Correct

Cornell University Scientist Using Theoretical Method Reaches Same Conclusion as Did Aston

NEW PROOFS of Einstein's law that mass and energy are the same thing in different forms has been evolved by Prof. H. A. Bethe, of the Cornell University department of physics.

The Cornell work removes an obstacle from one of the most important advances now under way in science, the investigation of the atomic nucleus. In the disintegration of the lightest elements, such as deuterium and lithium, the loss of mass was offset by an equivalent amount of energy, thus confirming Einstein's law.

Apparent contradiction to this law had arisen when investigators disintegrated heavier nuclei, such as beryllium and boron. Not enough energy seemed to be given off when these elements were disintegrated. This cast doubt on the validity of the Einstein formula and caused consternation in this field.

Starting from the point that most nuclei disintegrate into helium, Dr. Bethe

suggested that the mass of the helium nucleus was greater than previous measurements had indicated.

He was able to compute the atomic weights of all light elements to a greater accuracy than any previous method in chemistry or physics had given. With these more accurate masses Einstein's law was found to hold for every nuclear disintegration thus far investigated.

By a coincidence an independent investigation, conducted by Dr. F. W. Aston, well-known British physicist, confirmed by direct measurement the most important of the new atomic weights which Dr. Bethe had arrived at by the theoretical method. With confidence again restored in the validity of Einstein's law of the equivalence of mass and energy, the path is now open for probing the remaining secrets of the structure of matter which are bound up in the invisible nucleus of the atom.

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PALEONTOLOGY

Quintuplet "Loch Monsters" Fossils Found on Sakhalin

QUINTUPLETS in the "Loch Monster" field feature the newest reports from the Japanese-owned end of the Island of Sakhalin, just off the coast of mainland Asia. To be sure, they are all dead—have been for something like thirty million years. They are only fossils. But quintuplets!

The find, made by Dr. Ko Nagao, Japanese paleontologist, is rated as one of the most notable fossil discoveries of recent times, because the creatures represented by Dr. Nagao's five perfect skeletons

had been known hitherto only as fragmentary remains.

They appear to have been animals more or less like sea-cows, but with flipper-like limbs aft as well as forward, perhaps permitting them to get about to some extent on land—therefore true amphibian "dragons." They are known to scientists as *Desmostylus japonicus*.

Dr. Nagao is a professor of geology in the Imperial University of Hokkaido, Japan's northern island. He gained distinction several years ago through his dis-



QUINTUPLET "LOCH MONSTER"

Fossil bones of great creature found on the Japanese-owned end of the Island Sakhalin.

covery of a fossil of an ancient, dragon-like monster, known as *Dracodon*.

Not much has been known about *Desmostylus*. The skull of one was unearthed in Mino Province, Japan, back in 1898; then, in 1907, another skull was discovered in the United States.

It began to look as if these would be the only *Desmostylus* fossils to be discovered. So with this meager material geologists set about conjecturing the creature's appearance and habits. They came to the conclusion that it must have been an herbivorous mammal, with the sea for its home, and similar, perhaps, to the manatee, or sea-cow.

In May, 1932, someone brought another head-fossil of *Desmostylus* to the University. This led Dr. Nagao, in the summer of the same year, to begin his search for a perfect and whole specimen. Up the River Kami, up its tributary the River Keton, he searched; finally his zeal was crowned with success.

His discovery is considered particularly valuable, because the excellent condition of these new fossils will enable scientists to make more accurate deductions as to the habits of these animals.

Dr. Nagao's conclusions differ from those previously accepted. It can not be like the manatee or sea-cow, which has flippers in place of fore-feet and only rudimentary signs of back feet; for in the case of *Desmostylus* the construction of the pelvic girdle indicates the creature had back flippers as well as front ones, and consequently was an amphibian.

From the rock strata in the neighborhood, Dr. Nagao is inclined to think that the *Desmostylus* became extinct in the middle of the Tertiary period.

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