'I don't know of one case in the modern literature where it's claimed that one spider is the ancestor of another'

About 35,000 species of spiders have been identified, Platnick said, "but there may be three times that many in the world." He thought there were perhaps four full-time systematists examining spiders in the United States, "and perhaps another dozen who teach at small colleges and do some research." There is an American Arachnological Society, with 475 members worldwide, some of them amateurs. They meet once a year and discuss scorpions and daddy-longlegs, as well as spiders.

"Most of the spiders I look at may have been looked at by two or three people in history," Platnick said, adding that he would most likely be dead before anyone looked at them again.

I asked Platnick what was known about spider phylogeny, or ancestry.

"Very little," he said. "We still don't know a hill of beans about that." We certainly don't know, he said, what species the animal belonged to that was the ancestor of the very first spider. All we know of such an animal is that it was *not* a spider. We don't even know of any links in the (presumed) 400-million-year chain of spider ancestry.

"I do not *ever* say that this spider is ancestral to that one," Platnick said firmly.

"Does anyone?"

"I don't know of a single case in the modern literature where it's claimed that one spider is the ancestor of another."

Some spiders have been well preserved in amber. Even so, Platnick said, "very few spider fossils have been so well preserved that you can put a species name on them." After a pause he added: "You don't learn much from fossils."

In view of Platnick's comments about our knowledge of spider ancestry, I was curious to know what he thought of the following passage from a well-known high school biology text, *Life: An Introduction to Biology*, by George Simpson and William S. Beck, first published in 1957 by Harcourt Brace Jovanovich and still in print.

> An animal is not classified as an arachnid because it has four or five pairs of legs rather than three. It is classified in the Arachnida because it has the same ancestry as other arachnids, and a different ancestry from insects over some hundreds of millions of years, as attested by all the varying characteristics of the two groups and by large numbers of fossil representatives of both.

At that he threw himself back in his chair, and burst out laughing.

In this passage, Simpson and Beck were practicing the verbal sleight of hand that has been common in evolutionary biology since the 1940s. All we know for sure is that there is a group of organisms (in this case spiders) that are identifiable as a group because they have certain unique characteristics. They have spinnerets for spinning silk, for instance, and thus we can say that all organisms with spinnerets are spiders. (They share other unique features, too.)

If we want to explain *why* thousands of members of a group have features uniquely in common, that is another matter entirely. We can, if we like, posit a theoretical common ancestor in the ur-spider, which transmitted spider traits to all its descendants. That is precisely what Darwin did in *On the Origin of Species*. But Simpson and Beck do something very different. They say that the composition of the class Arachnida was determined by examining not the features of spiders but their *ancestral lines*. But no such pedigrees are known to science—not just with respect to spiders but with respect to *all* groups of organisms.

The point stressed by the cladists is this: unless we know the taxonomic relationships of organisms—what makes each unique and different from the other—we cannot possibly guess at the ancestral relationships. Things in nature here and now must be ranked according to their taxonomic relationship before they can be placed in a family tree. Thus the speculations of evolutionists ("Do X and Y have a common ancestor?") must be subordinate to the findings of taxonomists ("X and Y have features not shared by anything else"). If fossils came with pedigrees attached, this laborious method of comparison would not be necessary; but of course they don't.

"Stephen Jay Gould does his work without bothering about cladistics, I assure you," Platnick said, citing a recent paper by Niels Bonde, a paleontologist at the University of Copenhagen. Platnick went on to say that "the literature is replete with such statements as 'fossil X is the ancestor of some other taxon,' when it has not even been shown that fossil X is the closest relative of that taxon." (By "closest relative" he means that the two taxa form a group having unique characteristics.) "This is seen most commonly in accounts of human paleontology, but it is by no means restricted to it," Platnick said.

One reason why many laymen readily accept evolution as fact is that they have seen the famous "horse sequence" reproduced in textbooks. The sequence, which shows a gradual increase in the size of the horse with time, is dear to the hearts of textbook writers, in large part because it is on display at the American Museum of Natural History. For obvious reasons, the museum staff are uncomfortable going on record about the horse sequence, but when Niles Eldredge, a curator in the department of invertebrates at the museum and co-author, with Stephen Jay Gould, of the "punctuated