Behaviour Analysis Letters, 1982, 2, 300-302.

(Abstract of an invited address given at the 8th annual meeting of the Association for Behavior Analysis, Milwaukee, May, 1982.)

THE SELF-CONCEPT AND OTHER DAEMONS

ROBERT EPSTEIN (Cambridge Center for Behavioral Studies, 11 Ware Street, Cambridge, MA 02138 USA).

I. People have always classified, labeled, and explained their behavior. For lack of facts they have often resorted to verbal devices: They have invented inner agents, mental processes, traits, and cognitive structures which -- grammatically, anyway -- seem to explain things. Such inventions will eventually give way to facts about genes, physiology, and conditioning.

II. The concept of a self-concept exemplifies the plight of modern cognitive psychology. It is, first of all, mistakenly reified from facts about behavior; it is said to exist as an "object" or "cognitive entity" and said, in embryonic fashion, to grow. It proves, however, to be indistinguishable from the facts from which it is inferred. It is mistakenly used to explain behavior, but at best it only describes it. Most importantly, it obscures the search for the hereditary and environmental factors that are actually responsible for the behavior -- for example, by implying that a child's behavior in front of a mirror and its response to the question "Where does it hurt?" have the same cause.

Most normal children by about age 2 and chimpanzees who have been given extensive exposure to a mirror react to their mirror images as reflections of their own bodies; most other animals, even after extensive exposure, tend to react as if they are seeing other organisms of their species. This has been accounted for by the mythical self-concept, which only humans and the great apes are said to possess (Gallup, 1979). However, Epstein, Lanza, and Skinner (1981) showed that pigeons, too, will react to their mirror images as reflections of their own bodies after being taught how to use mirrors to locate objects in real space. The

behavior of chimps and children in front of mirrors in various tests of "self-awareness" (e.g., Amsterdam, 1972) is fully explainable if we assume merely that they have first learned how mirrors work; there is ample evidence that this is the case. What distinguishes chimps and children, then, from other animals, is that they are so sensitive to the consequences of their behavior that they can learn how mirrors work without explicit training.

III. The "Columban [from the taxonomic name for pigeon] Simulation Project" has dealt with other apparently mysterious instances of complex behavior in similar ways. The rationale for the simulations is as follows: If you have reason to believe, based on principles of behavior established in the laboratory and based on information about a person's past, that certain experiences were responsible for the emergence of some mysterious behavior, you provide support for this conjecture if, after providing an animal which does not normally exhibit such behavior with these experiences, the animal exhibits similar behavior (Epstein, 1981). The plausibility of the simulation rests on the topography and function of the behavior produced, on structural similarities of the organisms, and on evidence that humans have had such experiences. "Symbolic communication," "insight," "the spontaneous use of memoranda," competition, imitation, "the spontaneous use of tools" and other topics have been investigated in this way and have given rise to several new principles in the experimental analysis of behavior.

IV. Computer simulations of so-called "cognitive processes" are, by comparison, implausible in several respects. They depend for their credibility on the unsupported assertion that humans are "information processors," on mistaken claims about the nature of "software," and on the frequently challenged assumption of "uniqueness." Unlike the Columban simulations, they shed no light on the origins of human behavior.

V. Pigeons are convenient to use in simulations of complex human behavior, but just because some history of conditioning produces novel, interesting, human-like behavior in pigeons, it is not necessarily responsible for comparable human behavior.

VI. As we learn more about how heredity and the environment determine behavior and about how behavior is mediated by the body, we will naturally abandon the myths. Unfortunately, where the daemons rule, the facts may turn up more slowly.

REFERENCES

Amsterdam, B. K. Mirror self-image reaction before age two. Developmental Psychobiology, 1972, 5, 297-305.

Epstein, R. On pigeons and people: A preliminary look at the Columban Simulation Project. The Behavior Analyst, 1981, 4, 43-55.

Epstein, R., Lanza, R. P., & Skinner, B. F. "Self-awareness" in the pigeon. Science, 1981, 212, 695-696.

Gallup, G. G., Jr. Self-awareness in primates. American Scientist, 1979, 67, 417-421.