20．ハエの特殊能力(2)：構造理解

Dickinson's laboratory works with fruit flies. Researchers put them in chambers and manipulate the visual field, filming the flies in super-slow motion, 6,000 frames a second. Dickinson is interested in knowing how flies avoid collisions. He has found that certain patterns, such as 90-degree turns, are triggered by visual cues and two equilibrium organs on their backs that function like a gyroscope.

Flies have only a dozen muscles for maneuvering, but they're loaded with sensors. In addition to their compound eyes, which permit panoramic imagery and are excellent at detecting motion, they have wind-sensitive hairs and antennae. They also have three light sensors on the tops of their heads, which tell them which way is up. Roughly two-thirds of a fly's entire nervous system is devoted to processing visual images. They take all this sensory data and boil it down to a few basic commands, such as "go left" and "go right."