

mann is right to think that the logic of science cannot be reduced to formal deductive logic, but this does not show that there are *no* epistemological criteria for scientific judgements, let alone licensing a return to psychologism.

Much of the early part of the book is an attack on analytical philosophy, but Dr Wassermann's continued pressing of sceptical positions – he denies, for example, that we can say absolutely that anything is real because all we have is our own human perceptions of those things, or that we can ever say objectively that someone else is in pain because we cannot feel their pain – shows that he has not grasped the point of analytical philosophy in these and similar areas. This is to show that what the sceptic demands (a transcendental assurance of the reality of what I perceive or to feel someone else's pain) is unattainable and not required in order to speak of something as real or of someone else being in pain, and that we have in our experience all we need to make the relevant distinctions (between the real and the imaginary, the genuine and the feigned pain). Finally, Dr Wassermann's talk of brains rather than people judging, criticizing, having prejudices, etc., would be merely grotesque if it did not constantly lead him into howlers, such as saying that words refer not to things but to individuals' brain representations (p. 12) (so he and I do not speak of the same thing when we speak of Wittgenstein), or that concepts are applied to objects by brains comparing the objects to engrams (p. 143) (shades of Plato's third man) or that human speech activity symbolizes cognitive representations by brains (p. 3) (which will take us straight to all the problems of a logically private language).

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Behaviour: the Control of Perception. By WILLIAM T. POWERS. London: Wildwood House. 1974. Pp. 296. £5.50.

According to the dedication this book took 15 years to write; somewhere in the text it mentions 20. I am not surprised. It is bound to take time to model human behaviour from neurophysiology through to social ethics in terms of negative feedback in 296 pages. One way out, of course, is to select one's facts and this has been done with little finesse.

There is much to criticize in this book – the margins of my copy are littered – but there is also something to be gained. It is a pity that the reader has to work so hard through its awkward syntax and poor intra-chapter organization to reach the kernel. (The recurring tendency to use 'one' followed by 'he' to refer to the same person I found particularly jarring. Eventually this construction did cause semantic confusion with the sentence. 'One must first be sure he has correctly defined the controlled quantity.') The publishers naturally describe the book as being 'written with verve and wit' and one of the reviewers as 'in an easy and personal tone'. I failed to note either property.

It is also a pity that the book did not emerge 10 or even 20 years earlier, when negative feedback was in vogue and when it was an exciting idea that the secrets of human behaviour might yield to models involving interacting hierarchical mechanisms. Now it seems dated. Dated also is its extravagant coverage reminiscent of the aspirations of the early cyberneticians, and its choice of behaviourism as the straw man.

The central idea is that behaviour is subserved by nine (seven plus two?) hierarchically arranged levels. Each level receives input from the lower one, compares the input with a reference signal from a higher level and computes an error. Essentially, the purpose of the system is to control the error, which is caused initially by an environmental disturbance (the stimulus). The goal of the system is to reduce error to zero, at which point one's perception has come under control. I do not see this latter point as clearly as the author would like and feel some sympathy for the students who find the notion difficult (p. 251). As information proceeds through the levels, so degree of conceptualization increases. At the top resides motivation, and since it too must operate by negative feedback, a reference signal is needed which is supplied by a genetically determined mechanism signalling bodily needs.

If the treatise had stopped here all might have been well, since the system seems viable, probably even largely true (although I suspect that the reinforcing effects of saccharine solution would cause some trouble). But the author attempts too much. The first signs of trouble emerge with a sketchy attempt to account for social motivation, but there is deeper trouble ahead.

The chapter on memory begins with RNA and makes some interesting points on the physical distribution of memory in the brain and begins to probe possible retrieval mechanisms. This would have been most interesting if pursued but Powers is led instead to speculation in a region

well studied by contemporary cognitive psychologists. Statements like 'I know of no systematic studies of hierarchical relationships among kinds of memory' (p. 210) and '*all* [his italics] behaviour consists of reproducing past perceptions' (p. 217) are to be found between 'wise' comments which a researcher in the area would feel reluctant to make. However, he admits disarmingly (p. 215): 'I am not familiar enough with the literature on memory to know whether experiments bear out these suppositions.' Having watched the torments of those attempting to bring order to quite restricted areas in human memory over the past 20 years, one can perhaps be excused the comment that this chapter is not going to help much. Nor, I feel, is the final chapter on social control.

Here Powers applies negative feedback to social issues, having obviously taken umbrage at Skinner's recent writings. The main thesis seems to be that people ought not to try to control other people. In a section embarrassingly entitled 'Freedom and Dignity' he joins Skinner's critics, but the commentary is not really original. It seems that people do not like other people controlling their 'intrinsic errors' by applying incentives to help resolve conflicts. Well, perhaps the welfare state is not going to work after all.

Powers seems to take it for granted that his system will come under experimental scrutiny by other workers. I rather doubt it, at the psychological level at any rate. The system has that capacity to be both wide and narrow simultaneously, so that even if a clear prediction should emerge a negative finding could easily be accounted for with additional assumptions. In any case it is surely up to the formulator to attempt verification. But for a 'Rat Experiment' (the author's words, not mine) we have to rely upon introspection, demonstration and anecdote.

The final comment should come from Powers himself (p. 224): 'Language is marvellous in the way it permits us to pass over difficulties without a ripple. Note how skilfully I bypassed the question of *what* flips the memory switch. "One" flips it! I plead guilty to obfuscation - the model obviously lacks some details which I am not now prepared to supply. I will continue to obfuscate, having no present alternative.'

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Psychotherapy and Behaviour Change, 1973. Edited by H. H. STRUPP, A. E. BERGIN, P. J. LANG, I. M. MARKS, J. D. MATARAZZO and G. R. PATTERSON. Chicago: Aldine. 1974. Pp. xiv + 543. Institutions, \$20.00; individuals, \$14.00.

This volume, published in August 1974, consists of 44 papers selected from 22 British and U.S. journals of 1973. It is the third volume on the topic published by the company who regularly publish similar selections on other topics. Inevitably when papers have to be selected almost as soon as they have been published there can be little time to assess the response of the professions to them and one is therefore dependent on the experience and acuity of the editors. A glance at the names listed above should reassure the reader on these counts.

The preface makes it clear that the editors have aimed to be eclectic. They reject any narrow or parochial point of view: 'Progress in the area has been seriously impeded by protracted acrimonious debates between and within theoretical orientations.' They praise the increasing tolerance of dissident points of view coupled with a questioning of accepted practices and theories. In addition to review articles there is in the selection a praiseworthy emphasis on research and statistical analysis. Six major sections are labelled: General Issues, Therapeutic Processes, Conditions and Outcome, Desensitization and Flooding, Behaviour Therapy: Adaptive Response Training, Group, Marital, Family and Encounter Therapies, Psychoanalytic Therapy.

In the first section appears Rosenhan's provocative paper 'On Being Sane in Insane Places', which on publication evoked much popular attention. It describes how eight sane people were admitted to and detained in a total of 12 mental hospitals for an average of 19 days after complaining that they had heard voices which seemed to say 'empty', 'hollow' and 'thud'. They admitted to no other symptoms or previous psychiatric history. Rather amazingly, although 30 per cent of the other patients saw through the pseudo-patients, none of the staff did so, with the result that the 11 who had been labelled 'schizophrenic' on admission were labelled 'schizophrenic in remission' on discharge. A paper replying to Rosenhan's conclusions is also included in this volume.

In the second section, there is a good critical review by Wilkins on patient expectancy, the psychotherapy equivalent of placebo effect. This reveals that there has been no valid experi-

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