

Lesson 18: Example of Inherited versus Learned Behavior in Baboons

Original research by Kummer, Hans. (1968). *Social organization of hamadryas baboons. A field study.* (Bibliotheca primatologica, no. 6). Basel, New York: Karger.

Summarized by Jenny Davidson: <http://jennydavidson.blogspot.com/2005/12/robert-sapolsky-is-one-of-my-favorite.html>

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A respected scientist named Hans Kummer was working in a region containing two species of baboons with very different social systems. Savanna baboons live in large troops, with plenty of adult females and males. Hamadryas baboons, in contrast, have a more complex, multilevel society. Because they live in a much harsher, drier region, hamadryas have a problem. Some resources are singular and scarce. For example, scarce resources could be a rare watering hole or a good cliff face to sleep on at night in order to evade predators, and large numbers of animals are likely to want to share them. Other resources, such as the food they eat, are sparse and widely dispersed, requiring animals to function in small, separate groups. As a result, hamadryas have a "harem" structure. This is when a single adult male is surrounded by a handful of adult females and their children. The large number of discrete harems converge, peacefully, for short periods at the occasional desirable watering hole or cliff face.

Kummer conducted a simple experiment. He trapped an adult female savanna baboon and released her into a hamadryas troop. And he trapped an adult female hamadryas and released her into a savanna troop. Among hamadryas, if a male threatens a female, it is almost certainly this male who dominates the harem, and the only way for the female to avoid injury is to approach him -- i.e., return to the group. But among savanna baboons, if a male threatens a female, the way for her to avoid injury is to run away. In Kummer's experiment, the females who were dropped in among a different species initially carried out their species-typical behavior, a major mistake in the new neighborhood. But gradually, they learned the new rules. How long did this learning take? About an hour. In other words, millennia of genetic differences separating the two species, a lifetime of experience with a crucial social rule for each female, and a miniscule amount of time to reverse course completely.