

expedition. The only accurate description on record is that of Dr. A. G. Nathorst, Swedish explorer, who is alleged to have visited the island in 1898. He described it as a "glittering white mass

from its peaks down to the sea." The peaks are supposedly 600 to 700 feet in height, and the entire land a sheet of snow and ice.

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MEDICINE

## Change Of Cracker Size Affects Diabetic Patients

**A**N UNLOOKED for effect of industrial standardization appears in the recent announcement from the Johns Hopkins Hospital in Baltimore that the change in size of a popular soda cracker is going to make trouble—temporarily at least—for patients suffering from diabetes.

From automobiles to crackers, industrial efficiency depends on having machines which reproduce the product quickly, cheaply and with as much uniformity as possible.

Crackers may not have to meet the "interchangeable parts" requirements of the automobile industry, but they have considerable standardization of size and weight. And in this characteristic lies the approaching trouble for diabetics.

The soda cracker whose size has now been changed had been adopted by the Johns Hopkins and other diabetic clinics as a unit of carbohydrate (starch food) against which the insulin needs of diabetic patients are balanced, explains Dr. Eugene J. Leopold, physician in charge of the Hopkins' diabetic clinic. The pa-

tient who takes a certain number of insulin units daily is told to eat a certain number of these crackers. The crackers were considered better for this purpose than bread because of their uniform size. Slices of bread and even the composition of the loaf vary considerably so that the physician could not be sure how much carbohydrate his patient would get from two slices of bread but he could be certain of the amount in two of these crackers.

Now the crackers are made in a much smaller size. As a result, the diabetic who eats the former prescribed number is not getting the required amount of carbohydrate for the amount of insulin he is taking and may consequently suffer from insulin shock—the result of too much insulin for his requirements.

Dr. Leopold hopes that patients and their physicians all over the country have noticed the change in size of the cracker and are making an appropriate change in the number included in the day's diet. Three of the old style large crackers correspond to about four of the new smaller ones.

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ASTRONOMY

## Stars And Nebulae Only Minute Part Of Universe

**T**HE distant nebulae are closer together than the ones in our part of the universe, according to the latest measures of Dr. Edwin Hubble of the Carnegie Institution's Mt. Wilson Observatory, who uses the world's largest telescope for his observations.

However, Dr. Hubble is not ready to accept the most obvious interpretation of his results. The measurements involve nebulae so far away that it takes several hundred million years for their light to reach us, and various things have to be taken into consideration.

Dr. Hubble took the temperatures of the nebulae to be 6,000 degrees Centigrade (10,800 degrees Fahrenheit) and assumed that the farther a nebula is from us the redder its light appears. This so-called red shift has been observed for the nearer nebulae but the more distant ones are so faint that they cannot be examined even with the 100-inch telescope he used.

According to recent theories, the universe is best regarded as a uniform space constantly expanding, and Dr. Hubble's results raise a difficulty with the concept of uniform space. This difficulty has been

examined theoretically by Profs. R. C. Tolman and P. S. Epstein of the California Institute of Technology. Working independently, they showed that even a homogeneous expanding universe could behave in accordance with the measurements of Dr. Hubble.

This is possible only if the matter in the universe is many times more dense than has been regarded as possible in the past. On the average there would have to be one atom in every quart of space. This would mean that 99.9 per cent. of the matter in the universe is nonluminous and that the stars and nebulae we can see are only a minute fraction of the whole.

Astronomers raise the question as to how it is possible to hide such vast quantities of matter in space from all of their observations.

When the 200-inch telescope is finished, the question will most likely be decided. Until then there are too many uncertainties involved to take any single theory too seriously. If the theory of Prof. Tolman is correct, it would mean that we can see one-quarter of all the nebulae in space with the 100-inch telescope, and probably the 200-inch telescope will see as far as there is space.

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PHYSICS

## Century of Weather in Few Months, Record for Testing

**M**ORE than a century of the ravages of time and weather have been simulated in the thousand cycles of freezing and thawing of concrete specimens recently completed in the research laboratory of the Portland Cement Association.

The reaction to severe winters is one of the measures of the durability of a structural material exposed to the weather. In the laboratory tests specimens of concrete of various shapes and sizes go from tropical warmth to the middle of a hard winter and back again in 24 hours.

The specimens to be tested are immersed in water containers and placed in a freezing room where it is always 20 degrees below zero. Then they get a thawing in a tank where the water is kept at 80 degrees.

After twenty or thirty cycles, the specimens are dried and weighed to determine whether there has been any deterioration or spalling of the surface. The original weight of each specimen is carefully recorded, and periodical weights are determined as long as the tests continue, which is sometimes for years.

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