AMERICA AND MONGOLIA LINKED BY FOSSIL TREES

Millions of years ago, back in the days when the dinosaurs wallowed in the swamps and laid their eggs on the shore sands and mud, America and Asia joined lands, and a great unbroken forest marched from Manchuria to Maine. This is indicated, according to Dr. Ralph W. Chaney of the Carnegie Institution of Washington, not only by the close resemblances of the trees and other plants of eastern Asia and eastern America today, but by the resemblance of the plant fossils found in Asia to those of the same geological periods found in many parts of America.

Dr. Chaney was sent by the Carnegie Institution to accompany the Third Asiatic Expedition of the American Museum of Natural History, and his especial field of investigation was the fossil plant remains found in the same sands with the dinosaur eggs and with the flint implements of the early human inhabitants.

The trees growing in Mongolia during the Cretaceous period, when the dinosaurs were laying their eggs in the sand at Shabarakh Usu, have a general resemblance to those whose fossils form the Petrified Forest of Arizona. They belonged largely to the group known as the Araucarians, now represented by the Norfolk Island Pine and other related trees found mainly in the Southern Hemisphere.

Later, in theTertiary period, only about four or five million years ago, the forest which covered parts of Manchuria much resembled the fossil forests of California and Oregon, according to the records of the rocks in both places. Both of these fossil floras have much in common with the present-day forest of the Pacific Coast redwood belt. They were dominated by a species of sequoia closely similar to if not identical with the modern coast redwood, but also contained secondary elements such as alder, tan-oak, maple and bay.

Dr. Chaney concludes from the evidence now in hand that during all of this immensely long period Asia and North America as well have been slowly becoming drier. The redwood tree serves as an indicator plant. It requires an annual rainfall of at least forty inches, and freedom from any long season of permanent frost. Its former presence in Manchuria, which now has a rainfall of only about twenty-five inches, and its present confinement to a comparatively narrow strip of mountain country on the AmericanPacific slope, are arguments in support of his thesis, Dr. Chaney states. Similarly during the same period Mongolia, to the north of Manchuria and farther inland, supported a tree population indicating a semi-arid condition: mostly conifers and poplars, with belts of rushes about the occasional pools. But Mongolia is now one of the world's greatest deserts; again an indication of progressive drying up of the continent.

The natives of Mongolia, Dr. Chaney stated, were very friendly toward the American motor caravan, and willingly lent a hand on the numerous occasions when the trucks, loaded frequently to double their rated capacity, got stuck in mudholes or in bad places on the roadless desert. They were really eager, he said, for the privilege of touching the strange machines, and would trade their choicest possessions for an empty five-gallon gasoline tin, which for them was one of themarvels of the age as an improvement in water-carrying utensils. Their lives are built entirely around mutton. The flesh and milk of sheep and goats, with cheese made from the milk, are their sole foods; their tents are made of wool felt, lashed together with ropes of horse or camels' hair. Their women even dress their hair in imitation of

the horns of the rams. Their civilization, Dr. Chaney stated, is literally a culture of the sheep.

CLAIMS INVISIBLE GERM KILLER IS LIVING, BREEDING ORGANISM

"The bacteriophage is alive." So maintains Dr. F. d'Herelle, its discoverer, fronting the skeptical criticism of many other men of science, in his new book on the subject. The bacteriophage is alive, and no more chemical phenomenon; and it maintains itself, he says, as a parasite of parasites, a deadly submicroscopic germ that kills other germs. No culture of bacteria can be "pure", as far as the bacteriophage is concerned; it isharder to find a germ without its bacteriophage accompanimant than it is to find a wooly dog without fleas in summer.

But the bacteriophage is not a mere annoyance to the germs it infests, according to Dr. d'Herelle. It kills them, just as some germs kill men and animals and plants, and then it dissolves their corpses. Andjust as there are special germs that attack men and not horses, and others that attack horses andnot sheep, so there are special breeds of bacteriophage, each of which has its favorite germ which it attacks. But just as some germs, for example anthrax, will attack men, horses and sheep indiscriminately, so there are some varieties of bacteriophage whose appetites are equally indiscriminate, permitting them to devour several different species of bacteria. Dr. d'Herelle claims that he has succeeded in isolating single bacteriophage "corpuscles", and in breeding up pure cultures of these different strains.

According to the author, these "super-germs" are almost unimaginably small, having diameters of 20 thousandths of a thousandth of a millimeter -- and a millimeter is about a twenty-fifth of an inch. They pass readily through the pores of a very fine porcelain filter, that will stop ordinary germs as though they were marble in a colander. But one of these tiny organisms, he says, will penetrate into the body of a bacterium, and there will divide and divide again, just as a germ does in the body of a man; until the bacteriophage "family" becomes so numerous as to burst the unfortunate bacterium asunder and so cause its death.

Man and all other animal organisms habitually infested with bacteria carry about with them all the time oneor more strains of bacteriophage that make war on their commonest germ enemies. When the germs get the upper hand of the bacteriophage, we are sick; when we are convalescent, Dr. d'Herelle says, our private bacteriophage strains are in a state of especial virulence against their special germ victims.

Dr. d'Herelle made his discovery of the bacteriophage while he was at the Pasteur Institute in Paris. He is now at Alexandria, Egypt, working on problems of the control of tropical diseases. The use of the bacteriophage for combating tropical plagues was forecast in literature before it was actually attempted in practice, for the hero in Sinclair Lewis' novel "Arrowsmith", is sent on an expedition to a Caribbean country to put down an epidemic.
