

SCIENCE & TECHNOLOGY



*Archaeopteryx, the first bird,
evolved from the reptiles some
130 million years ago.*

From *What on Earth Happened Before Man Arrived* by William G. Carter.
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arms—they were able to prolong their lunges. By repeating the swing several times and gradually developing a return stroke that minimized drag, they could leap even further. Once natural selection refined their wings and increased their endurance, they left the ground behind.

Science and the Old South

“Science in the Old South: A Reappraisal” by Ronald L. Numbers and Janet S. Numbers, in *Journal of Southern History* (May 1982), % Bennet H. Wall, Dept. of History, University of Georgia, Athens, Ga. 30602.

“By 1850 the cotton kingdom had killed practically every germ of creative thought.” When historian Samuel Eliot Morison wrote those words in 1927, he touched off a heated debate among scholars over ante-bellum Southern attitudes toward science. Now historians have data to settle the question, according to the authors, a historian of science and a clinical psychologist at the University of Wisconsin.

In 1860, Southerners made up 20 percent of the U.S. nonslave population. But only 11.6 percent of the scientists who held office in, or presented a paper to, the American Association for the Advancement of Science were from the South; by contrast, New England, with half as many people, produced three times as many AAAS leaders. Other indicators—the number of Southerners who published or wrote for scientific journals, for instance—suggest that Dixie trailed far behind the Northeast (but not the recently settled North Central states) in scientific accomplishment.

What accounts for the disparity? Historian Clement Eaton in *The Mind of the Old South* (1964) blamed the rise of “religious and proslav-

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ery orthodoxies" after the 1830s. But the South actually improved its low standing in the scientific community during the decades just before the Civil War, even as support for slavery became more entrenched. And, as the record of the Border states attests, slaveholding itself was no impediment to scientific inquiry: Representing only 10 percent of the U.S. nonslave population, that region (Maryland, Kentucky, Delaware, Missouri, the District of Columbia) produced almost 20 percent of AAAS leaders. Slavery, say the authors, gave some Southerners—prominent scientists such as botanist Henry William Ravenel and physicist John LeConte—the leisure to pursue their researches.

The chief obstacle to scientific inquiry in the South was an agrarian economy. Rural libraries were poor; cities were few and small. Twentieth-century historian Thomas Cary Johnson, Jr., a Southern partisan, writes that "for the most part the scientists of the Old South led lonely lives, separated by many miles from fellow workers in their chosen fields." In the words of 19th-century geologist William Barton Rogers, "Solitude is, after all, no friend to Science."

RESOURCES & ENVIRONMENT

The Last Ark

"Zoos: Endangered Species' Last Hope?"
by Joseph Wallace, in *Museum* (May-June
1982), Museum Circulation Services, P.O.
Box 1300, Bergenfield, N.J. 07621.

Nowadays, zoos must be more than just showcases for exotic animals. As one zoo administrator puts it, "Zoos must be an ark, a place where animals can survive even when their natural habitat has disappeared."

The horrors of 19th-century menageries—cramped, smelly cages filled with bored and unhealthy animals—have rapidly disappeared now that many animals can no longer be replaced easily. Zoo directors today, observes Wallace, a freelance writer, must concentrate on encouraging reproduction in captivity. Spacious enclosures that resemble natural habitats and scientifically determined food regimens, along with ropes, swings, and branches for daily exercise, have made for healthier, happier, and better-looking potential mates. But, as the National Zoo's frustrated attempts to pair off its giant pandas attest, simply placing a male and a female in the same cage is not always enough.

Curators must determine, often through trial-and-error, the best environmental and social conditions for the mating of each species. The male zebra enjoys harems; the finicky rhinoceros requires a long "courtship." And the gila monster refuses to mate without an extensive, exact replication of the seasonal changes in its desert home.

There already have been notable successes. American buffalo, nearly extinct in 1907, now number 20,000; almost 800 Père David deer have