An ancient relative for the owl monkey

The owl monkey, a large-eyed, nocturnal "New World" primate that inhabits the jungles of South America, has taken a giant step backward in evolutionary time. A partial fossil skull found in Colombia last year and described in the April 16 NATURE indicates that a direct relative of the modern owl monkey lived between 12 million and 15 million years ago.

"This is the first fossil that is clearly identifiable as a modern genus of New World monkey," says Alfred L. Rosenberger of the University of Illinois at Chicago, who directed the Colombia excavation with Takeshi Setoguchi of Kyoto (Japan) University. Although the fossil record for these primates is scant, the skull supports the notion that present-day New World monkeys belong to ancient genera – groups of closely related species – that in some cases may extend back 20 million years, contend the researchers.

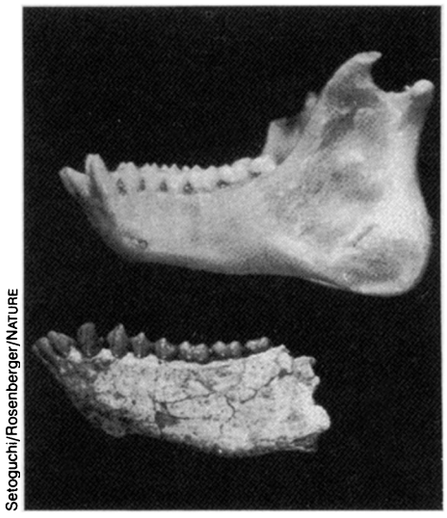
"The general picture that is now emerging is that relatively little evolutionary change has taken place in New World monkeys since at least mid-Miocene times [around 20 million years ago]," says Robert D. Martin of the University of Zurich, Switzerland, in an editorial accompanying the report.

The owl monkey skull includes the back and side portion of the palate, fragments of a number of teeth, a complete third molar, the cheekbone arch and pieces of facial bone from the base of one eye socket. The teeth are more primitive than those of modern owl monkeys, note the scientists, but are similar enough to be assigned the same genus, *Aotus*. In addition, the fossil has a very large eye opening similar in size to the enlarged eyeballs of modern owl monkeys. Setoguchi and Rosenberger named the ancient species *Aotus dindensis*.

The jaws and teeth of two other primates had previously been uncovered in the same layer of rock at the Colombian site. They are related to modern squirrel monkeys and howler monkeys, says Rosenberger, but cannot be placed in modern genera. Neither can the oldest known New World monkey fossil, a jaw that dates to 26 million years ago. That specimen has some features that are similar to living squirrel monkeys, says Rosenberger.

Taken together, the fossils accumulated so far suggest to Rosenberger that New World monkey genera developed fairly rapidly following the appearance of a common ancestor sometime shortly before 26 million years ago, and that these genera underwent minimal change thereafter.

In contrast, says Rosenberger, Old World monkeys in Africa appear to have evolved along more complicated family trees and through much shorter-lived genera. The farthest back in time a modern Old World monkey genus extends among known fossils is 8 million years for the macaques.



Setoguchi/Rosenberger/NATURE

The teeth and jaw of a modern owl monkey, top, compared to the fossil found in Colombia.

"But given the gaps in the fossil record, this view of evolution is just a possibility," adds Rosenberger. Although Martin acknowledges that the new skull "bears witness to remarkable evolutionary conservatism in the owl monkey lineage," he points out that New World monkeys may have originated far earlier than anyone has proposed and the early stages of their evolutionary branching have yet to be uncovered by fossil hunters.

This possibility would fit well, says Martin, with "increasingly compelling evidence" that the common ancestor of New World monkeys migrated from Africa sometime prior to 30 million years ago when the two continents were geographically close to one another.

At this point, however, the evidence is not compelling enough to support theories of migration to the New World from Africa, North America or anywhere else, responds Rosenberger. "We don't know where New World monkeys originally came from," he says. "There may have been waves of adaptive radiation [biological evolution characterized by spreading into new environments and adaptive changes] from Africa, Asia and Europe that were importantly affected by continental drift."

It also remains difficult to explain, notes Martin, why owl monkeys are the only simian primates (a category that includes humans, apes and monkeys) that are nocturnal. Nighttime activity is typical of prosimian primates such as lemurs, lorises and tarsiers. "Perhaps, as there are no prosimian primates in the New World, owl monkeys have occupied a parallel ecological niche," Martin says.

– B. Bower

Last wild condor caught

It could be the title of a novel: The last of the wild condors. But zoo, government and Audubon Society officials hope that the capture of California's remaining wild condor this week will simply mark the close of one chapter in a story with a much happier ending – the eventual return of the endangered birds to the wild after they have increased their numbers during captivity.

On April 19, scientists from the Condor Research Center in Ventura, Calif., netted the 7-year-old male bird known as Adult Condor 9 (and called Igor by some people) at the newly designated Bitter Creek National Wildlife Refuge near Bakersfield. "AC9" is believed to have fathered a baby condor that was hatched in captivity last June (SN: 6/21/86, p.389). According to Robert SanGeorge, vice-president of the New York-based Audubon Society, which helped in the capture, scientists lay in wait near a dead goat for more than an hour while AC9 meandered around the bait area. AC9 is the third condor to be captured this year, he says.

AC9 was taken to the San Diego Wild Animal Park, which together with the Los Angeles Zoo is caring for all of the living California condors, now totaling 27 in number. The 4-year-old captive breeding program has been the center of heated controversy over whether the animals should be kept in captivity. Scientists suspect that the California condors have been dying in the wild because they have been inadvertently poisoned by lead bullets in the animal carcasses upon which they feed. □

If it moves, patent it

On April 17, a U.S. Patent and Trademark Office board released a memorandum announcing a policy that will no doubt be dogged by controversy. The policy will allow the patenting of animals produced by biotechnology techniques, up to but not including humans. Considered possible candidates for the patent review process would be not only new forms of life created in the laboratory, but also established species that have been given new traits through technology.

Debate over the policy – with its economic implications and ethical questions – is expected to be intense. A coalition made up of the Foundation on Economic Trends, the Humane Society of the United States and other animal welfare organizations immediately petitioned the Patent Office, asking for withdrawal of the policy – which the coalition labels an "extraordinary legal and ethical leap" that ignores the necessary legislative and judicial process. □