

# Price, Plenty, and the Poltergeist

Harry J. Jerison and  
Irene Jerison (Eds.)  
**Intelligence and Evolutionary Biology**  
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Review by  
Roger K. Thomas

*Harry J. Jerison, professor of psychiatry and biobehavioral sciences at the School of Medicine, Health Sciences Center, University of California (Los Angeles), is author of the chapter "Brain Size" in G. Adelman (Ed.) Encyclopedia of Neuroscience, Vol. 1. ■ Irene Jerison is a writer and translator in Santa Monica, California. ■ Roger K. Thomas, professor and head of the Department of Psychology at the University of Georgia (Athens), is author of the chapter "Vertebrate Intelligence: A Review of the Laboratory Research" in R. J. Hoage and L. Goldman (Eds.) Animal Intelligence: Insights Into the Animal Mind.*

The price will prevent many who should from owning it. It will also reduce instructional use, where the book could serve well as the focus of a special graduate seminar or as a valuable adjunct to graduate courses in the disciplines represented by the contributors.

Excluding content, you get an adequate but unexceptional cover and, as the result of desktop publishing, you get occasionally annoying margin justification and some mismatches in reference spacing (Deacon's two contributions to the book versus the others). On the other hand, you get a more current book (mid-1987) than the July 1986 NATO Advanced Study Institute where it originated and you get a BITNET address with an invitation ". . . to communicate

(gentle messages) to the editors . . ." (p. viii)!

Regarding content, you get plenty. The 24 generally excellent contributions range from anatomy to zoology (including anthropology, biology, computer science, linguistics, neuroscience, philosophy, and psychology) and range from the philosophical to new methodological arguments and data. Each contribution informs and provokes.

Jerison's (Harry, in all uses of the singular) ". . . plan was to emphasize, in order, evolutionary biology, neurobiology, analytic issues (philosophy and artificial intelligence) and, finally, behavioral data from ethology and psychology" (p. 447). However, this order was not achieved, perhaps because some authors'

contributions deviated from the expected (see comments on pp. 448–449). I read it straight through, except for an early reading of the last chapter (Jerison's ". . . Afterthoughts"), and found myself both enjoying the sequential diversity and wishing for tighter organization. It is not feasible to reflect all contributions, but a prospective reader will find a useful synopsis of most in Jerison's "Reprise" (p. 447).

The noisy ghost is "intelligence." The contributors do not agree on a definition or a means to assess it. Several contributors address intelligence primarily by implication. For example, anatomical and other aspects of language dominate several contributions (e.g., Leiberman, Levy, Schusterman, & Gisiner, Deacon's first chapter, and Herman in Jerison's last chapter).

Before returning to the poltergeist, a few points about the papers that emphasize language are in order. First, both Leiberman and Levy perpetuate the error that Broca "discovered" the relation between the left anterior cerebrum and speech. Credit should have gone to Bouillaud and Aubertin (Stokey, 1954), whom Broca (1861/1960) himself recognized. Second, Levy and Deacon emphasize the importance of "conditional discrimination" in conjunction with assessing possible evolutionary prerequisites for language. Levy suggests that conditional discrimination ". . . may well represent a preadaptation of the simian brain for the evolution of human propositional reasoning in the left hemisphere" (p. 164), and Deacon considers it "most significant" in the selection for "symbolic communication" (p. 408). Two cautions must be noted: (a) The data (Dewson's in Levy's case and Petrides's in Deacon's case) supporting these assertions are questionable in terms of rote versus conceptual learning (see Thomas & Noble, 1988, for related discussion). (b) The relationship between the tasks used and a formal analysis of the propositional logic of the conditional is tenuous.

Aside from these objections, Levy's refutation of Gazzaniga's assertion that the disconnected human right hemisphere is ". . . vastly inferior to the cognitive skills of the chimpanzee" (p. 159) is beautifully done, and Deacon's empirical data and methodological arguments are compelling (his "part/whole problem" discussion on pp. 386–394 surely made some contributors squirm). Leiberman's analysis of the implications of the evolution of the human suprapharyngeal vocal tract for the evolution of

language and related cognitive abilities deserves careful consideration. Schusterman and Gisiner show the need for, and the way to, rigor in animal language research and criticize Herman soundly for his use of biasing terminology. Herman's rebuttal (included in Jerison's last chapter) is effective, but the fact remains that he uses prejudicial terms.

"Intelligence," for several participants, is identified with equally problematic conceptualizations. Jerison (p. 7) and Thompson (p. 38) equate intelligence with the equally elusive "cognition" (see Flavell, 1977, p. 1), and Csanyi's "goal directed behavior" (p. 300), Reed's (p. 429) and Hofman's (p. 438) "problem solving capacity," and Vossen's "information processing capability" (p. 422) are no better. Hodos (see pp. 100–101) and Fasolo and Malacarne (see p. 119) adopt multiprocess views (not that cognition, problem solving, etc. are not). Bitterman and Plotkin are comfortable with learning abilities as strong components of intelligence, but Jerison and Poli present strong antilearning positions. Poli's concerns about confounding contextual cues (e.g., species differences in sensory and motor capacities and in motivation) can be logically "neutralized," but space limits preclude discussion of this here.

Plotkin's "Hierarchy of Processes for Gaining Knowledge" (p. 77) is the best approach to the conceptualization of intelligence. It is sufficiently general to encompass *all* conceivable ways for an organism to gain knowledge. Its four levels ". . . are the genetic, the developmental, the individual learner, and the socio-cultural" (p. 77). It is hierarchical because lower levels are prerequisite to, and inseparable from, higher levels. Its principal weakness is lack of precision at the individual learner level where most assessments of intelligence will occur, but a more precise hierarchy of learning types that can be substituted for Plotkin's examples is available (Thomas, 1980). Conceptualizations such as "cognition" and "problem solving" can arguably be reduced to the types of learning in the aforementioned hierarchy.

This review cannot end without a mention of the wealth of data provided by Kruska on the effects of domestication on the brains of animals (their brains and, especially, limbic structures are generally smaller) and his insightful views on the behavioral correlates thereof. Harvey's and Deacon's chapters will interest the brain "allometrists," as will Jerison's reaction to Harvey. Jerison also "debates"

with Hodos on brain–intelligence relations. Deary nicely informs about "inspection time" (a form of reaction time), which correlates highly with psychometric measures of human intelligence and which has promise in phylogenetic comparisons. Thompson's examination of the "Received View" of theory (rooted in logical positivism and deemed "bad") versus the "semantic conception of theory construction" ("good") ". . . for relating evolutionary theory to human behavior" (p. 36) and Ruse's philosophical and Boden's AI perspectives deserve consideration. Lipp's, Pickford's, and Csanyi's theses are interesting and compelling. There is more to say but no more space, so, like the Jerisons, I offer my BITNET address, RKTTHOMAS@UGA.

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