



Science News-Letter

The Weekly Summary of Current Science

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ARCHAEOLOGY

Old Indian Mounds Used as Flood Refuges

The thousands of terror-stricken people who have taken to Indian mounds to escape the flooding Mississippi waters, are showing scientists how the Indians probably used these earthworks which they built in pre-Columbian days.

Each of these mounds, very frequent in this section, can take care of some 500 persons. Sturdily built of earth, they have resisted the onslaught of the waters for generations, and are now pinnacles of safety to the refugees.

The situation today, according to Dr. Alfred Kidder, well-known American anthropologist, is strong evidence in favor of the theory that the mounds were originally built by the Indians a thousand years ago for this very purpose—to afford refuge from floods. Undoubtedly the Indians experienced floods of considerable magnitude and had to find some method of protecting themselves.

"In all probability," said Dr. Kidder, "it was for this purpose that they toiled for years to build these high mounds. It was a gigantic task, since they had only their baskets in which to carry the tons of earth necessary to make them.

"It was at first thought that these mounds might be funeral piles like other smaller mounds in this section and in the Ohio valley, but excavations unearthed no human remains. However, post holes were discovered where the framework of buildings had evidently been erected. Baked clay was also discovered. This clay had plastered the log and twig structure of the building and was hardened into enduring form when the buildings caught fire.

"Were these mounds erected merely as high places for temples as in the case of the Aztec and Toltec pyramidal structures? This was the conjecture. Against this theory arose

the remote possibility that the mounds were places of refuge from floods—a theory substantiated by the present situation.

"The buildings were probably temples, altars and the habitats of chieftains," said Dr. Kidder. "In time of flood a mound could accommodate the entire tribe, most of the members of which probably lived in the inundated area."

Pyramidal in structure but with a flat top to permit erection of buildings, the mounds are about 150 feet in diameter and some fifty feet high. They are largely confined to the flood area of the Mississippi. A number occur, however, in areas in the valley which are not completely inundated in flood time. These were probably built later, Dr. Kidder said, in the manner of primitive peoples, after the erection of such mounds had become a custom. The funeral mounds, on the other hand, are much smaller

and lower and occur frequently in both the Mississippi and Ohio valleys.

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METEOROLOGY

Flood Began Last September

The greatest flood in Mississippi River history, now raging, gave the first grim warning of its approach eight months ago.

"The present flood began late in August when heavy rains set in, raising the waters of one or two rivers in Kansas and Oklahoma," said H. C. Frankenfield, head of the division of rivers and floods of the U. S. Weather Bureau.

"In October there was flood in the Arkansas and Neosho Rivers with damage of \$40,000,000, or perhaps more. Last fall, I saw mud clots on ten-foot corn stalks, out in the prairie. Then, the rains drifted east-

(Just turn the page)



ANCIENT INDIAN MOUNDS in flooded Mississippi, now used by refugees. It is suggested by archæologists that the Indians who built them have used them for similar purposes

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ward, over Missouri, Illinois, Ohio, Tennessee, Kentucky, and the Cumberland. And all this was at a time of the year when the rivers of the Mississippi system should have normally been at their lowest level.

"We knew then that if the rains of the coming winter and spring were much above normal, we were going to have a big flood. But we can not forecast rains, and of course we could not predict the volume of the present torrent.

"Late in December rains swept Tennessee and Kentucky, and the next report was that all records were broken in the Cumberland River and there was a high flood in the Tennessee, and these are the two largest tributaries of the Ohio River. Heavy rain put the Ohio in flood in January, and then the rains became more widespread. During March, every tributary of the Mississippi, from the Des Moines southward and eastward was in flood."

"There is no question that the present flood is the greatest that has ever covered the Mississippi," said Mr. Frankenfield. "The flood of 1922 was the next greatest, and that of 1882 ranks third."

Flood warnings are sent out from the U. S. Weather Bureau every day in the year to some part of the United States, sometimes four weeks in advance, sometimes only 18 hours, Mr. Frankenfield stated. The Mississippi flood waters gather from such distant streams and have been studied so long and carefully that height and speed of the spring flood in the lower Mississippi can usually be estimated by bulletins several weeks before it sweeps through Louisiana.

"The prediction of floods is per-

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News-Letter Features

Born over four years ago of the demand and interest of those individuals who had caught a glimpse of *Science Service's* news reports to newspapers, the *SCIENCE NEWS-LETTER* has since proved interesting to laymen, scientists, students, teachers and children.

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First Glances at New Books

FIRST CROSSING OF THE POLAR SEA—Roald Amundsen and Lincoln Ellsworth—*Doran* (\$5). In addition to the main narrative of the principals in this outstanding triumph of adventure-plus-science, their associates also contribute chapters on their several parts. The book is a fascinating narrative as well as a valuable record, and its value is increased by the excellence of its illustrations and general makeup.

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BIRDS OF CENTRAL NEW YORK MARSHES — Aretas A. Saunders — *Roosevelt Wild Life Bulletin*, v. 3, no. 3. Description of the marsh birds of New York plus an appeal to save them from extinction by preserving Central New York marshes.

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STANDARDS YEARBOOK: 1927—National Bureau of Standards—*Government Printing Office* (\$1). A comprehensive review of a year's progress in making things run better by fitting them together better, with summaries of all kinds of standards and measures.

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TO BEGIN WITH—Raymond Pearl—*Knopf* (\$1.50). The annotations to this reading list for graduate students in science are perhaps as entertaining as the venerable authorities they describe. The distinguished author evidently cherishes the belief that embryo scientists, if sufficiently and discriminatingly exposed, may be led to assimilate a certain amount of general culture.

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HEIR OF ALL THE AGES—N. K. McKechnie—*Bobbs Merrill* (\$2.50). Graphic portrayals of typical sections in the history of man going back to his most primitive beginning.

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MEDICAL SCIENCE FOR EVERYDAY USE—Shields Warren—*Lea & Febiger* (\$2). A compendium of useful knowledge about health problems of interest to everyone clearly and simply written.

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SHOULD WE BE VACCINATED?—Bernhard J. Stern—*Harper & Brothers* (\$1.50). The history of vaccination with a useful summary of the existing legislation on the subject.

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Floods Foretold

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haps the most exact forecasting that we do," said Dr. Charles F. Marvin, chief of the U. S. Weather Bureau. "The prediction side is far ahead of the prevention measures that can be taken."

The bureau's flood warnings are instantly heeded by the people of the region involved, even though the country at large hears very little about a flood until the water reaches an alarming state. The dykes are strengthened, inhabitants are notified. But along the lower Mississippi many thousands of the people are negro farmers and laborers and their families, people who often stick to their homes and trustingly climb up to the rooftops when the river menaces them, rather than escape when warned.

Many of these river dwellers, even if they have escaped with their lives, have now seen their homes wrecked. They have lost their best chance to plant their cotton or other crops, and unless the weather favors them, they may fail to get a crop in at all.

So long as men try to hold the Mississippi and its contributing streams within narrow bounds, so long men will have to keep close watch on the flood hazard, according to Dr. Marvin. In past ages, the river handled the problem in its own way, and made huge drainage areas. But men have built over 2,000 miles of levees to guide the river within a convenient channel. The levees are supposed to stand the strain of the torrent and they hold up remarkably, but if the water seeps in through a small leak in the wall, the rift may grow and the flood may force its way through, as it did at Dayton in the famous flood of 1913. Even though the walls of the levees are built higher and higher, and though they are pushed back from the river bank, even two miles in some places, the river may in emergencies demand and take more room.

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ENGINEERING

Urges Flood Control Tests

A few hundred dollars spent in a laboratory study of floods would prevent millions of dollars loss, John R. Freeman, former president of the American Society of Civil Engineers and the American Society of Mechanical Engineers, said recently in commenting on the Mississippi floods.

"The Federal Government and the

States have spent hundreds of millions of dollars in trying to solve the Mississippi's problems, but it is still possible for one break in a levee to lay waste 5,000 square miles of as fertile land as the sun shines on, with a loss of \$25,000,000 almost overnight," said Mr. Freeman, who accompanied President Roosevelt on his official inspection of the completed Panama Canal in the capacity of expert adviser. He was also consulting engineer for the Chinese government, and has studied flood and river problems in that country.

"A week's work with a model, in which changes of shape and position can be readily made at a total cost of a few hundred dollars, may tell more than six months' effort and \$10,000 spent on an experimental dike or groyne in the field."

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GENERAL SCIENCE

Science Service Meeting

The annual meeting of Science Service, Inc., the institution for the popularization of science, was held April 28 and two new members of the board of trustees were elected. Dr. David White, home secretary of the National Academy of Sciences, was named by that body as one of its three representatives upon the board and Marlen E. Pew, editor of the weekly publication, *Editor and Publisher*, was chosen as a representative of the journalistic profession. Trustees reelected were: Dr. D. T. MacDougal, director of the Desert Laboratory, Tucson, Ariz., representing the American Association for the Advancement of Science, Dr. C. G. Abbot, acting secretary of the Smithsonian Institution, representing the National Research Council; and Thomas L. Sidlo of Cleveland, Ohio, representing the E. W. Scripps Estate; John H. Finley of the New York Times, representing the journalistic profession.

Dr. W. E. Ritter, director emeritus of the Scripps Institution for Oceanography and instrumental in the organization of Science Service, was again chosen president. Dr. Vernon Kellogg, permanent secretary of the National Research Council, was elected vice-president and chairman of the executive committee and Dr. J. McKeen Cattell, editor of *Science*, was elected treasurer. These officers, with Dr. White and Mr. Pew, were chosen to constitute the executive committee.

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