ICE AGE PROBABLY KNOWN IN FIRST GEOLOGICAL PERIOD

The earliest records of geology indicate a cold rather than a warm climate at the beginning of the world's known history and give no support to the theory that the world began as a molten ball and has been cooling ever since, said Dr. A. P. Coleman, of the University of Toronto, to the American Association for the Advancement of Science at Washington recently.

"The spacing of ice ages in the earlier geological times shows that they come closer together in the earlier subdividions than in the later," Dr. Coleman continued. "This strongly supports the view that glaciation took place in the earliest known geological times."

Striated rocks in boulder clay are the best evidences of ice ages as they cannot be imitated by any other geological process. Such evidence, however, can not befound as these very ancient rocks have been greatly deformed and changed.

ANCIENT PLANT FOSSILS TELL OF OLD CLIMATES

What were the climates of geological periods millions of years ago? Can there be a science of "paleoclimatology"? It looks difficult, for clouds and sunshine and lightning flashes do not leave bones or shells behind them. But Dr. David White, chairman of the division of geology and geography of the National Research Council, has an answer. He studies the reccrds of ancient climates as they left their mark on the plants of those remote periods, which did leave their fossils behind them.

In the most ancient of the rocks that yield any recognizable organic remaine assigned by geologists to Cambrian, Ordovician and early Silurian periods, there were few or no land plants. Remains of primitive blue-green seaweeds, however, indicated an abundance of sunny weather over the warm, shallow seas. Later in the Silurian, types of amphibious plants evolved from the seaweeds; they required immersion part of the time, but were stiffened sufficiently to endure exposure to the world above the waters for considerable periods.

In the next period, the Devonian, the development of the land plants had proceeded to a point where they formed extensive swamps, as demonstrated by beds of peat; and huge seaweed-like things with trunks three feet in diameter stood up in the sun. The climate must have been rather even, for the plants did not develop annual rings as trees do now; and there was planty of dry, sunny weather.

Then came the earlier coal age, the Mississippian. This was, for the most part, warm and rainy, apparently all over the earth, for fossils of subtropical plants are found in the Arctic. The coal age proper, or Pennsylvanian, followed; also with an equable, and apparently warm climate well distributed. The subtropical quality of the climate is indicated by the richness of the plant remains, the great thickness of the coal beds, and by the lace-like delicacy of the leaves of many of the plants. There were extensive swamps, for fossil tree stumps show thickaned bases and "knees" such as are found in swamps today. There was considerable wind, for winged seeds were common. Again, in the latter part of this age, the fossils show that harder times had come, for the delicate-leaved plants disappeared, and tougher plants, inured to desert conditions, began to show up.

The early period of geology closed with the Permian, which ended with the

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dawn of the Mesozoic, or Middle Ages of geology. This Permian age began with a glacial epoch, such as the earh experienced recently, but more severe and longer-enduring. Queer fern-like plants, adapted to severe climate, [illegible]. Then came another long season of equable weather, though part of it at least had seasons of cold or drought, for annual rings again appeared in perennial plants. But the great climatic feature of this age was its close, when the whole world apparently was scourged with drought. Plants adapted to desert conditons of life dominated the earth, and the first ancestors of certain modern conifer families appeared.

According to Dr. White, we are living in an abnormal period. "Relative equability and mildness of climate are, geologically speaking, normal," he said. Great climatic range and variability, both seasonal and geographic, are abnormal, and are, I belive, confined for the most part to periods of diastrophic revolution, such as that in which we live."

TEMPLE TEN MILES LONG CONTAINS MAP OF MOON

The most important aborignial temple in the United States was built by prehistoric Mound Builders in and around the present site of Portsmouth, Ohio. The ten miles of embankments still traceable there represent various heavenly bodies including sun, moon, stars, and banks which accurately reproduce the form of two of the "seas" on the moon, used in an ancient sky worship. Such are the conclusions presented to the American Association for the Advancement of Science by Stansbury Hagar, secretary of the Council of the Brooklyn Institute of Arts and Sciences.

The main avenue, formed by parallel embankments 160 feet apart four feet high and twenty feet wide, begins in Kentucky and extends across the Ohio River and represents the form of a serpent. Mr. Hagar pointed out that objects exhumed from other Mounds showed the influence of Mexican and Maya culture, in which the serpent was extensively used as a religious symbol.

The only serpent temple which can compare with the Portsmouth mounds, Mr. Hagar said, is that of Karnac in Brittainy which is eleven miles long.

NEW OIL TO BE OBTAINED FROM USED OIL

Fresh lubricating oil and refined kerosene may be salvaged from the used oil in crank cases. By agitating the used oil with a solution of sodium silicate and then distilling with steam an oil may be recovered which compares favorably with new lubricant, F. H. Rhodes and H. J. Haon, jr., of Cornell University announce in the issue of Industrial and Engineering Chemistry to appear next.

Because the salvaged oil has been heated to such a high temperature it is even better for use than fresh oil for automobilesas it is not so easily cracked. The residue could then be blended with naptha or casinghead gasoline and be used either as a motor fuel or as kerosene.

A method of producing a heavy grade of dark paper from shavings and other pulp plant waste has been developed at the University of Oregon.
