

## 91) Feces -Throwing Reveals Communication Skills in Chimps – (GA) \$592,527

Chimpanzees will often throw food or feces at passersby. Taxpayers have funded a study to figure out the origins of this odd behavior.

William Hopkins, at Agnes Scott College, and researchers at the Yerkes National Primate Research Center (associated with Emory University) used a portion of the \$600,000 from the National Institutes of Health in 2011 to assist their study of throwing behavior in chimpanzees and its neurological origins.<sup>519, 520, 521</sup> Chimpanzees are one of very few organisms that can throw objects, which zoo visitors can often observe. For example, one of the investigators' research papers says, "Some of the chimpanzees will pile faeces or wet chow in their cage and wait for visitors to pass by before throwing this at them."<sup>522</sup>

Their studies have found that chimps in the wild seldom use throwing to obtain food. Rather, chimpanzees learned to throw objects in order to "control or manipulate behavior" of other apes or even humans.<sup>523</sup> That's not to say that throwing helps chimps in captivity get what they want. The researchers observe that chimpanzee caretakers rarely "reward a chimpanzee with food immediately after they had just been soiled with faeces by the very same ape."<sup>524</sup>

Hopkins and his team wanted ultimately to understand what throwing feces and food has to do with the neurological origins of communications in chimps. To that end, they took MRIs of chimpanzee brains, and then put those chimps through other cognitive tests.<sup>525</sup> They found that chimps that excelled at throwing feces and other objects had better communication skills than chimps with less-refined skills.<sup>526</sup>

William Hopkins has received NIH grants in the past to study other ape issues, including right-handedness versus left-handedness and whether that predicts reproductive success.<sup>527</sup>

## 92) Federally-funded Dragon Robots – (MA) \$130,987

The National Science Foundation approved a four-year \$923,000 grant for researchers to study how robots can help preschoolers learn language skills.<sup>528</sup>

The new robots, which will be designed as dragons, will be able to mimic many of the responses that humans make. "Nodding and eye gaze" will be components of the robot interaction.<sup>529</sup> These responses are essential for the robot to form a bond with the child, researchers say.<sup>530</sup> Videos and computers lack such cues and are not as helpful for teaching as a responsive dragon robot might be.<sup>531</sup>

A "robot partner" may be able to aid the development of a preschooler's vocabulary, which is a significant predictor of future academic success.<sup>532</sup> Children lacking regular interaction with a nurturing caregiver or other social interaction may be especially benefitted by this technology, according to the investigators.<sup>533</sup>