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COVER: Hsing Hsing, one of the two rare giant pandas at the National Zoological Park in Washington, seems to be a bear, although some feel that he is a raccoon. Or neither. Or both. See p. 227. (Photo: National Zoological Park, Smithsonian Institution)

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Giant panda is a bear (maybe)

Millions of children have had no trouble deciding that the big, furry, distinctively colored giant panda is a bear, in fact just about the archetypal teddy bear. Scientists, however, have had a less easy time of it.

For more than a century, zoologists have debated whether the giant panda is a bear or, in fact, a raccoon. Or both. Or, for that matter, neither.

Now a biochemist at the University of California at Berkeley has declared that, based on the amino acid structure of its blood transferrin, the animal is indeed a bear. Yet the question, which seems to be one as much of definition as of analysis, remains open.

It was a French naturalist and clergyman, Père Armand David, who discovered the creature in China's Szechuan province in 1869 and labeled it a bear, a seemingly safe statement considering the general nature of his observations. No sooner had bone and tooth samples collected by David reached the Paris National Museum, however, when zoologist Alphonse Milne-Edwards declared them to be proof that the animal was a raccoon.

The argument went back and forth for half a century until, in 1921, a researcher named Pocock suggested a third possibility, namely that the giant panda should be placed in a category of its own. He also proposed another new category for the lesser panda, which some zoologists feel may be less controversially linked with the raccoon.

In 1956, C. A. Leone and A. L. Wiens advanced the bear proponents' cause when they reported a close correspondence between the whole blood sera of the bear and the giant panda.



Smithsonian Institution
Giant panda at lunch in Washington.

But whole serum reactions are mostly reactions in albumin, a blood component that evolves relatively slowly, so that there would only be a small number of evolutionary changes on which to base such a comparison. As a more detailed indicator, Vincent M. Sarich of the University of California compared the changes in the animals' blood transferrin, which, he says, evolves about three times faster than albumin. For his study, he used blood and tissue samples from the giant panda Chi-Chi after her death in London in July 1972.

Since the bears and raccoons diverged from a common ancestor about 25 million years ago, Sarich reports in the Sept. 28 NATURE, there have been about 43 evolutionary changes in the amino acid structure of the bears' transferrin. Only the last 11 of these are different for the giant panda, he says, which suggests that until those last changes began, perhaps seven million years ago, the panda was like any other bear. Over the 25-million-year span, however, the raccoon's transferrin underwent some 47 changes, none of which are shared with the giant panda. The giant panda, says Sarich, is at least as closely related to the bear as a dog is to a fox or a cat to a lion.

Yet there are real differences. Larry Collins, associate curator at Washington's National Zoological Park in charge of Hsing Hsing and Ling Ling, the only two giant pandas in the United States, points out that the animals' genitalia, for example, clearly resemble those of raccoons. Collins advocates putting the giant panda in a separate family of its own, but Sarich told SCIENCE NEWS he considers that misleading, since it fails to recognize the seemingly obvious linkages with bears. Sarich, instead, would put the panda in a separate genus or sub-family perhaps, with the established bears in another, but both in the same overall family.

Whatever they are, the zoo's giant pandas are thriving, and hopes are high that 1974 will see the first giant pandas ever born in captivity outside of China. When Ling Ling was in heat earlier this year, Hsing Hsing was more than willing but, because of his early age, less than able. For zoologists, little hope for more knowledge lies in China, since the giant panda's craggy habitat, called the Land of Deep Corrugations, is too rough even for a reasonable census. □