Stone Bone

A new 'touch exhibit' in Dinosaur Hall

On the assumption that the opportunity to touch a fossil will give visitors to Dinosaur Hall in Carnegie Museum an added, intangible dimension to enjoyment and understanding of vertebrate fossils, a large thigh bone of the giant sauropod dinosaur *Diplodocus carnegiei* has recently been placed on exhibit.

Visitors are encouraged to run their hands over this bone, which is almost completely petrified—as it should be, after 150 million years! The original bone cells have been replaced by minerals, molecule for molecule, but traces still remain of the amino acids present while the animal was alive. It is exceptionally well preserved and has required only a slight strengthening with epoxy and plaster to cement its cracks. It is five feet three inches in length and about 314 pounds in weight.

The selection of a *Diplodocus* leg bone for this exhibit is a fitting one, not only because of the magnificent display of dinosaurs in this Hall, but also for the opportunity it provides to acknowledge the efforts of Earl Douglass, who was responsible for many of these fine exhibits. In addition, it was a *Diplodocus* femur, like the one on display, that initially led Earl Douglass to the discovery of one of the world's richest dinosaur quarries, originally called the Carnegie Quarry, now the Dinosaur National Monument, near Jensen, Utah.

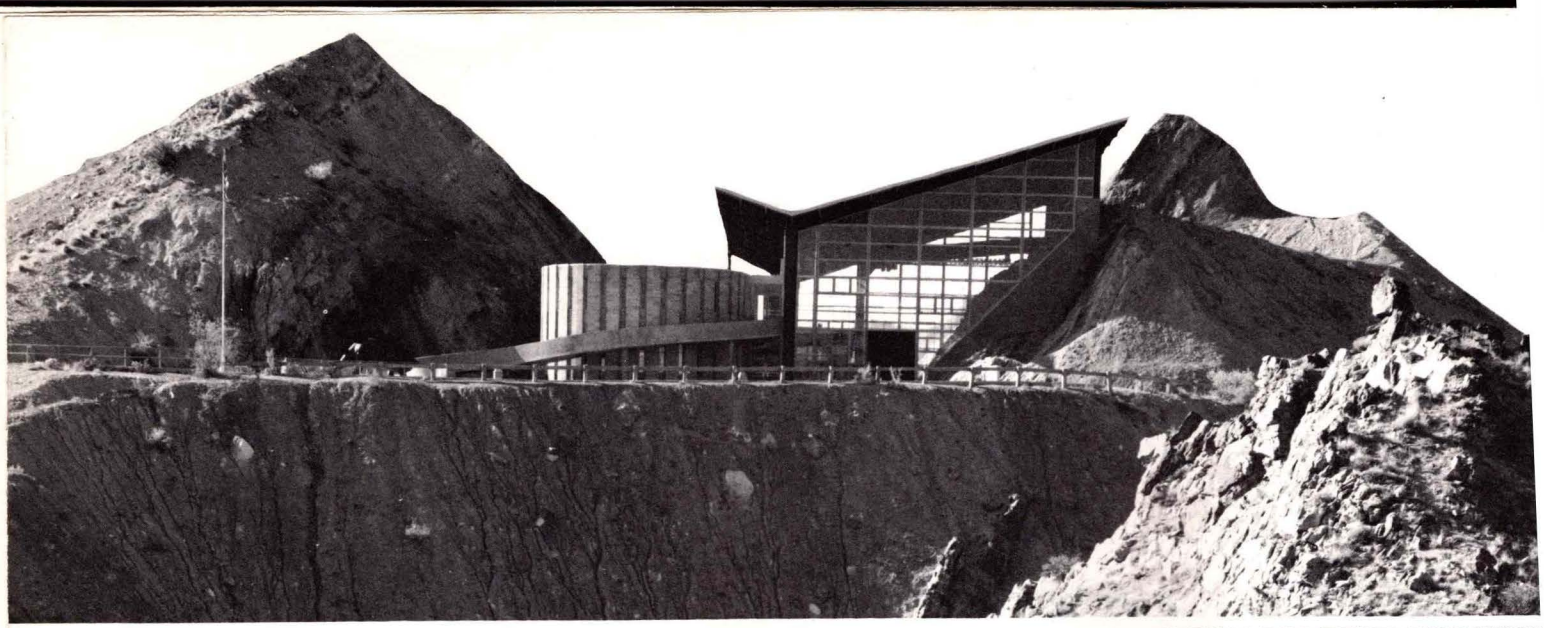
The events that led to this important paleontological discovery began in 1908 in the Uinta Basin of northeastern Utah, where Earl Douglass was engaged in collecting fossils for the Museum. He was joined by the Carnegie Museum director, W. J. Holland, who vividly recounted this memorable occasion:

'One evening my admiration was excited by a brilliant sunset in which the lofty peaks of the Uinta Range to the northwest loomed up grandly. I remarked to him [Douglass] that a study of Hayden's *Survey* disclosed the fact that in those mountains there were extensive exposures of Jurassic strata, and I said to him that we ought to find the remains of dinosaurs in that region. We decided that we would set forth early the next day with our team of mules and visit the foot-hills, where Hayden had indicated the presence of Jurassic exposures.

'We started shortly after dawn and spent a long day on the cactus-covered ridge of Dead Man's Bench, and in making our way through the gullies and ravines to the north. At nightfall we found ourselves after descending a wild declivity by the edge of a small brooklet, where we slept under our blankets, while the mules grazed upon the scanty pasturage which was found at that spot.

'The next day we went forward through the broken foot-hills which lie east and south of the great gorge through which the Green River emerges from the Uinta Mountains on its course toward the Grand Canyon of Arizona. As we slowly made our way through stunted groves of pine we realized that we were upon Jurassic beds. We tethered our mules in the forest.

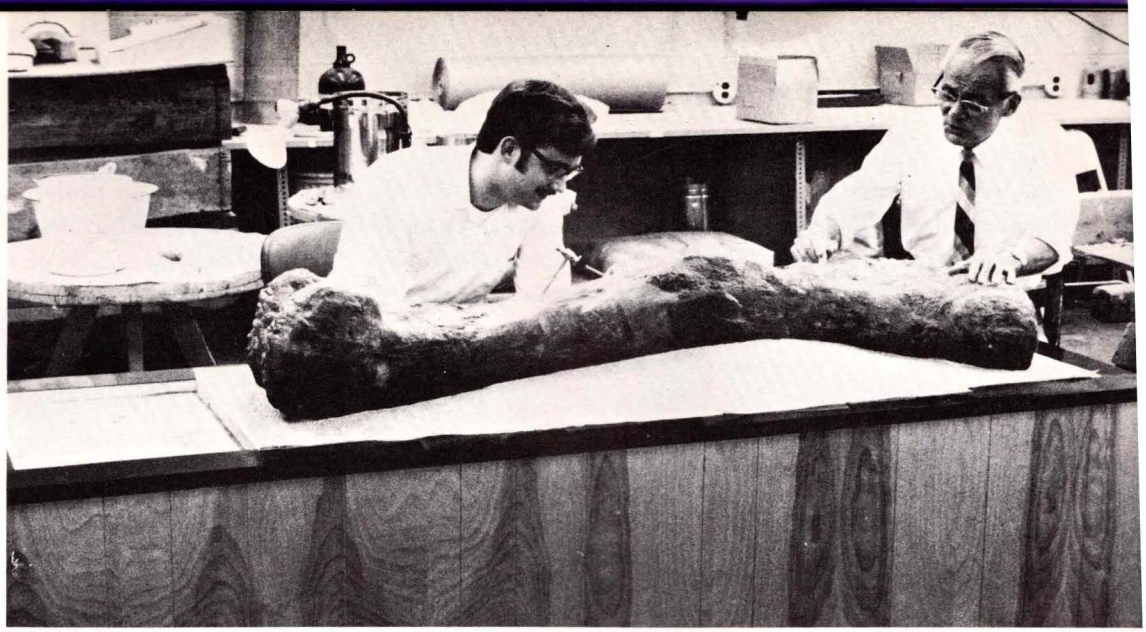
'Douglass went to the right and I to the left, scrambling up and down through the gullies in search of Jurassic fossils, with the understanding, that, if he found anything



NATIONAL PARK SERVICE: THREE PHOTOS

Dinosaur Quarry in Utah is located on sloping rock layers about 140 million years old.

Making final preparations on base of new touch exhibit of Diplodocus *thigh bone. Chief preparator Joseph Yarmer with Herbert F. Klug, jr. (left).*



DAVID S. BERMAN

Last year some 182,000 visitors saw the reliefing activities at the Dinosaur Quarry and paused to consider the incredible panorama of life that preceded man on earth.

Quarry technician Jim Adams working on a skull of Camarasaurus lentus *at Dinosaur National Monument.*

he was to discharge the shotgun which he carried, and, if I found anything, I would fire the rifle, which I carried. His shotgun was presently heard and after a somewhat toilsome walk in the direction of the sound I heard him shout.

'I came up to him standing beside the weathered-out femur of a Diplodocus lying at the bottom of a very narrow ravine into which it was difficult to descend. Whence this perfectly preserved bone had fallen, from what stratum of the many above us it had been washed, we failed to ascertain. But there it was, as clean and perfect as if it had been worked out from the matrix in a laboratory.

'It was too heavy for us to shoulder and carry away, and possibly even too heavy for the light-wheeled vehicle, in which we were traveling. So we left it there, proof positive that in that general region search for dinosaurian remains would probably be successful.' Holland's prediction had proved to be correct.

Encouraged by this find, Douglass returned the spring of the following year, and after arduous months of prospecting his efforts were finally rewarded on August 17, 1909, when, as he related in his diary: 'At last in the top of the ledge where the softer overlying beds form a divide . . . I saw eight of the tail bones of a *Brontosaurus* [*Apatosaurus*] in exact position.'

At the site of his discovery, the summit of a jagged ridge of upturned strata of the Jurassic Morrison Formation, was to begin the most successful and celebrated dinosaur excavation in the history of paleontological exploration. The immensity of this project was foreseen, and Andrew Carnegie, who was greatly delighted by the initial success of the operation, contributed funds for its continuance.

Quarrying operations were continued without break from 1909 until 1923, resulting in the shipment to Carnegie Museum of a total of over three hundred tons of crated fossils. In the history of dinosaur collecting no other excavation has ever approached the Carnegie quarry either in its magnitude or in the quality and quantity of fossils it has yielded. The great success of this undertaking was largely due to one man, Earl Douglass, who directed the development of the quarry with exacting care. So devoted was Douglass to this project that in 1910 he built a house near the quarry, which became the permanent home for both him and his family of wife and son.

The existence of the Carnegie quarry was temporarily threatened in 1915 when the region in which it is located was thrown open to settlement. It was feared that at any moment a speculator might file claim to the land on which the quarry was located. Douglass, on instruction from the Museum, tried to file a mining claim to the quarry site land. The claim failed, however, because the federal government rejected the notion of regarding fossils as minerals.

Dr. Holland, with the assistance of Dr. Charles D. Walcott, of the Smithsonian Institution, then sought the aid of President Woodrow Wilson in protecting the quarry site. The President complied with their request, and Carnegie quarry and eighty acres surrounding it became Dinosaur National Monument in 1915, today totalling 197,900 acres.

The fate of the original femur found by Douglass and Holland is not certain. Holland, in describing the events of his 1908 visit with Douglass in Utah, recalls that: 'This specimen, if my memory serves me correctly, was later taken to a Lutheran college somewhere in the middle west, some of the graduates of which we found dredging for gold in the Green River below the gorge, and to whom at their campfire we spoke of our discovery.'

David S. Berman

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The quotations from Dr. W. J. Holland appear in W. J. Holland's 'Earl Douglass. A Sketch in Appreciation of His Life and Work' in the *Annals of the Carnegie Museum*, Vol. 20, pp 279-292 (1931).

Douglass' diary is quoted from a 47-page brochure by John M. Good, Theodore E. White, and Gilbert F. Stucker on *The Dinosaur Quarry. Dinosaur National Monument* published by the National Park Service, Washington, D.C., in 1958.