

Case History at Museum Details Evolution of Horse

Your scribe never ascends the 38 steps of that replica of a Greek temple which is Chicago's Natural History Museum, without a quickened heart beat.

On this day, as we reached the second floor we hurried past the exhibits of ancient Chinese civilization, we gave scant notice to the exquisite jades and gems, the pottery and porcelains and the intriguing fossil displays of the plant and invertebrate life of the early Cambrian Sea. These tempting exhibits would have to wait, for today's destination was the Hall of Fossil Vertebrates.

For the purpose of our visit to this great repository of the life of past ages was to see once more the

cases which hold the fossil skeletons testifying to the evolution of the horse. The record begins with the little Eohippus, he of Wyoming's Wind River Canyon to which your scribe referred in the June 18 column.

THE VERTEBRATES, which may have developed as long as 450 millions of years ago, had a decided advantage over their invertebrate ancestors, whose, countless horsha had already populated the ancient seas for some 1,500 millions of years.



Mrs. Freise

The skeleton frame of this new life-strain gave them greater mobility to obtain food and to escape their enemies. But, most important, they developed a vertebrae chain and a skull which served to encase a gradually evolving nervous system, which eventually centered in a spinal cord and a brain. Some 300 million years elapsed between the time when the first fish-like vertebrates swam in the ancient seas until Eohippus left his hoof mark on the Eocene Plains.

THE FOSSIL record is enclosed

in four glass cases, the first holding the skeleton of "Hyracotherium," a close relative of the above Eohippus, the "dawn horse." He was alive about 50 million years ago and was a small browsing animal about eight inches tall. Scientists say that he looked more like a fox terrier than a horse and that he lived in the subtropical forests which covered Europe in that far-off day.

It is plain to see that the foot structure of the early horse had already evolved from the previous mammalian pattern of five toes on each foot to four on the front and three on the hind foot, thus increasing his mobility and speed. To paleontologists, teeth, foot

structure and the size and shape of the skull serve as leading fossils in the evolutionary history of the horse.

His jaw held only four low-crowned molars plus four small front croppers. He had no incisors as had many of his flesh-eating ancestors. "Use it or lose it" was one of nature's laws then, even as it is now.

THE FOSSIL skeleton in the next case, dated 10 million years later, is more horse-like and belonged to one which scientists christened "Mesohippus."

He was a three-toed creature about the size of a sheep and was alive in the Oligocene Period. His jaw was equipped with more and larger molars than that of his predecessor, the central digit of his three-toed foot was considerably elongated.

A more recent species of the above "middle horse" of some 25 millions of years ago, named Mesohippus harti, comes alive in a beautifully executed diorama at the end of the hall. This group of early horses was reconstructed from skeleton fossils found in the area of South Dakota. Here we see five dark grey creatures about three feet tall with white spots and short black manes and tails.

They are portrayed on the banks of a river, laced with tall grasses, which winds through an open plain extending to a backdrop of high hills fringed with deciduous trees. The diorama is so realistic that one can easily imagine being alive in this ancient world.

THE NEXT fossil skeleton belonged to one "Pliohippus," a horse of the late Miocene Period. He lived on the Great Plains some 25 million years ago.

Now standing about three and a half feet tall, his elongated central toe had broadened into a hoof, although the remaining toe on either side yet remained functional.

His high-crowned molars were more numerous in his elongated jaw. Their composition shows that as a result of being subjected to such hard use in masticating the tough prairie grasses, they had already become "ever-growing" as are the teeth of today's horses.

THE LAST skeleton is of one named "Hippotigris," a subgenus of Eohippus. Some scientists believe that he was a zebra, a form of the horse which developed parallel to our modern species.

At any rate he had already reached a high stage of specialization closely resembling today's horse in size and structure. Like his predecessors, he was a grazer, and his more massive jaw held 24 broad-crowned grinding molars and six chisel-like front teeth for cropping grass.

Each foot had now evolved into a single broad hoof while the third and fourth toes of his predecessors appear as vestiges higher on the leg bones. This single-hoofed foot had become an ideal mechanism for the swift flight so highly prized (though for a different reason) by today's race horse.

ALTHOUGH the horse evolved in North America, he migrated to all the continents except Australia and Antarctica presumably over a land bridge located at the position of today's Bering Straits. For some as yet unknown reason, he became extinct on our present continent sometime during the last glacial period.

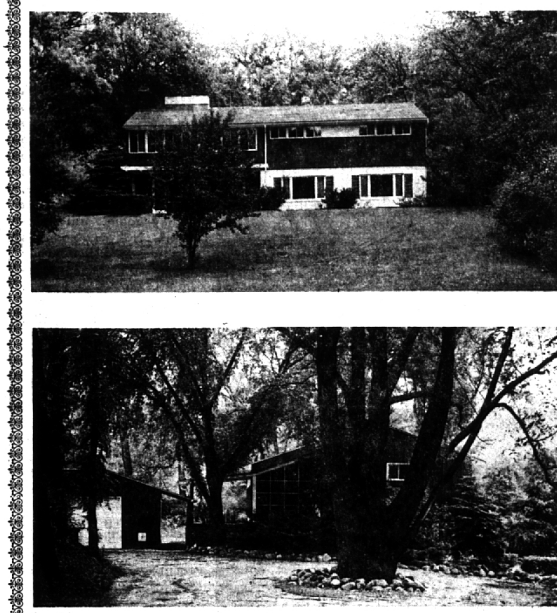
It was many hundreds of years later until his descendants, the horses stolen from Colorado, were back again in Wyoming, ridden there by the galloping Sioux to round up the buffalo herds.

Today, members of the horse family, including the zebra, are native only to small areas of Asia and Africa.

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Calendar of Cultural Events

- THURS., JULY 2**
THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- BLOOMFIELD ART ASSOCIATION—Exhibition of young people's art. Through Sunday at Birmingham Art Center, 1516 S. Cranbrook. Hours 2-5 p.m. Tues-Sun.
- SUMMER STUDENT SHOW—Work by eight departments of Cranbrook Academy of Art at Cranbrook Galleries, Bloomfield Hills. Tues.-Fri. 2-5 p.m. Sat.-Sun. 1-5 p.m. Through mid-Sept. Admission charge.
- CRANBROOK INSTITUTE OF SCIENCE—Three photo exhibitions: "Africa, Antarctica, and the Amazon;" "Alaskan earthquake;" and history of Cranbrook through July 15 at institute on Lene Pine Road, Bloomfield Hills. Hours 10 a.m. to 5 p.m. Mon.-Fri.; 1-5 p.m. Saturday. Admission charge.
- LITTLE GALLERY—Group show celebrating gallery's 14th anniversary. Work by Joseph DeFrancesco, Lura Lawler, Edward Pracukowski and Martha Slaymaker. Through July 25. Hours 9 a.m.-6 p.m. Tues.-Sat. at 915 E. Maple, Birmingham.
- OU GALLERY—Exhibition of works by Yugoslav painter Ljubo Biro, at Oakland University, Rochester. Hours 12:30-4 p.m. Mon.-Fri. and 2-5 p.m. Sun. Through July 27.
- BIRMINGHAM THEATRE—"Visa Las Vegas" and "Advance to the Rear."
- BLOOMFIELD THEATRE—"From Russia with Love" and "One, Two, Three."
- FRI., JULY 3**
THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- SAT., JULY 4**
THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- HOOTENANNY—From 7:30 to 11 p.m. at the Birmingham YMCA. Admission charge.
- SUN., JULY 5**
THE RAVEN GALLERY—Hootenanny with folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- CARLETON CONCERT—By Frederick Marriott of Ann Arbor at 4 p.m., Christ Church Cranbrook, Bloomfield Hills.
- TUES., JULY 7**
BRIDGE—Birmingham Duplicate Bridge Club at 12:30 p.m. at home of Mrs. Stuart Murphy, 2424 Manchester, Birmingham.
- CHILDREN'S STORY HOUR—At 10:30 at Troy Public Library in Troy High School.
- THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- WED., JULY 8**
BRIDGE—Birmingham Duplicate Bridge Club at 7:45 p.m. at Birmingham Y.M.C.A. Master point night.
- THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- THURS., JULY 9**
BRIDGE—Birmingham Duplicate Bridge Club at 7:45 p.m. at Birmingham Y.M.C.A. Master point night.
- THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- FRI., JULY 10**
WILL-O-WAY PLAYHOUSE—Apprentice Theatre presents drama "All the Way Home" at 8:40 p.m. at the playhouse in Bloomfield Hills. Admission charge.
- BLOOMFIELD ART ASSOCIATION—Reception for Mr. and Mrs. Hemi Sethna of India from 7-10 p.m. at Birmingham Art Center. Showing of Sethna's slides of Indian crafts, folk dancing and architecture at 8:30 p.m.
- BLOOMFIELD ART ASSOCIATION—Textiles by Nels Holm from 7-10 p.m. July 19 at Birmingham Art Center. Hours 2-5 p.m. Tues.-Sun.
- THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- SAT., JULY 11**
WILL-O-WAY PLAYHOUSE—Apprentice Theatre presents drama "All the Way Home" at 8:40 p.m. at the playhouse in Bloomfield Hills. Admission charge.
- THE RAVEN GALLERY—Folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.
- SUN., JULY 12**
WILL-O-WAY PLAYHOUSE—Apprentice Theatre presents drama "All the Way Home" at 8:40 p.m. at the playhouse in Bloomfield Hills. Admission charge.
- THE RAVEN GALLERY—Hootenanny with folk singers Mike and Judy Callahan at 9:30 p.m. at 136 Brownell, Birmingham. Admission charge.

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(Continued from 1-D)

plant physiologists throughout the world are finding out about what happens during plants processes. Eight projects climax the book.

The author is chief plants' physiologist for the Shell Development Laboratory in Modesto, California. He has lectured at high school science institutes.

The second book tracks down the chemical in living organisms to reveal blueprints of the organization of cells and show how elements and compounds blend or differentiate to form special structures.

The author is associate chairman of the department of chemistry at Florida State University.

ANOTHER SERIES of books, intended for a younger audience (grades 3 to 6) is the "Hi Neighbor" books published by the United States Committee for UNICEF (Hastings House). They describe the lives of children in other countries of the world.

There are now seven in the series, and book seven presents the children of the Philippines, Madagascar, Ceylon and Jamaica. It tells about their families, the house they live in, what they wear and what they eat.

There is also information about the history, geography and resources of each country.

IN TIME for the baseball season has come "The Wee Wee Cook of the Midlet League" by C. Paul Jackson (Hastings). The author has written many sports stories for boys 10 to 14.

In all of them he combines a good exciting story with sound facts. This latest offering is no exception.

Besides relating the trials of Pao Wee who lived to play baseball and stuck to his job as shortstop in spite of many obstacles, the book offers a graphic picture of baseball as played today in this new league for junior players.