

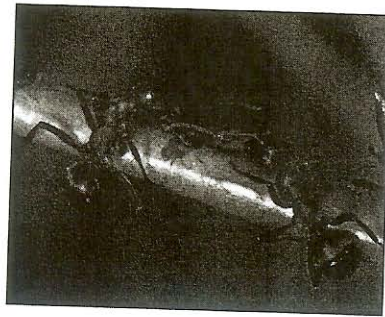
READING

READING PASSAGE 1

You should spend about 20 minutes on **Questions 1–13**, which are based on Reading Passage 1 below.

Ant Intelligence

When we think of intelligent members of the animal kingdom, the creatures that spring immediately to mind are apes and monkeys. But in fact the social lives of some members of the insect kingdom are sufficiently complex to suggest more than a hint of intelligence.



Among these, the world of the ant has come in for considerable scrutiny lately, and the idea that ants demonstrate sparks of cognition has certainly not been rejected by those involved in these investigations.

Ants store food, repel attackers and use chemical signals to contact one another in case of attack. Such chemical communication can be compared to the human use of visual and auditory channels (as in religious chants, advertising images and jingles, political slogans and martial music) to arouse and propagate moods and attitudes. The biologist Lewis Thomas wrote, 'Ants are so much like human beings as to be an embarrassment. They farm fungi, raise aphids* as livestock, launch armies to war, use chemical sprays to alarm and confuse enemies, capture slaves, engage in child labour, exchange information ceaselessly. They do everything but watch television.'

However, in ants there is no cultural transmission – everything must be encoded in the genes – whereas in humans the opposite is true. Only basic instincts are carried in the genes of a newborn baby, other skills being learned from others in the community as the child

grows up. It may seem that this cultural continuity gives us a huge advantage over ants. They have never mastered fire nor progressed. Their fungus farming and aphid herding crafts are sophisticated when compared to the agricultural skills of humans five thousand years ago but have been totally overtaken by modern human agribusiness.

Or have they? The farming methods of ants are at least sustainable. They do not ruin environments or use enormous amounts of energy. Moreover, recent evidence suggests that the crop farming of ants may be more sophisticated and adaptable than was thought.

Ants were farmers fifty million years before humans were. Ants can't digest the cellulose in leaves – but some fungi can. The ants therefore cultivate these fungi in their nests, bringing them leaves to feed on, and then

* aphids: small insects of a different species from ants