

## Bear Story of Past

A bear story, part of which is a million years or more old and part of which has just been finished, was told to the National Academy of Sciences by Dr. John C. Merriam of the Carnegie Institution of Washington. It concerned the fossils of an extinct race of giant bruins which he and his associates discovered in the wilderness of central Oregon, in what is known as the John Day country.

The most critical features of their find were furnished by several molar teeth, which were so closely similar to those of fossil bears found in the Siwalik hills of northern India that it has been necessary to assign the American fossils to the Indian genus, though they constitute a slightly different species. There seems to be little doubt that the wanderings of the extinct Asiatic bruins brought them eventually to western America via a land bridge or a chain of closely set islands in the Bering sea region.

An interesting circumstance connected with their finding, according to Dr. Merriam, is the fact that certain bits of crown and root broken off and missing in the original specimens which he brought in ten years ago, were found this summer by his son Charles W. Merriam, a student at the University of California. The younger Merriam spent his holidays this year combing over the ground his father had searched in 1916, and brought in every fragment of bone he found. Quite by accident Dr. Merriam and one of his associates found that two of the fragments fitted exactly into breaks in the previously incomplete specimens.

These extinct bears, Dr. Merriam stated, were giants of their kind. They were as large as very large specimens of modern grizzly bears, but were shorter in the head and with more massive jaw bones.

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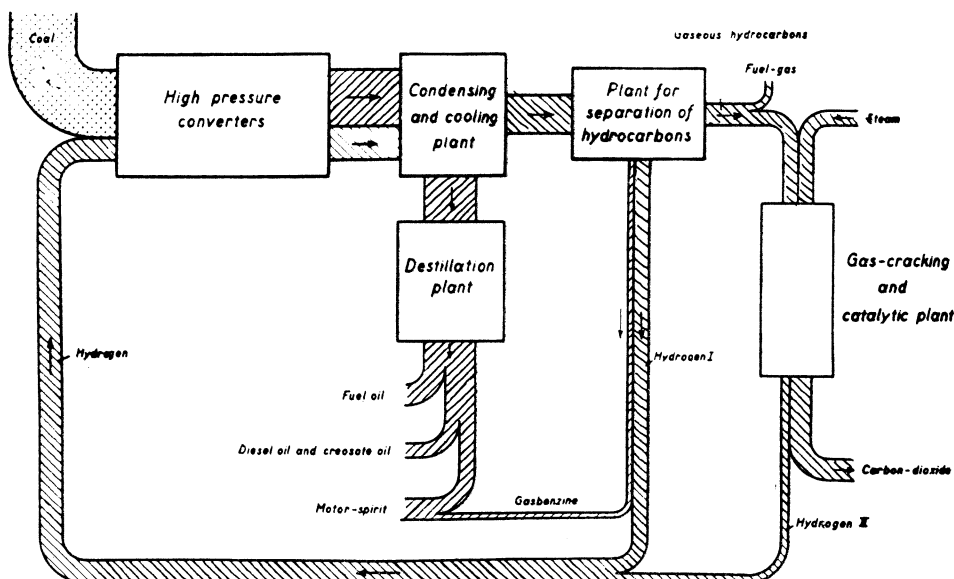
## MEDICINE

## Hughes Heads Association

Charles Evans Hughes has been elected president of the American Association for Medical Progress to succeed the late Dr. Charles W. Eliot, former president of Harvard University.

For some time in the past Mr. Hughes has served as honorary vice-president of the organization which informs the public concerning the methods and discoveries responsible for man's increasing control over animal and human diseases.

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HOW BERGIUS PROCESS CONVERTS COAL TO OIL. This diagram was prepared by Dr. Bergius himself and shows a Bergin plant operating in connection with a plant for the separation of hydrocarbons from the gas.

## Coal Conference

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dehyde combined with carbolic acid, also one of the by-products of the process, makes synthetic resins, such as bakelite, which are used for electrical insulation in radio receivers. It has been proved possible to make sugar out of formaldehyde, although this preparation is, at present, merely a laboratory curiosity.

The material for making many fruit flavors and perfumes are found among the products of this process for the liquefaction of coal. Winter-green oil, a favorite flavor of gum-chewers, is made by combining methanol with salicylic acid, which is likewise a synthetic compound. Substances similar to those found in oil of turpentine are also formed, and this suggests the possibility of sometime making camphor, menthol and rubber from common coal and water. It would be possible though not profitable, to make by such means oils and fats suitable for soapmaking or even those edible. As General Patart pointed out in conclusion, agriculture is essentially an expensive process, involving a large amount of land, a long period of growth, high cost of cultivation and uncertainty of yield. Acetic acid, indigo, and various dyes and drugs are now made synthetically and no one can foresee the end of this new development of applied chemistry.

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## Oil Famine Forestalled

"We have not yet a world famine of petroleum, but when it comes there will be available methods for over-

coming it by means of the newer chemistry of coal."

This was the statement of Dr. Franz Fischer, director of the Kaiser Wilhelm Institute for Coal Research at Mulheim in the Ruhr, who spoke before the coal conference.

He backed up his claim showing samples of synthetic petroleum and other forms of motor fuel produced by his process, which consists essentially of passing a mixture of hydrogen and carbon monoxide over finely divided iron or cobalt which serves as a catalyst, that is an agent to accomplish the combination. Half the gases combine in the first passage over the metals and uncombined gases may be again brought into contact with the catalyst. The waste gases that formerly flared from the top of blast furnaces may be employed. The water-gas may also be made from low-grade or refuse coal by passing steam over it when hot.

The Bergius process for the liquefaction of coal requires that the retorts be raised to a red heat and subjected to a pressure of 200 atmospheres but in the Fischer process ordinary air pressure is used and the temperature need not be over 450°F.

Fischer's main motor fuel, which he called synthol, is an oil consisting of various compounds such as the chemist classes as alcohols, ketones, aldehydes and the like. The compounds all contain oxygen and so differ from the natural petroleum which consists solely of carbon and hydrogen.

Dr. Arthur D. Little, Boston chemist, pointed out that if we should have to depend upon synthetic motor fuel

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