The Dung Beetle's Navigation Skill

EXCREMENT serves many purposes for the dung beetle. The insect eats it and lays its eggs in it. Some males will offer a large piece of it to a female dung beetle, hoping to attract her. Competition for fresh manure is intense. Researchers once observed some 16,000 beetles swarming onto a pile of elephant dung and removing it in just two hours.

Some types of dung beetle escape from the crowd by forming the feces into a ball, rolling it away from the main dung heap, and then burying it in a soft spot. The beetle rolls its ball in a straight line, since this gives it the quickest getaway and avoids the risk of having the ball stolen by other dung beetles.

But how does the dung beetle keep from going in circles, especially at night?

Consider: Previous studies have shown that dung beetles can navigate by the light of either the sun or the moon, yet they can also hold to a straight line even on clear moonless nights. Researchers in South Africa discovered that the beetles do this, not by seeing individual stars, but by using the band of light produced by the Milky Way galaxy. According to the journal *Current Biology,* this is "the first documented use of the Milky Way for orientation in the animal kingdom."

Dung beetles, says researcher Marcus Byrne, have "an effective visual navigation system which can operate in the dimmest starlight, using limited computational power." He adds: "They therefore have the potential to teach humans how to solve complex visual processing problems." For example, a drone might be programmed to search a collapsed building by mimicking the dung beetle's navigation system.

What do you think? Did the dung beetle's ability to navigate come about by evolution? Or was it designed? ■

Did you know? Dung beetles loosen and nourish the soil, spread plant seeds, and keep fly populations under control.

Galaxy: NASA, ESA, and the Hubble Heritage (STScI/AURA)-ESA/Hubble Collaboration; beetles: © Rolf Nussbaumer/age fotostock