

yourself lookup. The question (as with some contemporary redefinitions of "democracy"), is how many of the old associations of the term would then become misleading or downright deceptive. Simons is right to stress the greater importance now attached to information-processing in framing concepts of life; but his more exotic argumentation repeatedly founders (like the classical "Turing test") on a confusion between *necessary* and *sufficient* conditions. He seeks support from the usage of evolutionary biology in terms which (if only he had his tongue in his cheek) could be read as a salutary take-off: Computers "feed on electrical energy and excrete heat energy" (p.15). "Assembly, either of hydrocarbon molecules (for plant and animal life) or of nuts and bolts (for machine life), may be represented as a common reproductive mechanism" (p.19). Computers, like biological species, "evolve". "The growing intimacy between successive computer generations suggests such concepts as kinship, the 'handing down' of proven adaptive features, and resemblance between parent and progeny. Considerations of this sort suggest that it might be useful to classify, in biological terms, many of the emerging computer systems" (p.26). The role of human beings in "computer reproduction" is compared with that of humble bees in the reproduction of clover (p.19).

Confusion of categories bedevils the discussion of implications for our view of human nature. Because in a computer program "jumps can be *conditional* (in other words [*sic*] the computer can *decide*. . . whether the jump should be made)", either "computers have free will, or . . . humans do not" (pp.148, 149). What Simons fails to see is that this argument proves either too little or too much. The human nervous system itself embodies many "conditional jumps" in its programs (for example in the control of locomotion) at levels where nobody in his senses would claim that there is anyone making "free choices". It is people — conscious agents — who make choices, freely or otherwise. Even when they do so, to describe their *brains* as "choosing" would be a mere misuse of language — a category mistake. To turn every conditional jump in a computer into an act of free will would be to attribute to every contact-controlled traffic light something it would not make sense to attribute to a human brain. The meaningful and interesting question is what *kind* of conditional-jump structure in the human CNS embodies the process we know at first hand as conscious choosing, as distinct from all the others that do not. To the clarification of such issues Simons's terminological euphoria makes only a negative contribution. □

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Dreams and schemes in the dark

David Cohen

Landscapes of the Night: How and Why We Dream.

By Christopher Evans, edited and completed by Peter Evans.

Gollancz: 1983. Pp.254. £7.95.

In 1964, Christopher Evans, the author of *The Mighty Micro*, published a paper in which he drew an analogy between the state of dreaming and a computer being off-line. In both cases, contact with the real environment was cut. This new book, *Landscapes of the Night*, is an extension of that 1964 paper. Evans died suddenly in 1979 and the task of editing and completing the book was taken on by the science journalist, Peter Evans, who had the problem of thinking the early drafts through to a logical end. It is perhaps not surprising that a book written in this way, by two minds with little contact, should fall short of its rather grand aims.

Christopher Evans clearly wanted to state a brand new theory of dreams. The book begins, however, with a potted introduction to the physiology of sleep and dreams, to the ideas of Freud and Jung and, less conventionally, to the relationship between dreams and extra-sensory perception. It then moves on to describe research in the 1950s in which aspirants to an entry in the Guinness Book of Records tried to stay awake for 200 hours or more. All of them began to hallucinate, became very ill-tempered and, eventually, had to be allowed to fall asleep. Since then, more sophisticated research has shown that we dream when we have rapid eye movements and that if subjects are deprived of REM sleep, they also become psychologically disturbed. Evans concludes that we need to dream. If so, why?

Freud believed, of course, that he had the answer. But Evans dismisses Freud's ideas as mere wishful thinking, and begins

his explanation of why we dream by looking at the work of the French neuro-physiologist, Michel Jouvet. Jouvet made lesions in the brain stem of cats which removed the muscular inhibition that prevents movement while dreaming. The cats could then "act out" their dreams. Jouvet reported a frenzy of stereotyped aggression in which cats savaged mice and, from time to time, cowered from fierce dogs. Jouvet concluded that REM sleep allows the animal to rehearse or "see" its basic instinctual repertoire.

Evans here made a logical leap. Cats need to kill mice to survive. But human beings are more subtle and need social skills to survive. Harking back to his computer analogy, Evans argued that, in dreaming, all the programs that we need to function are being updated. Tomorrow, you may need to be nice to the boss and may make a pass at that attractive biochemist. Better run through the game plan in the dream box during the night! That is why babies need to dream more; they have more to remember and learn.

It all sounds pat but is philosophically rather dim. Just who is sitting in the cortex during the night, getting the benefit of these reels and reels of clever social planning? Is it Ryle's Ghost in the Machine who has come back to get a crash course in etiquette and social skills? And how is the ghost to pass all the information on to me who actually has to make the pass at the biochemist? Social life has conscious and instinctive aspects but our plans and reflections surely need conscious attention to be of any use. The book does not see this as a problem. It prefers the neat answer — dreams help you cope.

The book also ignores day-dreaming and the fact that we often consciously imagine how we will behave in situations. Is this like dreaming or is it something utterly different?

As a popular book, *Landscapes of the Night* deserves to do well, being both informative and entertaining. But as a serious contribution to dream work it is rather slight. □

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The Biology of Women

The biology of women is a science, not an art.

It is subject more to hormones than to matters of the heart.

Though they tend to get a little animated now and then,

The majority of women are less animal than men.

The Biology of Women is taken from Ralph Lewin's most recent collection of verse, *The Biology of Women and Other Animals*, published earlier this year by The Boxwood Press. Unlike his previous anthology, *The Biology of Algae*, the new poems deal more with matters of the heart than with hormones, but with the same gentle style. The Boxwood Press is at 183 Ocean View Blvd, Pacific Grove, CA 93950; price of the book is \$4.95.