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► **COVER:** 'Polar days, polar nights' by Natasha Wallington, inspired by the reviews on p171 and p194.



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Early morning and late night commuters often find themselves opposite a fellow commuter who is completely unaware of his environment as he has fallen asleep. Being asleep indicates low levels of certain hypothalamic peptides called orexins or hypocretins. These peptides were discovered almost a decade ago as regulators of feeding behaviour and have since been identified and studied extensively as regulators of the sleep–wake cycle. In a timely and authoritative review on page 171, Takeshi Sakurai discusses the mechanisms by which the orexin system regulates sleep and wakefulness and how orexin neurons are interconnected with brain areas involved in the control of energy balance, emotions, reward and arousal. Because of their central role in sleep regulation, orexins and their receptors are obvious therapeutic targets for sleep disorders. A Research Highlight on page 168 describes the identification of a new and highly specific orexin receptor antagonist that induces sleep in rats, dogs and humans without severe or adverse side effects.

Age-related diseases go hand in hand with the increased life expectancy in modern societies. Dementia in particular has been the focus of much research, and strategies to prevent its onset have been broadly investigated. In a Science and Society article on page 233, Carol Brayne investigates the complications encountered when trying to conclusively identify risk factors for dementia. She highlights the difficulties in translating findings across diverse sociocultural backgrounds and the lack of clear-cut criteria needed to separate dementia from normal aging. The latter problem exists in many research areas and underscores the need for common criteria that will allow the integration of findings across studies into a meaningful analysis.

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