

METEOROLOGY

Tributaries of Mississippi Couldn't Flood All At Once

EVER since the disastrous Ohio-Mississippi River floods of 1937 people have been asking what would happen if the upper Mississippi, the Missouri and the Ohio Rivers all had floods at once. The answer, supplied by a study of the U. S. Weather Bureau, is that it couldn't happen.

The combination, which would make an epic flood of all time if it occurred, is practically an impossibility, say weather experts. The reason is that each of the three great tributaries of the Mississippi only go into flood from major storms that come from different directions.

Floods on the Ohio, explains the Weather Bureau, occur when warm moist air from the Gulf moves up the Mississippi valley and hovers over the Ohio. At this time, weather records show, the Missouri and upper Mississippi basins are receiving little rainfall. The Mississippi's feeder rivers may each break flood records during a single season but all three cannot do it simultaneously.

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GEOGRAPHY

Bog Is Very Wet Place, Saturated With Science

ONE OF the sights of Canada that tourists do not see is a bog. If you were not correctly informed by a naturalist bog-lover, you might think it was a swamp or marsh. But this one is an honest-to-goodness peat bog with sphagnum moss just soaking with water, orchids, plants that eat insects and a lot more.

Water, too. Water by the shoe-ful, squirting and squishing at every step. That is one reason for going into a bog—to get your feet wet.

Mer Bleue is ten miles east of Ottawa. It is seven miles long and covers some 12½ square miles. A sort of relic of the great ice ages, it represents the filling up of a glacial lake. The trees and plants fall in, the flora flourishes and sinks down, building up a great mat of stuff that becomes peat, younger cousin to coal. Tramp through the bog and there may be 20 or 40 feet of very wet, semi-solid lake below you.

The difference between a bog and a swamp or marsh? A bog is acid, thanks to the decaying vegetation. Litmus paper

is a good way to find out, if my scientific informant was not spoofing me.

A group of bog enthusiasts are included in the Federation of Ontario Naturalists. They wade into Mer Bleue for the sake of pleasure and science. It is great sport finding unusual orchids, red bright, or watching an insect get caught in the sticky, hairy clutches of a pitcher plant or the dainty sundew. There are birds and insects in abundance.

Bogs are not much good agriculturally, which is fortunate. There is more chance that they will be left as they are for life in the wild to continue in them as it has for ages.

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ANTHROPOLOGY

Road Digging Turns Up Canadian Bone Mystery

CANADA can prepare for scientific war. Discoveries of "oldest inhabitants" have begun to be reported.

If experience of the United States means anything, from now on Canadians will be arguing endlessly over whether fragments of human bone and odd-shaped stone blades are evidence of Ice Age man in Canada, or just relics of later, and less exciting Indian tribes.

The incident creating an early-man-in-Canada situation occurred when workmen digging gravel for a road near Bradwell, Saskatchewan, turned up something unexpected—a skeleton.

They called in Canadian mounted police; but the detective sergeant realized this was no murder mystery, at any rate, none of recent date. So, he called these antique-looking bones to attention of a scientist, who happened to be a chemistry professor at the University of Saskatchewan. The professor rounded up three more professors—a chemist, anatomist, and geologist—and proceeded to the scene.

Meanwhile, the road builders hauled off more gravel.

The scientists, thus confronted with a mystery scene much disturbed, have concluded tentatively that this unknown was a primitive man of considerable antiquity. In short, "an interesting example of early man in America."

As clues to antiquity, they mention the heavy, mineralized bones; also that the skeleton lay in gravel deposited when the Keewatin ice sheet was retreating, some 15,000 or 20,000 years ago. The bones are compared to those of Neolithic men of Europe. A nondescript stone tool was nearby.

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IN SCIENCE

PHYSICS

Particles Originally Were Of Three Different Kinds

IN THE beginning, the universe had three kinds of particles: Protons, electrons and neutrons. And the primordial particles of the universe in its equilibrium state were evenly divided among these three kinds.

This latest conclusion of mathematical physics is announced through a note to *Science*, (June 24) from Prof. Arthur E. Haas, Viennese physicist now at the University of Notre Dame.

Mathematical procedures arising from the observational relationship between the classical radius of the electron and Dr. Arthur Compton's wave-length of the proton allowed Prof. Haas to come to this conclusion.

Protons and neutrons are much heavier than electrons. All three of these particles are far beyond the reach of the human eye. They are the stuff of which atoms are made.

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ENGINEERING

World's Fair Visitors To See Highways of Tomorrow

VISITORS to the New York World's Fair of 1939 will be able to sit in chairs and move through the scenes of tomorrow's streets in a giant city, in the exhibit of General Motors.

Designed by Norman Bel Geddes, the exhibit will be shown to visitors who sit in comfortable chairs on moving escalators. They will be transported over what appear to be express highways, bypassing cities and giving clear, quick-moving traffic streams. Sometimes the sensation will be that of an airplane view. At others the visitor will be close up to the scene.

Climax of the tour will be the arrival of the visitor's chair to a full-sized street intersection in a city of tomorrow. Here, for more than a block, extending in four directions, will be the new architecture of the future, new and better traffic regulations and safe facilities for handling pedestrian traffic.

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E FIELDS

ARCHAEOLOGY

Ancient Greece Had Police Inspection Too

POLICE Inspector Xenokles' ancient Grecian stamp of approval, uncovered during this year's digging at the Athenian agora, shows that official inspection did not originate with the 20th century.

The seal, a rectangular terra-cotta plaque, is among unusual objects discovered during the eighth season of excavation by the American School of Classical Studies at the old Athenian market-place, according to reports received from Dr. T. Leslie Shear, field director, and member of Princeton's art and archaeology department.

The seal was found buried in a cistern of the third to second century B. C. Thirty-seven millimeters (1 1/2 inches) in length, stamped with the name of Police Inspector Xenokles of Perithoidai, it is the first occurrence of the nominative of the word "Police Inspector."

An important boundary stone of Hyettian marble was also discovered. Completely preserved, the stone is inscribed in letters of the early fourth century B. C., "boundary of the sacred way along which the sacred mission (Pythais) proceeds to Delphi."

"We know from literary sources that for three days and nights in each of the months of April, May and June the priests of Apollo in Athens watched at the altar of Zeus Astrapaios for a flash of lightning over Mt. Parnes. As soon as one was seen they started in procession to carry their offerings to Delphi," Dr. Shear explained.

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BIOLOGY

Darwin Neglected Study Of Man's Mental Evolution

DARWIN was not a complete evolutionist. In his famous book, *The Descent of Man*, he considered the evolution of man's physical nature only, but neglected the mental and social sides, declares Dr. William E. Ritter, emeritus professor of zoology at the University

of California and honorary president of Science Service.

Darwin recognized that these non-physical aspects of man's life are definitely parts of his nature, and as such must have been as subject to evolutionary influences and resulting changes as his head or his hands or his language. Yet, says Dr. Ritter, "he never tackled the problem in a detailed way. He seems to have regarded it as metaphysics and as such quite unsuited to his special interest and ability as a student."

Dr. Ritter himself refuses to acknowledge a gulf between the so-called physical and metaphysical. In his recent studies he takes the position that "knowing, thinking and understanding are kinds of activity as inseparable from living things as are nutritalizing, metabolizing, and reproducing."

Dr. Ritter regards as most unfortunate the rather general mode of regarding living things as mechanisms, because the more naive mechanists, at least, unconsciously make it almost impossible to look upon mental and social phenomena as being really parts of human nature. Their explanations either over-simplify them, almost to the point of denying their existence, or they set up a body-versus-mind dualism that is repugnant to sound philosophy.

This way of regarding living organisms as machines was started a couple of centuries ago by Descartes, a French philosopher. Worth noting, in Dr. Ritter's opinion, is the fact that Descartes was not originally a naturalist but a mathematician, therefore having a bias in favor of simple, exact descriptions. Darwin, a "natural" naturalist, did much to initiate the modern drift away from the Cartesian mechanistic speculations.

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GEOLOGY

Old Faithful Geyser Goes Off Schedule

OLD FAITHFUL geyser broke a 68-year old record recently when it failed to spout on schedule. The famous gush of water, that normally comes every 65 minutes, waited 115 minutes before it made its appearance. The previous record delay was only 93 minutes, made back in 1934.

The current year is one of subterranean brewings deep beneath Yellowstone National Park. In addition to Old Faithful's irregularity the famous Rainbow and Congress Pools are occasionally spouting muddy waters.

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BIOLOGY

Smallpox Germs Seen With New Electron Microscope

SMALLPOX virus particles, hitherto unseen even under highest microscopic magnifications, have been made visible by means of an improved electron microscope developed by Dr. Franz Krause at Neubabelsberg, near Berlin. The particles, which are not "germs" in the ordinary sense, being very much smaller than bacteria, were rendered visible at a magnification of 2,000 diameters.

The virus was mixed with diluted gelatin. A fine-meshed metal screen was dipped in this and the film allowed to dry on it. This was then examined through the electron microscope, working in high vacuum.

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PHYSIOLOGY

Chewing the Cud Does Help In the Digestive Process

CHEWING the cud does help the digestion, no doubt about it. Scientific evidence for it appears in a report of research by Prof. Ernest G. Ritzman of the New Hampshire Agricultural Experiment Station and Dr. Francis G. Benedict of the Nutrition Laboratory of the Carnegie Institution of Washington.

These scientists, working under the auspices of the Carnegie Institution, have for years been studying the digestive efficiency of ruminants. This is the scientific term for cud-chewing animals such as the cow and the sheep.

Cows and sheep were compared with horses and elephants, which are not cud-chewers and have a different type of stomach. The horse rated higher than the elephant on digestive efficiency, and the sheep and the cow, the cud-chewers, both rated higher than the horse, although the cow seemed to have the edge on the sheep. These ratings are made on the assumption that the coarse timothy hay fed to the elephant, horses and cows was about the same and that the fine hay fed to the horses, cows and sheep was also relatively the same.

There were some differences in the digestion of various constituents of the diet—fat, proteins, and so on. The scientists conclude that:

"The general picture definitely indicates the superiority of the ruminant for digesting hay and probably other roughages as well, particularly the energy-yielding constituents of such feeds."

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