PALEONTOLOGY

Twelve Swamp Dinosaurs Found by Museum Party

Well Preserved Fossil Bones When Assembled Will Probably Form Creatures 25 to 40 Feet Long

TWELVE gigantic prehistoric animals, dinosaurs that roamed lakes and swamps of 125,000,000 years ago, have been discovered by Dr. Barnum Brown, curator of fossil reptiles of the American Museum of Natural History, New York, some 25 miles east of Greybull, Wyo., in the foothills of the Big Horn Mountains.

Enough bones have been uncovered to cause Dr. Brown to feel that "we have stumbled upon one of the greatest fossil mines in the paleontological history of America."

At present the dinosaur remains are simply a large pile of loose bones, but when assembled eventually as museum exhibits their skeletons will probably show that the sauropod dinosaurs, believed to belong to a hitherto unknown species, ranged in size from 25 to 40 feet in length and from 10 to 14 feet in height. They were salamander-like creatures.

Dr. Brown as head of the American Museum-Sinclair dinosaur expedition, has been excavating in the vicinity of Keyhole Canyon since the early part of June and these excavations are now producing dramatic and surprising results. For Dr. Brown had expected to find only two sauropods instead of twelve.

Reconstruction Easy

"To date we have uncovered enough bones spread over a seventy by sixty foot site," stated Dr. Brown, "to feel satisfied that we have at least twelve sauropod remains before us. Others may be buried under this layer of bone or near it. The bones are not articulated, hardly even associated, but they are so unusually well preserved that the task of reconstructing them will be quite easy. For one thing, they are entirely free from the iron and crystal deposits which frequently make the matter of cleaning and restoring fossil bones a herculean and almost impossible task.

"While I have nothing definite to base this statement on, I somehow feel that we have only scratched the surface yet and that we have stumbled upon one of the greatest fossil mines in the paleontological history of America.

"We have at least 50,000 pounds of fossil bones in sight and one of the things that worries us is to preserve them from the elements long enough to get them out of the ground and carted to Greybull which includes a ten-mile journey over narrow and rough mountain trails."

Science News Letter, July 28, 1934

PALEONTOLOGY

How Dinosaurs Died 125,000,000 Years Ago

By Dr. BARNUM BROWN, Curator of Fossil Reptiles of the American Museum of Natural History and Leader of the American Museum-Sinclair Dinosaur Expedition.

OUR discovery will unearth data that will throw light upon hitherto unexplored recesses of the prehistoric past.

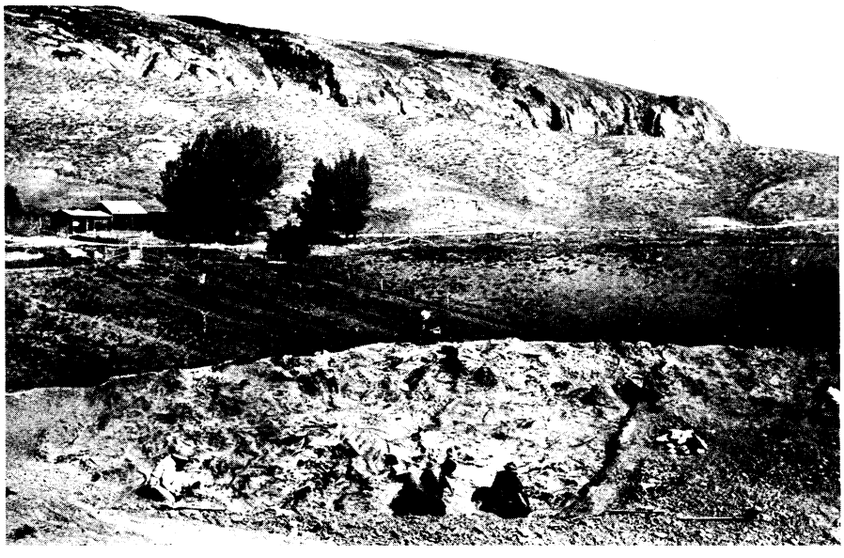
One interesting feature is that the position of the bones, as well as the clay and sandstone which cover and surround them, gives a graphic account of how these huge creatures met death. The account of the tragedy that wiped them out appears as plainly as a printed obituary because it has been preserved in the sands on which it was staged in those long-gone days when the northwest was flat, swampy and almost at sea level.

But before we reconstruct the tragedy that took place in prehistoric Wyoming 125,000,000 years ago, we must first of all set the stage upon which the drama was enacted.

We see a flat land, rich in vegetation and dotted by countless shallow lakes, swamps and rivers. The climate is tropical. Pines, cycads, figs and bananas cover the uplands. Thick grass grows along the banks and rank vegetation thrives in the water.

We know those stage properties were there for remnants of them have been found in various sections of the Big Horn Range. Further evidence has been discovered in the Red Gulch Quarry where, in the earth immediately over the bones, we have discovered carbonized fragments of the rushes, grass and other plants on which the sauropods—amphibious and herbivorous dinosaurs—fed in their day.

Now the actors come upon the stage. Huge slab-sided creatures that weigh from 15 to 20 tons apiece and measure nearly 50 feet. They have whip-like



RICHEST FOSSIL MINE

This paleontological treasure heap of bones which belonged to monsters that roamed the land in Wyoming millions of years ago was unearthed by Dr. Barnum Brown, of the American Museum of Natural History. Remains of eight huge sauropod dinosaurs believed to belong to a hitherto unknown species were found.

tails and long necks at the ends of which sit ridiculously small heads. They float, swim and feed in the waters with unhurried languor, for they are sluggish, cold-blooded creatures. They enter by the tens of thousands, huddling close together as reptiles do, and filling every lagoon as far as the eye can see. Myriads of them cluster the watery landscape like city-throngs crowding a popular beach during a heat-wave.

A Great Change

Now Mother Nature slowly changes the stage setting. The lakes dry up and the swamps vanish. The sauropod dinosaurs become more and more concentrated as they are pushed together in huge herds by the drying up process which changes lakes into ponds, ponds into pools and lastly into quickly drying puddles. The sauropod dinosaurs are water animals and the disappearance of the water is their death sentence. They cannot migrate because of their great bulk. Some starve to death—others are stranded in the mire that follows the receding water—while others, in their frenzied rush to escape destruction, struggle to solid land, only to be killed by the flesh-eating monsters that skulk around the pools and live high, for a time, on the hapless sauropods.

A clear-cut cross section of this large scale drama is now being uncovered in the Red Gulch Quarry. The hill in which the skeletons rest was once upon a time the bottom of a large lake that shrank into a tiny pond. It is perfectly evident that it is the bottom of that pond we have stumbled upon—the very spot where a dozen or more sauropods made their last and futile stand against fate—one of the last remnants of hundreds, perhaps thousands, of these beasts that lived and throve in that very spot until the lake began to dry up and the relentless battle started in which the weak were swiftly killed while the strong survived for only a short time.

May Find Victors, Too

We have not found any as yet, but I would not be at all surprised if, dovetailed in among the sauropod bones, we should find remains of the carnivorous dinosaurs that, undoubtedly, came to the lake to feed on the sauropods and eventually died of starvation when their victims sank into the bog.

Science News Letter, July 28, 1934

Pieces of fossil wood found 200 feet underground near Placerville, Calif., have been identified as trees of the Miocene epoch, 11,000,000 years ago.

PHYSICS

Old Violin Makers' Secrets Revealed by X-Ray Analysis

Treatment and Varnish Are Not So Important As Is Selection of Wood for Back, It is Found By Physicists

THE SECRET of the tone of violins fashioned by such famous makers as Stradivarius, Amati, Pique and others, has been discovered.

Through X-ray studies of structure of wood in violins of various origins, Dr. K. Lark-Horovitz and W. I. Caldwell, physicists of Purdue University at Lafayette, Ind., have found that proper selection of wood is more important for the quality of the instrument than treatment and varnish.

By careful selection of wood as a result of the Purdue researches it will be possible, it is believed, to make modern violins that are the equal in tone to those by famous makers.

The results of the Purdue researches were communicated to and published by the British scientific journal, *Nature*.

Definite fiber structure was found in spruce wood used for the top of violins, but the pattern of molecules revealed by the X-rays when they were turned on the wood used for the back showed that the woods, mostly maple, are different for instruments of different tone quality. Instruments with an even and smooth tone quality, especially for higher pitch or E-string, show an almost complete lack of orientation in the wood used for the backs.

Makes Tone Harsh

Violins with a harsh tone quality in general, weak response and shrill upper register showed a marked fiber structure in the maple used in the construction of their backs.

"Our investigation indicates," the Purdue scientists concluded, "that for a fine instrument only the top should be characterized by different velocity of sound in different directions, whereas the velocity of sound in the back should be the same in all directions so as to produce the best results."

Not since the French investigations of Savart over a century ago had there been adequate inquiry into the choice of material for violins. It had been stated repeatedly that age, treatment and varnish change the character of the wood, but the studies of Dr. Lark-Horovitz and Mr. Caldwell indicate that this is not the case.

Modern makers of fine violins by using X-ray analysis of woods and following the construction methods revealed by the new studies are expected to produce modern instruments that rival in usefulness the old violins valued at many thousands of dollars.

Science News Letter, July 28, 1934

ENGINEERING

Don't Buy "Gas Savers" Warns Bureau of Standards

DON'T BUY "gas savers," "grease absorbers," or "burner protectors." They don't save a penny; in fact, they usually cost more by increasing gas bills and many of them causes headaches, or worse effects of that stealthy and dangerous poison, carbon monoxide.

The National Bureau of Standards has conducted an investigation of a number of gadgets and appliances that were sold over the doorsill by salesmen who lauded them to the skies in extravagant claims of their value. The results of this research called for a warning against such purchases, which the Bureau issued.

All of the "gas savers," it stated, affected the operation of a satisfactory gas range in such a way as to increase the tendency to form carbon monoxide, which even in very small amounts is injurious to health. Although agents sometimes boasted of a reduction in gas bills as high as 30 per cent., none of the attachments tested appreciably increased efficiency while some of them considerably increased the amount of gas needed for certain purposes.

Lower Efficiency

The "burner protectors," the report continued, keep the burners clean but do so at the expense of cooking efficiency. None of the water backs tested proved satisfactory while some of them caused the formation of carbon monox-