How Dinosaurs Came To The Nebraska State Capitol by Neale Monks

Palaeontologist, British Museum

University of Nebraska Lincoln

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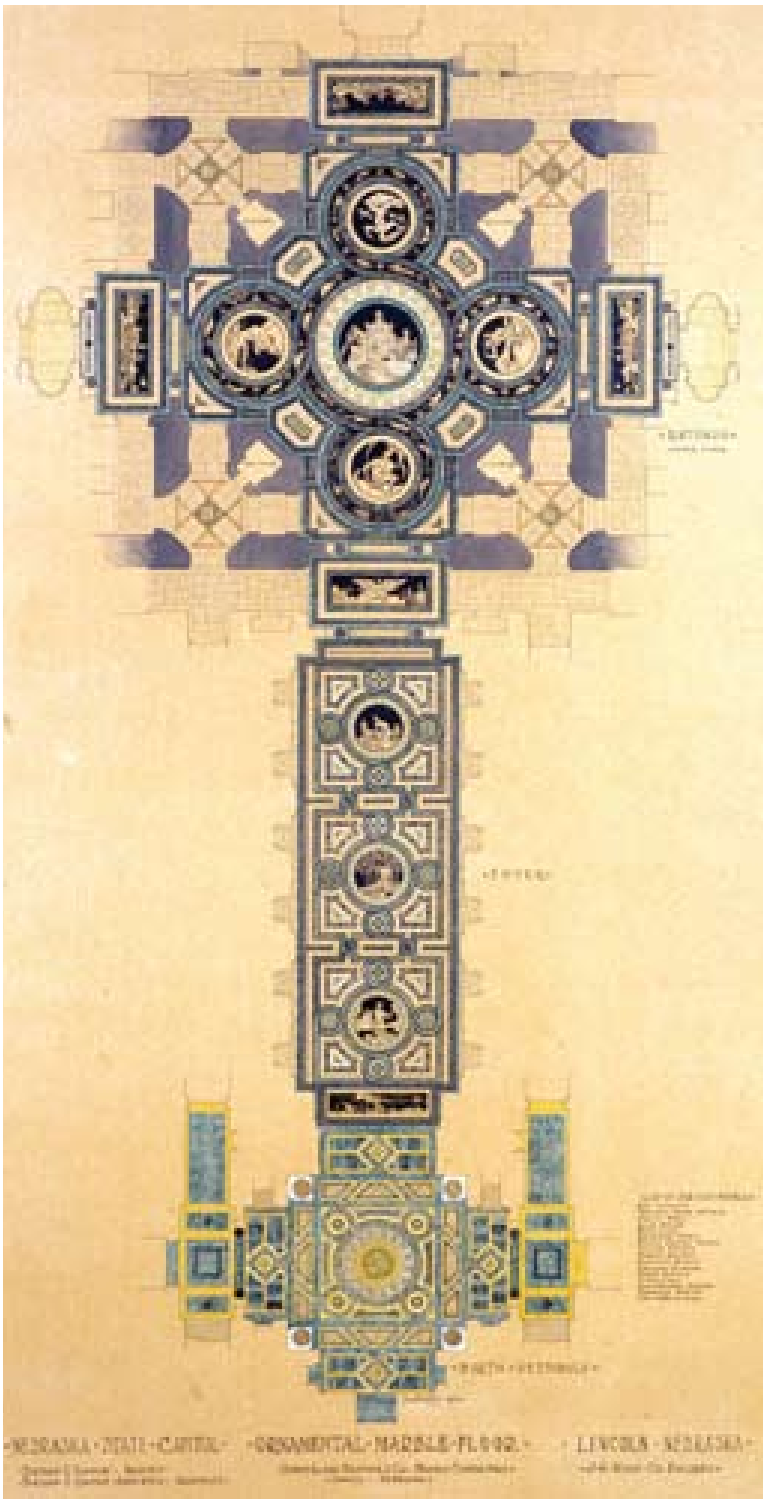
The Vision of Bertram Goodhue

As impressive as the Nebraska State Capitol is from the outside, on the inside it reveals a level of subtlety and sophistication in its decoration that many architects and art historians consider it one of the finest public buildings in America. Virtually every surface and fixture has some connection with law, government, or history. Nowhere is this more dramatic than with the mosaics on the second floor that form a pageant of scenes from the past.

A Visual History of Nebraska

The mosaic floors of the Foyer and Rotunda retell the history of Nebraska from several perspectives, the cosmic, the natural, and the human. Their symbolism derives from the work of the head of the Department of Philosophy at the University of Nebraska, Hartley Burr Alexander. At the urging of the Capitol Commission, Goodhue met with Alexander to seek advice on formulating the overall thematic programme for the new Capitol design.



At the entrance of the Foyer is a panel containing an image of a cosmic deity forging the matter and energy that from which all things are made. Further into the Foyer are three circular panels, known as tondi (pronounced "ton-dye"), containing more allegorical figures that represent the earth, plants, and animals upon which human society depends.

In the centre of the Rotunda resides Mother Nature herself, surrounded by the Geniuses of Water, Fire, Air, and Earth. Winding around these is a decorative band, known as a guilloche (pronounced "ghee-osh") that contains depictions of extinct animals and plants that illustrate the evolution of Life. This contrasts with the design on the ceiling, personifications of the human virtues like Mercy, Wisdom, and Faith. The coming together of science and idealism here is striking: we literally walk and work in a space between where we came from and what we aspire to.

Hildreth Meiere

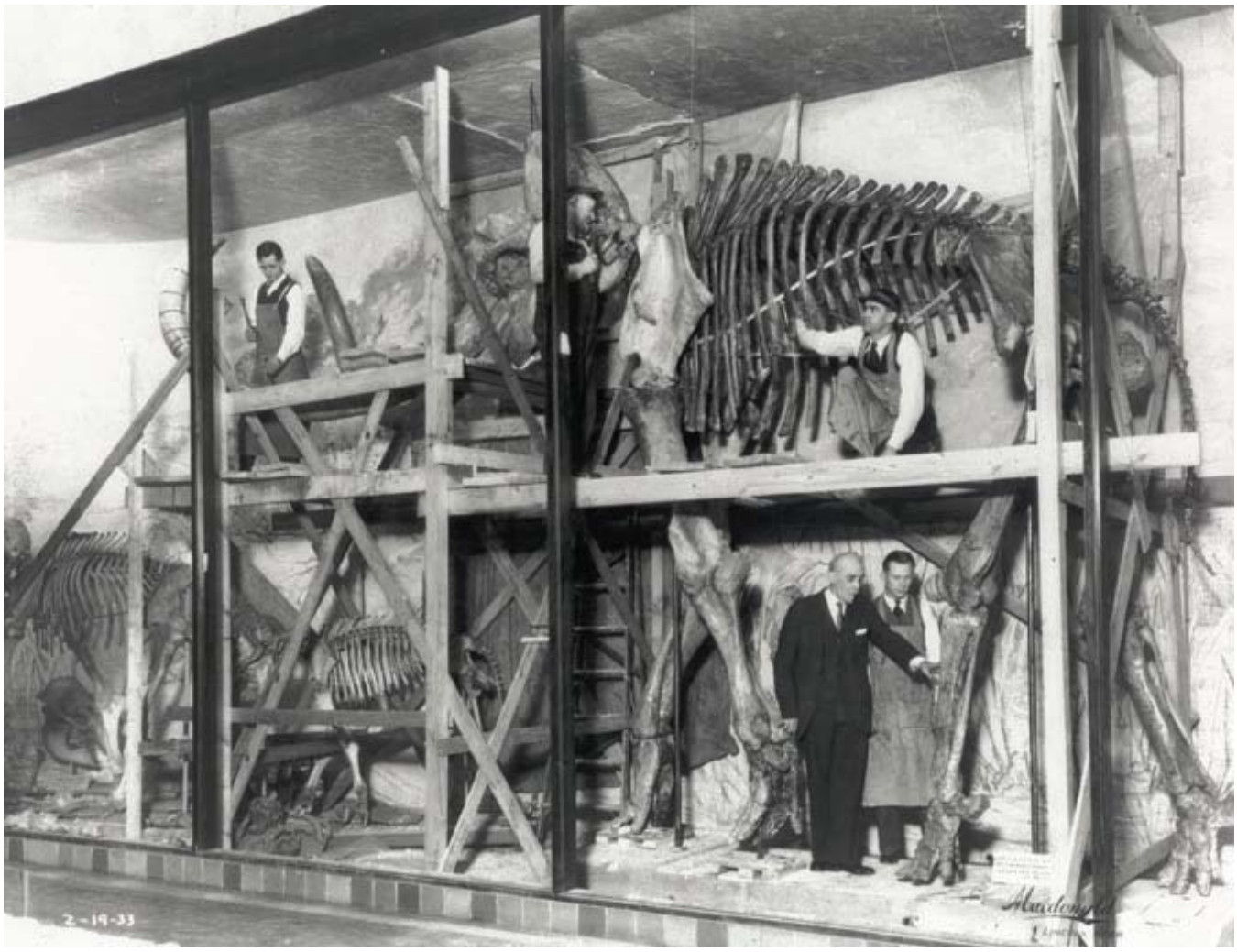
Even when Bertram Grosvenor Goodhue submitted his plan for the Nebraska State Capitol in 1920, he intended to work with the young but brilliant mosaicist Hildreth Meiere. She was required to produce mosaics for the floors and vaulted ceilings that would be both functional and allegorical, connecting the structure of the building with symbols of the past and future using the themes devised by Goodhue and Alexander.

Inspired by the cathedrals of Italy, Meiere created an iconography based on the personifications of concepts and ideals, as with the Geniuses of Water, Fire, Air, and Earth that can be seen on the floor of the Rotunda. But more humane imagery also plays an important role, as with the mosaic of the “First Fruits of the Soil” in the dome of the Vestibule.

The State Museum Connection

Though Alexander knew a great deal about history, law, and philosophy, when it came to the knowledge of natural history, he knew that Meiere would require scientifically accurate designs for the Rotunda floor, he suggested that she consult with Erwin Hinckley Barbour, director of the University of Nebraska State Museum.

Barbour had come to Nebraska from Yale in 1892, and from then until his retirement in 1945 he steadily built up the reputation of the State Museum as one of the foremost collections of fossil mammals in the world. Barbour was an experienced and prolific field geologist, and had discovered many species new to science, including species of mammoth and sabre-tooth cat. He was also interested in technology and engineering, and took a special interest in solving problems particular to the State of Nebraska. Barbour invented an irrigation device, wrote a book about windmills, and was among the first people to use movie cameras in Nebraska, directing a promotional film about the state that was shown at the Columbian Exposition of 1893 in Chicago.



Images From Nebraska's Past

Barbour was first and foremost a paleontologist, but he also had an amazing artistic talent that he employed in all kinds of projects. At Yale he used images of animals, plants, fossils, and scientific instruments to create subtle but elegant illustrations for journals, yearbooks, and calendars.

On Alexander's recommendation, before designing the mosaic, Meiere had written to Barbour requesting some sketches of extinct animals and plants that she might use. Barbour submitted at least twenty-four such sketches, now preserved in the Capitol archives. Meiere and Alexander were adamant in their belief that the images in the mosaic needed to have scientific as well as artistic integrity. In 1928 Alexander wrote to Barbour laying out the basic rules.

"It is my notion that the series [of pictures] should be broadly representative of the whole animal kingdom ... in each division the movement from the more primitive to the more developed ... marine forms first, then primitive terrestrial forms ... flying forms, and finally ... the mammals".

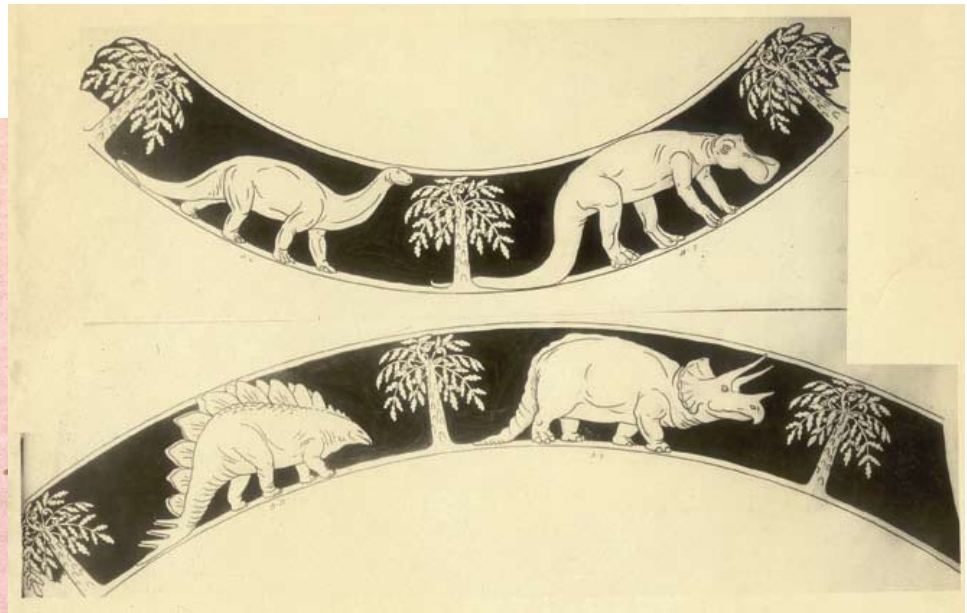
A Nebraska connection was important as well, but Alexander suggested that the definition of 'Nebraska' include everything in the original Nebraska Territory. This was helpful because it allowed Meiere to use images of things like the impressive sea lizards (or mosasaurs) of the Late Cretaceous, fossils of which were known from Kansas, but at the time not from Nebraska itself.

One of the most notable things about the animals and plants shown in the mosaic is they are shown how they would have looked in life. An important part of Barbour's contribution was lending his paleontological expertise to the service of the artist, Meiere.

The Mosaic Design

Getting the science right was important, but Alexander also had an eye for the aesthetic elements as well and selected what he called 'the most promising types' from among the drawings that Barbour had made. Many of the designs were used more or less as Barbour had supplied them, as with the mosasaur and the sabre-tooth cat, but some designs needed to be reworked so that they would fit into the overall design more successfully.

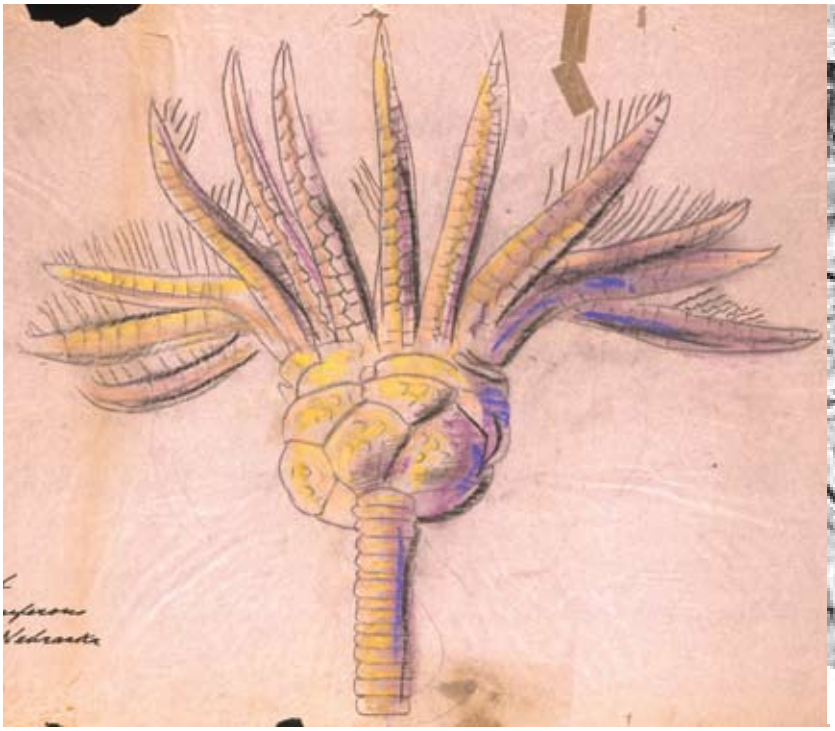
Sometimes this was because the original drawing had the wrong orientation to fit into the guilloche. The duckbill dinosaur was an example of this: in Barbour's sketch the dinosaur has an upright, bipedal posture that in the mosaic is replaced by a more horizontal, quadrupedal one. With the ammonite, the problem was that the design submitted by Barbour was only of its shell, and this was replaced in the mosaic by a design that would give the casual observer a much better suggestion of what a living ammonite might have looked like.



Paleontological Tricks

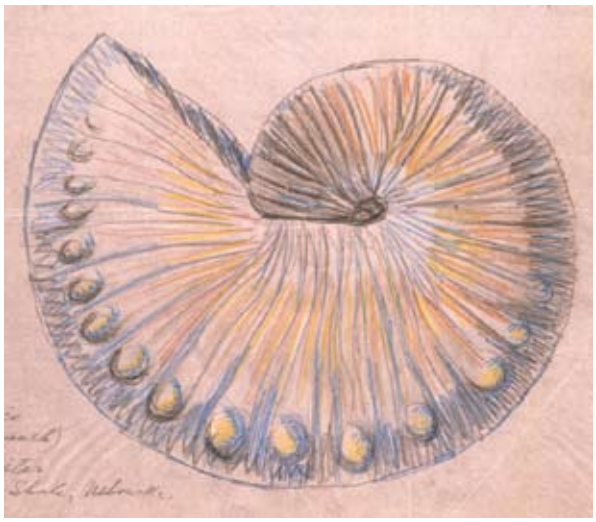
The animals and plants used in the mosaic design are arranged around the four Geniuses with great subtlety and sophistication, corresponding with the four Classical elements as well as symbolizing important stages in the evolution of Life.

All the animals are positioned facing the same way and in postures suggestive of motion, so forming a procession from the most ancient forms towards the more advanced ones. Besides being arranged in chronological order, they are also distributed closest to the Element with which they are associated. The Genius of Air is surrounded by birds and insects, the Genius of Water by fish and various sea creatures. Land animals can be found around both the Genius of Earth and the Genius of Fire; in this instance, the Genius of Fire represents the dry, desert-like conditions that greeted the first land animals when they evolved over three hundred million years ago.



While animals dominate the mosaic, plants are used to create a repeating motif that plays an important narrative function. Four types are used, first a crinoid (or sea lily) around the Genius of Water, followed by a fern, a flowering plant, and finally a deciduous tree. Each represents one of the four main stages of geological time: the sea lily the Paleozoic; the fern the Mesozoic; the flowering plant the Tertiary; and the tree the Quaternary.

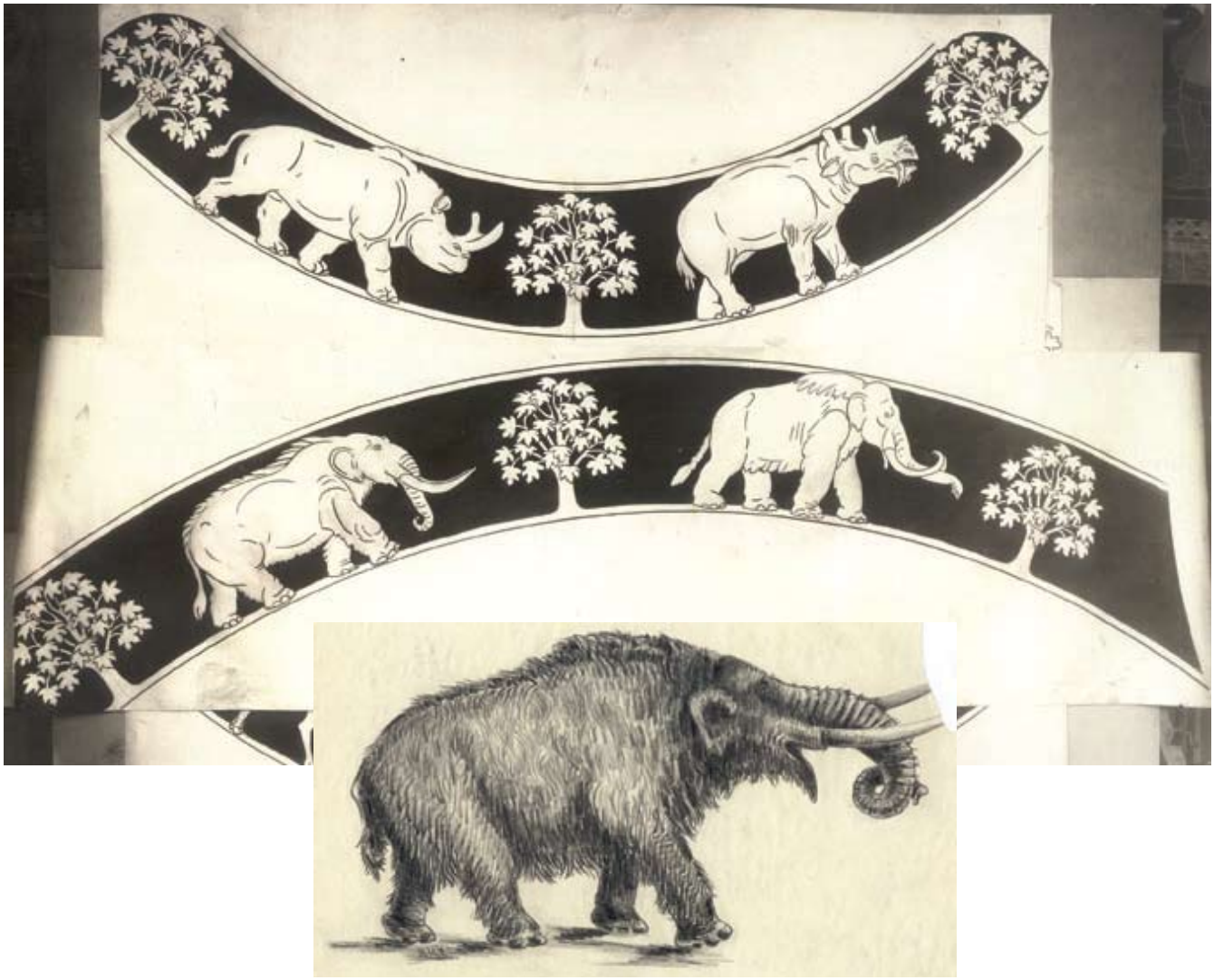
The use of the sea lily as the 'plant' is actually a bit of paleontological sleight of hand. The sea lily isn't a plant at all, but an animal closely related to starfish and sea urchins. Meiere didn't hide this fact from her audience, but actually left a clue for anyone who looked closely. At the start of the guilloche is a starfish, flanked by two sea lilies, and on the baseline two small, spiky objects. These are sea urchins, relatives of both the starfish and sea lilies within the group Echinodermata. It's almost as if Meiere and Barbour are saying, "Yes, we know the sea lily isn't a plant, so just get on and enjoy the rest of the mosaic."



Creating the Mosaic

The mosaic was worked on throughout 1928, with Meiere working in New York using the sketches Barbour had sent her along with various design notes from Alexander. From these, Meiere created a series of full-size ink drawings, each a section of the guilloche. These were an important part of the process because the technique that Meiere used was to glue the mosaic tiles, face side down, directly onto these drawings. All segments were then taken to the Rotunda where each drawing with tiles attached, was installed tile face down into a mortar bed. The original drawing was later removed (destroying the drawing in the process) but leaving the mosaic figure in the floor.

While the actual drawings are lost, photographs taken in Meiere's studio do exist that show them in her studio prior to actual creation of the mosaic. In the image shown here, we can see a section from the guilloche that will go around the Genius of Earth. Compared with Barbour's sketches, the images are much flatter and more stylized, though still scientifically accurate.



Exploring the Rotunda Floor Mosaic

Symbolism and the Classical Elements of Water, Fire, Air, and Earth

One of the most brilliant aspects of the mosaic design is conciliation of the Classical elements of Water, Fire, Air, and Earth with the modern sciences of paleoecology (where extinct animals lived) and biostratigraphy (how long ago they lived). Surrounding each of the Geniuses are animals and plants in some way associated with that element, and the overall procession of the animals and plants leads from the oldest forms at the start to the most recent forms at the end. By walking along the guilloche, we can explore the evolution of life in both time and space, watching living things diversify from the earliest sea creatures to steadily more complex forms adapted to land and sky.

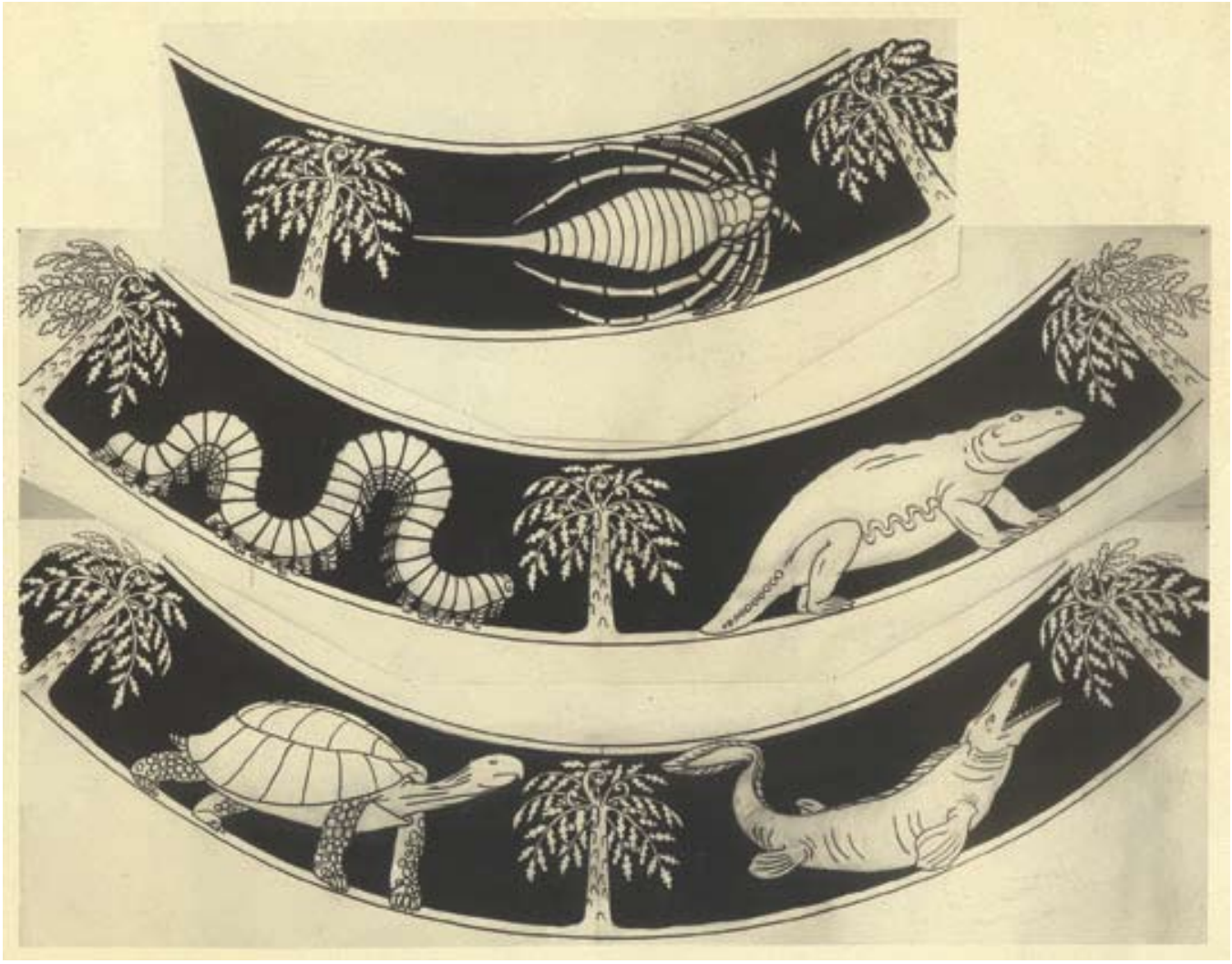
The Genius of Water

The Genius of Water is portrayed as a gentle and nurturing figure, apparently about to release a fish into the waters swirling around him. This symbolism would not have been lost on Barbour, aware of the fact that the sea is considered by biologists to be "the cradle of life", the place that life evolved millions of years ago. The first four figures in the guilloche are invertebrates, that is, animals without backbones, and are the sorts of sea creatures that were common during the Paleozoic Era (550-245 million years ago). The first is a starfish, followed by a sea scorpion, a trilobite, and an ammonite. Sea scorpions were predatory animals related to spiders, and the one shown here is actually based on a specimen of Eurypterus collected from Peru, Nebraska in 1915. In contrast that starfish, trilobite, and ammonite are all rather generalized examples of their type.

The next five organisms are vertebrates, animals with backbones, and these are used here as examples of the more advanced denizens of the sea. First come two species of fish, followed by two types of marine reptile, and finally a sea bird. The pair of dolphin-like reptiles are ichthyosaurs, not known from Nebraska, but the long-necked animal, a plesiosaur, is of a type that has been found in the state. Part of the skeleton of a plesiosaur was found in Valparaiso, Nebraska in 1964 and is on display in the State Museum and is one of the largest examples of its type yet discovered. This animal swam in the great Western Interior Seaway that covered Nebraska about 90 million years ago. The sea bird is *Hesperornis*, which lived at the time as the plesiosaur, and was a flightless, penguin-like bird that fed on small fish and squid.

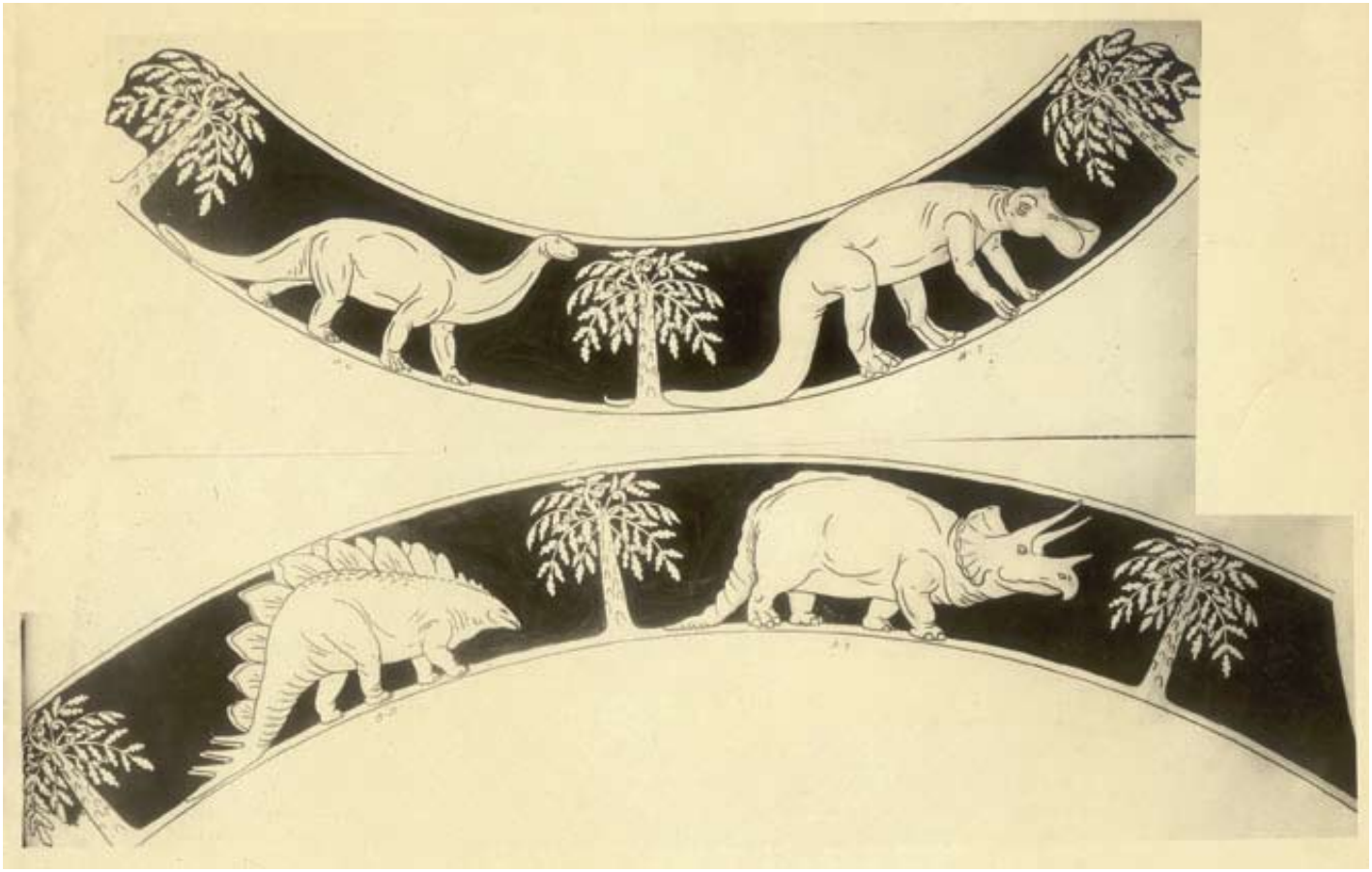
The Genius of Fire

The Genius of Fire stands here as a metaphor for the dry conditions of the land compared with the sea, for the animals and plants shown in this section of the guilloche were the pioneers of terrestrial life. The first two animals in the guilloche are a primitive spider and a centipede of the type found in the coal mines of Nemaha County. After a giant amphibian comes an extinct giant tortoise of a type commonly found in the Badlands, and then a mosasaur, a giant marine reptile from the Niobrara Chalk that reached lengths of over 10 metres.



Dinosaurs!

Although dinosaur bones are virtually unknown from Nebraska itself, within the broader Nebraska Territory there are several major collecting sites, in particular Utah, Wyoming, and the Dakotas. Accordingly, four species are figured here, the sauropod *Apatosaurus*; the duckbill *Edmontosaurus*; *Stegosaurus* with its distinctive plated back; and *Triceratops*. Skeletons of *Triceratops* and *Stegosaurus*, among others, can both be found at the State Museum. The postures of the dinosaurs are very much of their time, when paleontologists generally thought dinosaurs to be rather like lizards; recent research has shown that dinosaurs didn't drag their tails on the ground, and were in fact alert, active, and agile.



The Genius of Air

With a few exceptions, the animal figures in the section surrounding the Genius of Air are familiar ones. The first two, a butterfly and a dragonfly, are insects, but the third is an extinct form of flying reptile, a pterodactyl, similar to those found in the Niobrara Chalk. Five birds come next, with the first two representing extinct forms. The first of these is Ichthyornis, a sea bird notable for still having teeth in its beak, a characteristic it inherited from its dinosaur ancestors. As well as teeth, Ichthyornis inherited another reptilian trait: it laid eggs. Meiere makes a point of this, placing an egg on the baseline of the guilloche to remind the viewer of this important aspect of bird biology. The ostrich-like bird that follows is *Diatryma*, a nine-foot tall bird that lived about 60 million years ago. Though unable to fly, it was a fast runner, and its huge, hooked beak indicates that it was a fierce and effective predator. A songbird, a falcon, and an owl finish off the sequence of birds, but the last figure around the Genius of Air is not a bird but a bat, the only type of flying mammal, and a link to the figures that come next.

The Genius of Earth

The Genius of the Earth holds a hammer with which he is reshaping the land, a reminder that the world we see around us is not completed but a work in progress. All the animals surrounding the Genius of Earth are mammals, beginning with a giant armadillo. Three herbivores come next, a giant pig, a bison, and a primitive horse. A sabre-tooth cat comes after them, followed by two rhino-like animals, *Titanotherium* and *Dinotherium*. The last two animals are elephants, for which Nebraska is world famous.

If you look closely at the feet of the horse you will see that it has three toes on each foot, not the single hoof that modern horses have; it is this attention to detail that shows how carefully Meiere worked to translate Barbour's scientific knowledge into visual art. Perhaps more than anything, this symbolizes the harmony of the arts and sciences that the Rotunda Mosaic represents and places in the very heart of the Nebraska State Capitol.

This paper by Neale Monks was originally produced in cooperation with the University of Nebraska State Museum. Credit is given to Sharon Stephan at the University of Nebraska and to Patricia Grew at the University of Nebraska State Museum for their support of this project.

For additional information about the University of Nebraska State Museum of Natural History please visit: www.museum.unl.edu

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