

Sternberg, R. J. (ed.) 1994: Thinking and problem solving. Academic Press, San Diego. xix+461 pp., \$69.00. ISBN 0-12-161952-4.

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Thinking and problem solving is an area of psychology that is at present being spurred on by its potential relevance for computerized intelligence. This volume, part of a Handbook of Perception and Cognition, however, pays only restricted attention to this connection. The editor is a very well-known authority in the field of human intelligence and indeed the author/editor of several other books on the same general subject. He has put together 13 chapters authored by a total of 21 authors which cover the title area quite well although not with even success. The first chapter by R. L. DOMINOWSKI & L. E. BOURNE is a historical introduction. The repeated misspelling of W. KOHLER's name is annoying and only the last few pages, summarizing research on various classical problems, are reasonably informative. Ch. 2 by K. A. ERICSSON & R. HASTIE also treats some historical material, but quickly focusses on the current efforts to bring thought processes used in everyday life into a laboratory setting permitting an experimental approach. It includes a section that attempts to differentiate between the acquisition of knowledge and the acquisition of skill, which could be helpful to animal cognitivists who often have to battle with this distinction. The next chapter by T. P. MCNAMARA concentrates on the fundamental question of how knowledge is coded in the mind, or more precisely in the brain. It manages to convey a quite orderly picture but a final brief section on connectionist models leads one to suspect that the reality may be far less tidy than the chapter suggests. Ch. 4 by B. H. ROSS & T. L. SPALDING deals with the classic subject of concepts and categories. It is a well-organized though somewhat too theoretical review of the research on humans. Perhaps more than in most other chapters, it is a pity that animal research has not been taken into account. In some ways the latter has arguably made more progress in recent years than the former (e.g. HERRNSTEIN 1990). It certainly would have helped to refine some definitions and would have brought in a fresh approach. The chapter by L. J. RIPS on deduction and cognitive biases treats a topic of high actuality. The possibility that some of the biases alluded to may have an evolutionary origin (e.g. COSMIDES 1989) is not even mentioned and the fact that deductions must be lastly the product of neural net operations disappointingly finds little favour. Ch. 6 deals with inductive reasoning and is fortunately much less opinionated. J. BISANZ, G. L. BISANZ & C. A. KORPAN present an even-keeled and hands-on account of the state of art. They describe a computerized cognition model and a theory that go a long way to explain the process of induction in at least certain standard contexts. The chapter on problem solving by E. HUNT, like all contributions by this experienced author, is an original and refreshing sweep across the subject, starting with SIMON & NEWELL's classical artificial intelligence program. In the next chapter R. J. GERRIG & M. R. BANAJI examine the connection between language and thought, beginning with the old Sapir-Whorf hypothesis. Although it has taken a long time, it has become accepted that, contrary to this hypothesis, thinking can and does occur detached from language. But as the chapter amply demonstrates, language can still strongly tinge thought. Intelligence is treated in a chapter authored by R. S. STERNBERG, the editor himself. It is a succinct and useful chapter that also makes contact with biology when individual differences in intelligence are related to parameters such as hemispheric specialization and nerve conduction. STERNBERG's own, nearly ecological theory of intelligence takes up only a small part of the chapter. However, intelligence is not all that matters and accordingly Ch. 10 by T. I. LUBART deals with creativity. Although widely accepted as a very important component of problem solving, it is disappointing that in the twenty or so years during which creativity has been seriously investigated, it has not yet been placed on a solid factual foundation. Nobody has yet come up with a test for creativity nearly as reliable as intelligence tests.

The next chapter by S. ELLIS & R. S. SIEGLER looks at the ontogenetic development of problem solving. It ends up with remarks about the fact that children are more precocious about solving social problems rather than physical problems. That this coincides with the Machiavellian, animal-based theory of intelligence evolution (BYRNE & WHITEN 1988) is not mentioned. Ch. 12 on the cultural dimensions of cognition by R. SERPELL & A. W. BOYKIN builds upon the previous chapter, but somehow it conveys an unsatisfactorily vague picture, partly because it deals with cognition generally and partly because it only pleads and does not show that culture is important for thinking and problem solving. The ever-recurring question of whether thinking and problem solving can be taught is brought up in the final chapter by R. S. NICKERSON. Although the author strongly pleads that it should be taught, he does not really address the problem whether it can really be learned as an independent form of knowledge. In summary, this is a typical handbook volume which offers a compact though uneven and mostly too theoretical entry into a fast-growing field of psychology. The ethologist interested in animal thinking and problem solving, however, will not find much in this volume that will inspire him.

References

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- STERNBERG, R. J. 1996: *Cognitive Psychology*. Harcourt Brace, Fort Worth.