time chemical rarities, like neon, argon, helium, and even aluminum, the cost of heavy water is not excessive.

Now a Third Hydrogen?

While heavy hydrogen was being explored thoroughly, the search for "heavy, heavy hydrogen," or a mass three isotope, proceeded. There is growing evidence that triple hydrogen does exist, although there is probably not more than one part in ten billion parts of normal hydrogen. Lord Rutherford found evidence of the formation of triple hydrogen in bombardments involving double hydrogen. The extreme scarcity of triple weight hydrogen will probably prevent its isolation or its chemical utilization.

If the existence of mass three hydrogen is conclusively proved, the number of chemical compounds in the universe is prodigiously increased. Take water, for instance. With three kinds of hydrogen and three kinds of oxygen, there can be eighteen kinds of water. When the thousands of compounds containing hydrogen are considered, the complexity becomes bewildering.

Naming the Baby

Just as parents have the privilege of naming their children, discoverers have the right of christening new chemical babies. It was rather awkward to continue referring to "hydrogen isotope of mass two" when the infant was so lusty and needed so much writing about in scientific journals. "Heavy hydrogen," for precise scientific literature, was unsatisfactory because of the mass three hydrogen isotope. So Drs. Urey, Brickwedde, and Murphy held a scientific christening and dubbed the new heavyweight hydrogen "deuterium." To the more common mass one isotope they gave the special name of "protium," so that the old term of hydrogen might be applied to both and specifically reserved for the mixtures of the protium and deuterium which before deuterium's discovery were the only hydrogen known. Because the nucleus of the deuterium atom was useful as a particle in atomic studies, it needed a special name. "Deuton," corresponding to "proton," the long accepted name for the ordinary hydrogen atomic nucleus, was selected by Dr. Gilbert N. Lewis of the University of California who first obtained almost complete separation of the isotopes.

Science News Letter, November 24, 1934

ASTRONOMY

Mysterious "Great Red Spot" Of Jupiter is Explained

Island of Solid Ammonia Floating on An Ocean of Liquid Hydrocarbons Suggested as Its Structure

A GREAT island or berg of solid frozen ammonia floating on a sea of liquid hydrocarbons like ethane, ethylene and acetylene, is suggested as the structure of the long-known, mysterious "great red spot" observed on the surface of the planet Jupiter. The hydrocarbon ocean may be as large as the planet itself, which is 34,800 miles in diameter.

This astounding postulate is presented by Dr. Arthur Adel of the University of Michigan and Dr. V. M. Slipher of Lowell Observatory (*Physical Review, Nov.* 15) in describing research which provides indications of the nature of the atmosphere on the major planets: Jupiter, Saturn, Neptune and Uranus.

The largest constituents of the "air" of these distant planets of the solar system is methane, each molecule of which is composed of an atom of carbon and four atoms of hydrogen. Ammonia has previously been detected on Jupiter and Saturn.

The ammonia island suggested by Drs. Adel and Slipher could be created by the extremely low temperatures of the distant planets because they are so far removed from the source of the earth's and their own heat—the sun. Of the major plants, Jupiter is nearest to the sun, but is still 483,300,000 miles away, over five times as far removed as the earth. Neptune, most distant of all major planets, is 2,791,600,000 miles away from the sun.

Freezing Hydrocarbons

The presence of methane in the atmosphere of the large planets indicates the temperature is not lower than 265 degrees Fahrenheit below zero, which is the boiling point of methane. Yet this is low enough to freeze and liquefy such gases as ethane, ethylene and acetylene.

A search for other gases, report Drs. Adel and Slipher, "leads to the conclusion that the other hydrocarbons, if they are present at all in the atmospheres of the giant planets, must exist only in traces relative to the amount of methane present. Presumably, these hydrocarbons as well as many others exist below the atmospheres of the giant planets. The unanchored motion of Jupiter's Great Red Spot suggests that it is an island of solid hydrocarbon or ammonia floating in a vast hydrocarbon ocean as extensive as the planet's surface itself."

Science News Letter, November 24, 1934

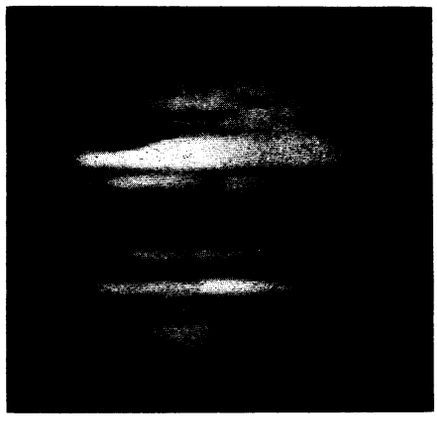
BACTERIOLOGY

New-Found Yeast Strain Grows Below Freezing Point

YEAST that will grow at temperatures below freezing point has been discovered growing in cider, by James A. Berry of the frozen pack laboratory of the U. S. Department of Agriculture. (*Science, Oct.* 12). Mr. Berry isolated cells of the new strain of yeast, and grew cultures from them in beer wort at 28 degrees Fahrenheit, 4 degrees below the freezing point of water. Despite its chilly environment, the yeast grew freely.

Science News Letter, November 24, 1934

Calabash pipes are really made from calabashes brought from South Africa.



FRIGID FLOATING ISLAND?

Jupiter's great "red spot," showing like a big eye at upper left, may be an enormous mass of solid ammonia.