

of a knoll, laying a platform of planks on the flattened eminence, and then placing the dead, wrapped in caribou or musk ox skins, on the platform. An earthen covering was replaced on the mound.

The rounded mounds with the plank flooring inside resembled remains of Eskimo houses sufficiently to lead early explorers to believe that houses were built for the dead in ancient times in the Arctic.

The two graveyards excavated by Mr. Ford were of the period of Eskimo culture known to archaeologists as "Old Bering Sea." The villages to which the graves belonged have disappeared. It appears that they were close to the sea-shore, and that they have sunk beneath the sea.

### Traced Evolution of Culture

Mr. Ford's expedition attained its goal of tracing the evolution of Eskimo culture in this northern tip of Alaska, far north of the Arctic Circle.

"Excavation of five sites around Point Barrow verified the sequence of Eskimo cultural history as it has been worked out in other parts of Alaska," Mr. Ford stated. "The graves yielded evidence of the oldest period, the Old Bering Sea culture, with some objects of a later development which we call the Birnirk stage.

"At the villages the sequence was carried up into later times. The older villages contained objects made by Eskimos of the Birnirk stage and in the later, upper levels of the remains there were evidences of the Thule type of culture well established. In another village which had a history extending into modern times, the early settlers had lived in days of Thule culture."

### Only Bow-Head in Nation

Besides archaeological specimens of the old Eskimo culture history, Mr. Ford brought back to Washington the great skull of a bow-head whale, one of the largest of these sea-dwelling mammals. The skull is pronounced the only bow-headed skull ever brought into the United States. It will be exhibited at the U. S. National Museum.

The whale was killed in the fall whaling of Eskimos at Barrow. Mr. Ford, who was one of the crew in the Eskimo boat, assisted in the kill and received as his share a portion of the meat, and the skull, which the Eskimos thought quite worthless.

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#### MEDICINE-PHYSICS

## Electrified Particles in Air May Explain "Curative Values"

German Worker Reduces Blood Pressure With Negative Ions; American Finds Fewest Ions in Occupied Room

WHEN DOCTORS write Rx for curative atmospheres or engineers design air conditioning apparatus to turn outdoors' frigid winter or torrid summer into an exhilarating spring day atmosphere indoors, they may need to specify one factor at present ignored: the electrical conductivity or ionization of the air.

Everywhere about us there are minute charged particles that act as bridges for electrical currents to cross. These ions, as they are called, start out in life as atoms or molecules from which an electron has been knocked. The removed electron becomes a negative ion and the rest of the atom or molecule has a positive electrical charge. Next in the life cycle of an ion is the coming together of some ten positive ions or electron-lacking molecules to form a positive aggregation called a "light ion" to distinguish it from a "heavy ion" which is sometimes formed by the attachment of either a positive or negative ion to a dust or water particle in the air.

From hour to hour and place to place the ions of the air vary. They increase under the influence of X-rays, radium, ultraviolet light, high voltage discharges, flames, red hot substances and even the breaking of waves on a sea beach. The radioactive matter in the soil is probably the largest factor in the ionization of the air.

In the current issue of the *Journal of the Franklin Institute*, Dr. Lewis R. Koller of the General Electric Company's Research Laboratory calls attention to the possible health importance of air ionization.

Ionization may take its place alongside pressure, temperature, radiation and humidity as an important physical factor present in the atmosphere.

Hints have accumulated in past years that atmospheric electricity may have beneficial and harmful biological effects on human health. Mountain or sea level climates seem to help some ills, radioactive springs have their advocates,

and rheumatism and the gout are influenced by the weather. It is possible that the ion content of the air may be the answer.

This theory is being tested in this country and in Europe. Prof. Friedrich Dessauer at the University of Frankfurt, Germany, constructed an ion-producing apparatus and subjected both normal and ill persons to high concentrations of both positive and negative ions.

His most striking therapeutic effects were obtained with patients suffering from high blood pressure, rheumatism, gout, neuritis, neuralgia, bronchitis, asthma and heart and arterial diseases. Inhalation of negative ions at frequent intervals over a period of weeks produced blood pressure decreases which persisted for a longer time and improvement in condition. Positive ions produced headaches and discomfort in healthy individuals.

At the Harvard School of Public Health, Prof. C. P. Yaglou found that occupied rooms have fewer ions than outdoors or rooms that are unoccupied. (*SNL, Feb. 6, '32, p. 84*)

Dr. Koller has developed methods of producing and measuring ions. If the ion content of the air is found to have a real effect on health, the next step will be to add an ion regulator to the heating, refrigerating, and humidifying equipments that promise to air-condition the buildings of the future.

*Science News Letter, November 12, 1932*

#### ASTRONOMY

## Compression of Hydrogen May Cut Guess at Sun's Age

IF THE SUN is a chemical factory in which the light element hydrogen is being turned into other and heavier elements by tight packing together of atoms, then its lifetime may be only a hundredth of the age now estimated by most astronomers.

This new and shorter estimate of the possible age of the sun is put forth in

the annual report of the Smithsonian Institution by Theodore Dunham, Jr., of the Mt. Wilson Observatory.

The current estimate of the sun's age is on the order of a million times a million years. It is based on the assumption that the sun shines because matter is being burst asunder into pure energy. The opposite assumption, of matter in a light form being turned into matter in a denser form, would still call for some conversion of matter into energy, but not nearly so much. Hence the possible reduction of the sun's age by 99 per cent.

*Science News Letter, November 12, 1932*

## BACTERIOLOGY

## Radium Found Deadly To Germs of Disease

**R**ADIUM has a devastating effect on disease-causing bacteria, Dr. Otto Mayer of Berlin has discovered. He prepared broth cultures of streptococci, which cause blood poisoning, of staphylococci, or pus-forming bacteria, and of colon bacilli. In each flask he immersed a small amount of highly radioactive material, encased in rubber. Similar flasks were left without the radiation, as controls. The control flasks produced teeming growths of bacteria, while the irradiated cultures after a few days were completely sterile. Dr. Mayer suggests radium treatments, such as are now used for cancer, for deep-seated massive bacterial infections.

*Science News Letter, November 12, 1932*

## ENGINEERING

# Largest Diesel Engine Built For Danish Power Plant

**Engineers Will Watch Its Performance, Seeking Knowledge Of Coming Events in Possible Industrial Revolution**

**T**HE WORLD'S largest diesel engine has been built for the Copenhagen power station to drive a 15,000 kilowatt generator.

Considering that it is an internal combustion engine, it is a massive machine, having an overall length of almost 65 feet and a height of about 35 feet. Its eight cylinders are comparable in size with an automobile, each being nearly a yard in diameter with a piston travel of almost five feet.

This crude-oil burning engine is rated at 22,500 brake-horsepower and will be used as an auxiliary to help a steam power plant carry its peak load. Its builders claim that a large diesel-powered generator can be built more cheaply than a corresponding turbine and boiler plant and have put forward plans for the construction of a 30,000 kilowatt generator to be run by a 40,000 brake-horsepower diesel.

Crude oil is injected into Copenhagen's new engine at pressures as great as 6,000 pounds per square inch. Its speed is 115 revolutions per minute.

The proposed larger engine would turn 187 times a minute.

The installation of the 22,500 horsepower engine is being watched by engineers everywhere because it is the latest and one of the most important events in a possible industrial revolution. Its successful and economical operation will mean the wider use of crude oil as automobile and airplane fuel and as the source of energy for electricity.

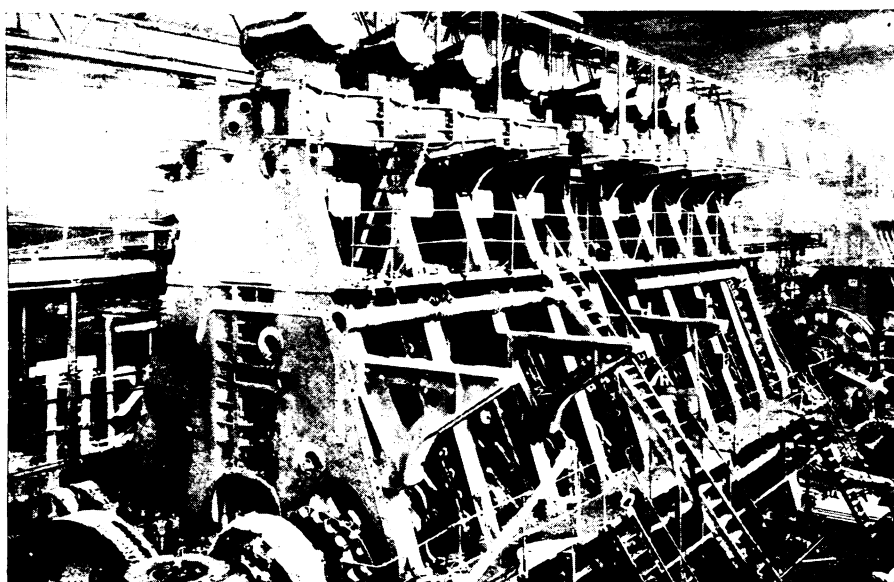
Rudolph Diesel's invention has many advantages to recommend it. Contrasted with the conventional automobile and airplane power plant, it lacks an ignition system and uses cheap, practically non-inflammable oil instead of gasoline.

In Europe, where gasoline is costly, the diesel engine is already used as the power plant for many trucks and busses, but in America, with gasoline cheaper, its application to the automotive field has not been so rapid.

America is also witnessing the development of the diesel airplane engine which has been largely fostered by the Packard Company. The weight per horsepower has been reduced to a figure comparable with that for gasoline and the advantage of non-inflammability of fuel was unfortunately illustrated by a fatal accident. Capt. L. M. Woolson, the Packard engine's designer, was killed in a crash during a fog in his diesel-powered plane, but the ship did not burn.

The diesel was initially a heavy engine, and its widest application is as a marine and stationary power plant. But research has consistently reduced its weight. Because of the diesel's small size and lightness compared with steam boilers and turbines, the new German "pocket battleships" are propelled by such engines, which were specially built much lighter than most marine diesels. Europe has a number of larger diesels in stationary power plants, one of which is a 15,000 brake-horsepower engine in the Hamburg power station. Seven thousand horsepower is America's largest, installed at Vernon, Calif.

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**TOO BIG FOR AN AUTOMOBILE**

*This internal combustion engine, the world's largest Diesel, is shown nearing completion on the construction floor.*