



**DR. FRIEDRICH C. R. BERGIUS**  
To whom, with Dr. Carl Bosch, the 1931  
Nobel Prize in chemistry was awarded.

meeting by Prof. Chester Stock of the California Institute of Technology.

The bones belong either to the time known as late eocene or to the early oligocene, far back toward the beginning of the Age of Mammals. Included among the fossils are remains of an opossum-like animal no larger than a mouse, a three-toed rhinoceros that was almost as slender-limbed as a horse, a creodont, which was a beast of prey neither dog nor cat, but having features of both, and some great ungainly nose-horned titanotheres. Nothing like any of these strange creatures is still living on the earth.

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## PHYSIOLOGY

## Sex Differences in Oxygen Need for Tissues Discovered

**O**NE MORE difference between the sexes has just been found by science. This is a difference in the oxygen demands of the tissues, and was reported to the meeting of the National Academy of Sciences by Dr. Oscar Riddle of the Carnegie Institution of Washington.

In investigations on ring doves and pigeons, Dr. Riddle found that hemoglobin and red blood cells exist in different quantities in the blood of the two sexes, the males having a larger quantity of these oxygen carriers of the blood. The quantities of these cells also vary with changes in seasons, as does the basal heat production of these ani-

## CHEMISTRY

## Nobel Chemistry Award To German Industrial Leaders

**T**HE Swedish Academy of Science has announced the award of the 1931 Nobel Prize in Chemistry to Dr. Friedrich C. R. Bergius and Dr. Carl Bosch of Heidelberg, for their outstanding achievements in industrial synthetic chemistry.

The German winners of the prize in chemistry are two of the world's foremost practitioners of the magic of industrial science. Dr. Bergius has for many years performed marvels in the transformation of coal, changing it into motor fuel, lubricating oils, methanol (formerly known as "wood" alcohol) and other substances. He had developed a scientific theory on the things that must have happened to the plants of long ago to turn them into coal; and his latest feat has been to indicate the possibility of making sugar out of wood on an industrial scale for the manufacture of alcohol. A firm for the commercial exploitation of this process is already in existence.

Dr. Bosch, sharer of the prize, and head of the huge German chemical manufacturing firm, the I. G. Farbenindustrie, has specialized in the building up of cheap nitrogen into more valuable

products, as his associate has worked on the building up of cheap carbon. Dr. Bosch's great achievement has been the perfection of a practical method for catching nitrogen from the air so that it can be combined with hydrogen to make ammonia by the Haber process. This in turn is used in the manufacture of fertilizers. Thanks to this process, blockaded Germany literally lived on air to a considerable extent during the war, and even captured from the atmosphere an indispensable ingredient for smokeless powder, TNT and other explosives.

Dr. Bergius was born in 1884 near Breslau, and studied at the Universities of Breslau, Leipzig and Berlin and the Technical University of Karlsruhe. Dr. Bosch was born in 1874 in Cologne, and studied at Cologne, Charlottenburg and Leipzig.

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## CHILD STUDY

## Movies of Great Service In Study of Children

**T**HE VALUE of motion pictures in the systematic study of development in young children was explained to the meeting of the National Academy of Sciences by Dr. Arnold Gesell, director of the Yale Clinic of Child Development.

For five years research members of the staff of the clinic have been gathering motion picture records of infants in the first year of life. Normal infants were used as the stars of the pictures, and the same child was photographed repeatedly at four-week intervals from the tender age of four weeks until it was a year and four weeks old. The scenes were all set in a specially designed crib, and the continuity was arranged to bring out changes in posture, methods of locomotion, skill in manipulation and other phases of development.

A special reel was shown by Dr. Gesell in which two films were projected simultaneously, one of an infant about six months old, the other showing the selfsame child four weeks later doing exactly the same things.

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mals. The changes in quantity of hemoglobin and red blood cells correspond closely with the seasonal changes in heat production.

"The oxygen carriers of the blood fluctuate with the oxygen demands of the tissues, and their sex difference reflects unequal oxygen demands of male and female tissues," Dr. Riddle concluded.

These oxygen carriers therefore seem to reflect primary sex difference and to contribute further evidence to the theory that energy changes in the female go on more slowly and in more acid medium than in the male.

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