

two atoms of helium of mass 4 produces seven atoms of nitrogen of mass 13 plus one positron.

The work is another step in making the disintegrating, special kind of nitrogen already produced in America in a different way. Drs. R. Crane and C. C. Lauritsen of California Institute of Technology created artificial radioactive nitrogen by shooting deuterons at carbon. The probable reaction for the California work is thought to be: six atoms of carbon 12 plus one deuteron 2 produce seven atoms of nitrogen 13 plus a positron.

Ordinary nitrogen as found in the air has atomic number 14; the radioactive kind has number 13.

The rate at which the special nitrogen is disintegrating, with an emission of a positron, was measured by the Russian scientists. Its "decay" curve, they say, is substantially the same as that measured in America for the nitrogen created by the deuteron-impact method.

"Thus," they conclude, "starting both from boron and carbon one gets the same kind of radioactive nitrogen N 13 with the same characteristic constants."

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#### OCEANOGRAPHY

## New World Record Found For Height of Daily Tide

**S**CIENTIFIC explorers are still discovering record-breaking features of world geography.

Russian investigators have just found that the greatest daily tide in the world rises and falls in the Okhotsk Sea, the huge crook in the northeast coast line of Asia. At least, the Okhotsk Sea will hold the record unless some unsuspected shore line elsewhere turns out to have even greater tide.

There are not many places in the world where the tide rises and falls once in 24 hours, instead of regularly following the usual two-a-day schedule. Such tides occur at certain places on the Gulf Coast, in Alaska, the Philippines, the coast of China and a few other scattered localities, says H. A. Marmer, specialist on tides of the U. S. Coast and Geodetic Survey, reporting the Russian discovery to the *Geographical Review*.

Daily tides heretofore known have not been impressive in size. The famous Bay of Fundy tides, which are the standard of greatness, rise mountain-like to forty feet or more, but these rise and fall in orthodox fashion twice each day. The known range of the tides that flow in and out only once a day has been only a few feet at most.

The newly-discovered daily tides of the Okhotsk Sea, however, form waves of notable size. In the month during which the Russian Hydrographic Department made tidal observations at Cape Astronomicheski, at the northeastern head of the Okhotsk Sea, the daily tide on one record-making occasion had

a range of 37 feet.

On only a few days during the month did the Russians find two high and low waters occurring at this part of the seashore. The more usual occurrence was a single daily tide, averaging fully 28 feet.

As scientists have ranged farther afield in their investigation of tides, they have become increasingly aware that their early ideas about tides were too simple. Those early theories were based on studies along the Atlantic coast, and the response of the water there to sun and moon forces was taken to be typical. On the contrary, as Mr. Marmer has pointed out, there are many varieties of tides found at different shores. The morning tide may rise higher or faster, or it may ebb slower than, or not so far as, the afternoon tide, thus varying the pattern. There are daily tides, semi-daily, and mixed.

The charting of the tides with an understanding of all these varieties is a matter of practical importance to navigators, harbor masters, and engineers.

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#### MEDICINE

## Infantile Paralysis Vaccine Being Tried in New York

**F**IRST TRIALS of a vaccine which it is hoped will give children protection against dreaded infantile paralysis are now being made.

It will be several weeks before the value of the vaccine for humans is

known, but it has already made monkeys immune to the virus of infantile paralysis.

A description of the vaccine and the results with monkeys were given by Dr. Maurice Brodie, of New York University and Bellevue Hospital Medical School, in a report to the journal, *Science*.

The vaccine is made from the active virus which causes infantile paralysis. This virus is inactivated or made non-infective by treating it with formalin. After this inactivated virus is injected into monkeys, the animals' blood shows substances called antibodies which indicate that they have developed resistance to infantile paralysis virus and are probably immune to the disease.

"It is too early to use the vaccine in California," Dr. Brodie said when questioned about its possible usefulness in protecting children from the epidemic now occurring in that state.

Latest reports to the U. S. Public Health Service in Washington indicate a slight further increase in the epidemic. There were 340 new cases of infantile paralysis in California for the week ending June 23. Thirty-six more cases were reported from the rest of the country for that week. New York reported 8 cases, Florida 6, and Alabama 5; the other states reported only one or two cases each.

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#### ECOLOGY

## Mild Winter and Drought Menace Park Animals' Range

**T**HE MILD winter of 1933-34 in the western National Park area may be of doubtful value from the standpoint of the wild animals. Not only was the weather much milder than usual throughout the entire northern range, but the snowfall was much less heavy than in former years. As a result, the animals wintered well and sought the higher altitudes much earlier than usual this spring.

Unfortunately, however, there is cause for concern in the drought conditions that have followed the mild winter, and fear is expressed by park officials that should a hard winter follow these drought conditions the wild animals may suffer severely. A mild winter always means less forage produced, greater utilization of the range, and a higher birth rate among the wild animals, thus complicating the situation.

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