never been found, raising the possibility that parthenogenesis occurs in these species.

Clearly, the evolutionary reasons why parthenogenesis is maintained in *I. hastata* remain largely unsolved. Entomologists, and those interested in island biology and parasite-mediated sex determination, have a new case for investigation. ■

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1. Cordero Rivera, A., Lorenzo Carballa, M. O., Utzeri, C. & Vieira, V. *Odonatologica* **34,** 1–9 (2005).
2. Hughes, R. N. *A Functional Biology of Clonal Animals* (Chapman & Hall, London, 1989).
3. Corbet, P. S. *Dragonflies: Behaviour and Ecology of Odonata* (Harley Books, Essex, 1999).
4. Belle, J. & Van Tol, J. *Tijdschr. Ent.* **133,** 43–147 (1990).
5. Vandel, A. *Bull. Biol. France Belg.* **62,** 164–281 (1928).
6. Cuellar, O. *Science* **197,** 837–843 (1977).
7. Glesener, R. R. & Tilman, D. *Am. Nat.* **112,** 659–673 (1978).
8. Turner, P. E. *Pan. Pac. Ent.* **43,** 285–291 (1967).
9. Watanabe, Y., Yokota, H., Kato, K. & Hatakeyama, M. *Proc. Arthropod. Embryol. Soc. Jpn* **34,** 31–32 (1999).
10. O'Neill, S. L., Hoffmann, A. A. & Werren, J. H. *Influential Passengers* (Oxford Univ. Press, 1997).
11. Donnelly, T. W. *NZ J. Zool.* **17,** 87–117 (1990).
12. Jiggins, F. M. *et al. Proc. R. Soc. Lond. B* **267,** 69–73 (2000).

CONSCIOUSNESS

Crick and the claustrum

Charles F. Stevens

Francis Crick believed that, in biology, structure is the natural path to understanding function. In his later career, he applied this dictum to the study of consciousness.

Pretty much everyone is interested in the big questions about the brain, and the biggest big question is: what is consciousness? Just as historically the vitalists could not imagine how life can be explained by just physics and chemistry — they believed that a non-physical 'life force' had to be involved — the dualists of today cannot believe our experience of the feeling of love or the redness of red could arise just through nerve impulses in a bunch of brain cells. Although everyone who enters the field of neuroscience starts with an interest in the big questions, we soon settle into much smaller questions that we can see how to answer with the tools of modern biology. Questions about consciousness were therefore mostly left to philosophers and kooks, and no respectable neuroscientist would even have considered working on such a problem — until Francis Crick, that is.

After he and James Watson solved one of biology's really big problems, the mechanism of inheritance, Crick moved to neuroscience and set himself the task of answering that field's biggest question. Working closely with Christof Koch, Crick made the study of consciousness respectable and, directly and indirectly, had a profound influence on all of neuroscience and on the types of questions that are considered acceptable to study. Crick's final paper, written with Koch, has just been published in *Philosophical Transactions of the Royal Society of London* (doi: 10.1098/rstb.2005.1661) and it proposes that an obscure part of the brain, the claustrum, may be involved in consciousness. Crick was working on this paper literally on his deathbed, and Koch has put the finishing touches on it for publication.

How can a scientist think about consciousness? Crick's approach had two parts. The first was to identify what properties of consciousness had to be explained, and the second was to find brain structures that might account for those properties. Crick and Koch note that a key feature of our conscious experiences is that all of the components are integrated into a unified whole: how a rose looks, smells and feels are bound together with our emotional experience of it. Because these different aspects of experience are related to neuronal

ANIMAL BEHAVIOUR

Congo's art

BONHAMS

The decisive brush strokes are not the most notable feature of this painting, nor the powerful colour combinations. It is the artist and the artist's mentor — Congo the chimpanzee and Desmond Morris, respectively — that are the main points of interest. The painting, along with two others of Congo's, came up for auction at Bonhams, London, earlier this week.

Morris trained as an ethologist and has long been a painter himself. In the 1950s, he was the host of the television series *Zootime*, and it was here that Congo came to public attention. This picture was produced by the chimpanzee when he was three years old.

Congo was neither the first nor the last of ape artists, and his talent remains a question for experts in the disparate fields of art appreciation and animal behaviour. But his celebrity status has undoubtedly made his oeuvre more collectable. **Tim Lincoln**

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