



Creating the Nation's first BioPark

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Letter from the Desk of David Challinor
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Before mankind invented the written word, Pleistocene artists illustrated with vivid pictures their perception of the large mammals they hunted. People have been drawing mammals and other fauna ever since. The very early drawings, however, are particularly valuable today as an historical record of the animals common at the time. Thus, millenia later, we have a base against which we can measure changes over time in megafaunal ranges.

The cave paintings, located in what is now southern France and Spain, were created 13,000-14,000 years ago and are remarkable for both their distinctive style and grace. They represent their subjects with an accuracy that was matched by artists in only a few other subsequent cultures. We remain uncertain what motivated these cave artists to paint, but regardless of their reasons, their choice of deep cave interiors for their painting surface insured the survival of their art to the present.

Dating these cave paintings has been almost as difficult as interpreting their significance. A major breakthrough in determining their chronology, however, was reported in NATURE (7 May 1992). Helene Valladas of France's National Center for Scientific Research and her colleagues used a new technique to measure age by analyzing tiny amounts of charcoal used in the drawings. In two closely located Spanish caves, paintings were shown to have been done about 14,000 years BP¹ in one cave and some 1,000 years later in the other. Interestingly, the style of the paintings in the two caves is virtually identical. Across the Pyrenees in a French cave, the style used to depict bison was so different from the Spanish style that it was assumed the French paintings were drawn in a completely different era. When dated, however, the stylistically distinct French bison depictions were found to be the same age as the younger of the two Spanish paintings.

Sixteen thousand years ago, the European bison, also known as wisent, illustrated on the cave walls ranged from western Europe to China. There were two varieties of bison: woodland and steppe. By the start of World War I, the woodland bison, because of forest destruction, was confined to the large forest of Bielowecza on the present Polish-Russian border. The last free ranging individual bison was shot there in 1921, but the species



¹Before the Present

1889-1989

"...for the advancement of science and
the education and recreation of the people."

was saved from extinction by a concerted international zoo breeding effort that reintroduced a small herd to this same forest in 1956. That herd has since expanded, and the wisent's survival now appears assured.

Unfortunately, the same success story cannot be told of the aurochs, the wild cattle that shared the forests of Europe with the wisent and which were also frequently depicted on cave walls. The last wild aurochs died in Poland in 1627. Evidence strongly suggests that all domestic breeds of European and Near Eastern cattle are descended from aurochs whose original range, unlike the wisent, also included the forests then extant in North Africa and Asia Minor.

We know that cattle were one of the first wild animals to be domesticated; their bones have been found in human habitations dated up to 6,000 years ago. In the Near East they were probably objects of worship and would have been kept for sacrificial purposes. We have vivid pictorial evidence of their use in sport and ritual, particularly in Hindu, Minoan, Assyrian and Egyptian cultures. In the latter, the divine cow, Hesat, was depicted in a hieroglyph, as was the bull, Ka, which appeared in two different forms: standing with head erect and associated with the sun, and standing with head lowered as an enraged threatening beast and associated with the powerful king.

The ancient Egyptians, whose artists began painting 10,000 years after the European cave painters, seem to have used a much wider group of animals for religious purposes. Evidently the cave painters were concerned primarily with meat sources, and, therefore, they depicted only the mammals they hunted -- reindeer, horse, bison and aurochs. The third millenia BP Egyptians, however, appear to have had a well-established agrarian economy, and hunting was not as much a survival need as it had been in late Pleistocene Europe. Thus, they left behind bas reliefs of duck hunting so accurate that they could be identified as pintails. Furthermore, thousands of sacred ibis were mummified, as were the sacred bulls. Crocodiles, cobras, frogs and a host of birds such as falcons, lapwings, swallows, herons and vultures were all depicted in hieroglyphs. The deistic symbolism of many of these animals of ancient Egypt is well-researched, but these paintings also provide the biological historian with information on the important role of these animals in this early civilization. The illustrations give evidence of the presence, appearance, and even population size of animals that no longer exist in the lower (northern) Nile Valley.

Southwest of Egypt, in what is now southern Algeria, in the middle of the Sahara, rock paintings known as the Tassili frescos date back 5,000-9,000 years. They show giraffe and antelope hunters and numerous scenes of cattle and herdsman. Grazers and

browsers have long since disappeared from this area, but these frescos reveal, in addition to the type of animals, the vegetation that existed, and thus provide clues to the local climate that was necessary to support cattle and grazing wildlife. Although we know from fossils that parts of what is now the Sahara, such as the Fayum depression (about 100 miles SW of Cairo), were home to primates and hippos 25 million years ago (during the Oligocene era), these paintings reveal climatic changes that took place in historical times. From what we know today, the variations in the north-south rainfall patterns were probably caused by north-south movement of the jet stream track, the reasons for which are still unclear.

In Tunisia the Romans left a remarkable record of the fauna and flora in their mosaics. Several mosaics are on display at the Bardo Museum in Tunis, and they illustrate many of the important commercial fish species of the Mediterranean's south coast. This information is useful for students of the bio-history of Mediterranean fish fauna. Assuming that the fish species shown in the mosaics were the ones most commonly harvested, we can compare catch composition of 2,000 years ago with today. It would be fascinating to determine what new commercially valuable fish species have entered the Mediterranean through the Suez Canal from the Red Sea, especially during the eight years (1967-1975) the Canal was closed to ship traffic following the Arab-Israeli Six Day War of 1967.

There are innumerable other places in the world where ancient artists illustrated the natural world, and they all contribute to our knowledge of the past. Occasionally an animal will be depicted that is unknown today, such as the Seth animal that appears as an Egyptian hieroglyph. We are left with yet another mystery to add to the innumerable others we seek to solve. Many illustrations may be merely portrayals of fantasies, and it is still unknown whether Seth was a real animal or not.



Our libraries are filled with field guides depicting almost all of today's living things. If we can keep these books intact for several more centuries, our descendents will have a clearer picture of the fauna and flora of our day than we have of those that graced the earth only a few thousand years ago. The remains of ancient drawings show man's attempts to portray the natural world in which he lived. Drawn for whatever purpose, these illustrations are useful to modern-day scientists as evidence of how human activity has altered the ranges and even the appearance of many animals and birds, thus giving us a partial view of fauna tens of thousands of years ago.

David Challinor
202/673-4705