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► **COVER:** 'Food for thought' by Kirsten Lee, inspired by the review on p355.



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The meeting of the British Neuroscience Association last month highlighted the potential of interdisciplinary neuroscience to unlock the mysteries of the mind, as many speakers presented results obtained by employing knowledge and techniques derived from multiple disciplines. With modern technology — and scientific techniques in particular — developing at an unprecedented rate, it does not come as a surprise that there is an air of excitement within the neuroscience community about the next 5 to 10 years, which are bound to revolutionize our understanding of the nervous system.

One technique that is sure to contribute to this revolution is described in this month's Highlight section (page 328). Deisseroth's team employed light-activated complementary ion channels to remotely control neuronal activity.

In this issue, Keene and Waddell (page 341) review our knowledge about the neuronal circuitry responsible for olfactory memory in *Drosophila melanogaster*. A range of accessible techniques that can be combined — genetic manipulations, including tricks that allow genes to be selectively expressed in particular neuronal subsets, electrophysiological recordings and a multitude of available behavioural tests — have transformed *D. melanogaster* into an ideal model system for studying learning and memory.

A basic question in neuroscience is how much of the knowledge obtained from studying model organisms such as *D. melanogaster*, Zebrafish and *Caenorhabditis elegans* can be translated into the mammalian nervous system. In the case of olfaction, aficionados might be surprised to learn how similar *D. melanogaster* and mammalian systems are. Cutting-edge genetic techniques developed in model organisms are now being employed in higher-order species, and will undoubtedly push forward efforts to understand the human nervous system.

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