

The emperor's new rag

Jeffrey Gray

Journal of Consciousness Studies. Executive editors J. A. Goguen and Robert K. C. Forman. Imprint Academic, PO Box 1, Thorverton, Exeter EX5 5YX, UK. 4/yr. \$48, £28 (institutional); \$25, £15 (personal).

NEW scientific journals commonly meet a need spawned by novel methods or by the opening up of a fresh field to experimental investigation. *Journal of Consciousness Studies* is a clear exception. There is as yet no agreed method for studying consciousness, nor even any consensus that it is yet (or ever?) amenable to scientific investigation. This new journal has emerged, rather, from a change in the *Zeitgeist*: consciousness is no longer taboo. As an example of this change, in 1971 I published a paper on consciousness that elicited just two requests for reprints; a quarter of a century later I am a welcome guest at conferences where I say exactly the same things! Has the field moved on, even if I have not? Is it yet part of the 'art of the soluble' (in Peter Medawar's lapidary phrase)?

The editors neatly duck this question by subtitled their journal "Controversies in Science and the Humanities" and setting its scope to cover "all aspects" of consciousness, including psychology, neuroscience, physics, philosophy, artificial intelligence, and social, cultural, ethical and religious issues. The result is a heady brew, although neither psychology nor neuroscience so far figures much in the mixture. This is a pity, for it is here that speculation is likely eventually to find its strongest empirical constraints. In fact, experimental data of any kind hardly figure in the first four issues. In the one exception, an intriguing report (by Nunn *et al.*) of the effects on psychological performance of being hooked up to an electroencephalogram machine, the methods and results of the experiments are discreetly tucked away in an appendix. What there is most of so far is, perhaps surprisingly, physics, with Roger Penrose's quantum-gravity theory holding centre stage (inspiring *inter alia* the paper by Nunn *et al.*); and, less surprisingly, philosophy, mostly alas going over very familiar ground.

The contributions about mystic experiences and theological issues avoid the wilder shores and, for the most part, provide education (or sometimes entertainment) even for the hard-headed (so long as they are not so hard-headed as still to suppose that the problem of consciousness is not a problem at all). So, do we need this journal, even if no-one is yet sure how to make the problem of consciousness soluble? Yes, we do: there is no other journal quite like it, and one

day we shall, I think, look back to its appearance as a defining moment when the prologue to the real play (whatever that may turn out to be) began. And, at the price, it's a snip! □

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The Santa Fe telegraph

Karl Sigmund

Artificial Life. Edited by Christopher G. Langton. MIT Press. 4/yr. USA \$135, Canada \$161.57, elsewhere \$151 (institutional); USA \$45, Canada \$65.27, elsewhere \$61 (personal); USA \$25, Canada \$43.87, elsewhere \$41 (student/retired).

SANTA Fe is to artificial life what Vienna has been to psychoanalysis. Through a sequence of well-timed moves (international workshops, a polished series of proceedings, popular books), Christopher Langton has established a tight-knit community of a-lifers that now seems strong enough to warrant a journal of its own. This is of course how any new discipline grows: what seems specific to both a-life and ψ -a, however, is the pivotal role played by one founding father, the strong impact on the *Zeitgeist* and, coming from

less well-meaning colleagues, persistent doubts about whether or not these fields belong to science.

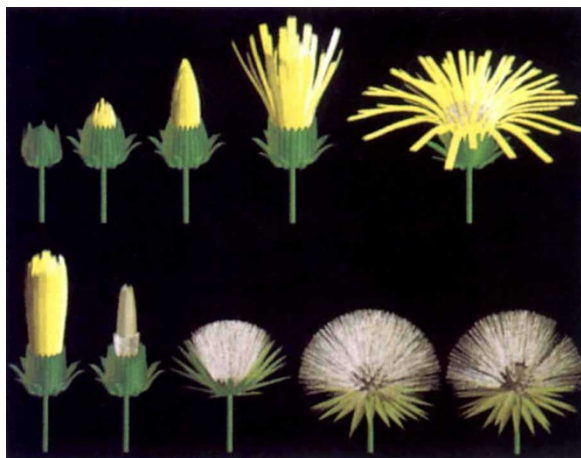
The editor-in-chief of *Artificial Life* is Langton himself (no other choice would be conceivable). The editorial board is essentially a fair cross-section of the usual visitors to the Santa Fe workshops — almost all regular contributors to the proceedings volumes (*Artificial Life: Vols I-III*) which did so much for the field. Langton, who is considerably more easy-going than Freud ever was, allows a remarkable profusion of topics to be included in his journal. The first three numbers, written by members of the editorial board, serve to stake out the claims in a vast domain that covers hardware, software and wetware alike, dealing with computer viruses, genetic algorithms, bioengineering, community construction, artificial intelligence, adaptive behaviour, molecular evolution, self-assembling toolkits, pattern formation, robotics and so on, the whole lot liberally sprinkled with philosophical comments on ethical and social questions.

Taken together, these overview articles would make a solid successor to the three proceeding volumes, and leave no doubt that this highly talented set of authors could keep turning out more of the same. But that, of course, is not the point: as Langton writes, the introductory articles are merely meant to prime the pump. It is too early yet to know if a steady flow is running. The first 'regular' contributions are encouraging: their overall tendency, however, is to stake out still more claims rather than to dig deeper. In the long run, that can be dangerous. Sooner or later the field will have to be circumscribed. It is not just the sum of what the crowd of insiders is doing.

Although Langton refrains from defining artificial life (speculating that "perhaps in ten years or so" it might be possible), he writes that the bread and butter of the journal will consist of papers on computational approaches to

open problems in biological theory and in the application of biological principles to engineering. So far there seems to be too little of the former. If this is a sign of continuing sympatric speciation, it would rob the new field of an important opportunity: to study evolution through thought-experiments in a context free of historical contingencies.

For a-life's aficionados, the journal is a must. Theoretical biologists, empirical mathematicians and the readership of *Physica D* will also do well to follow *Artificial Life*.



Flower power: development of the hawkweed flower *Hieracium umbellatum*; from *Artificial Intelligence: An Overview* ed. C. G. Langton (MIT Press, \$42, £24.95).