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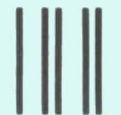
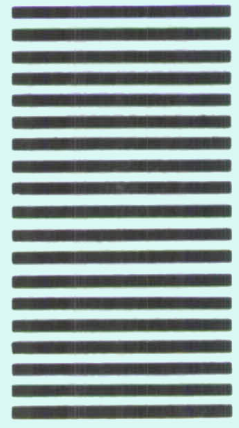


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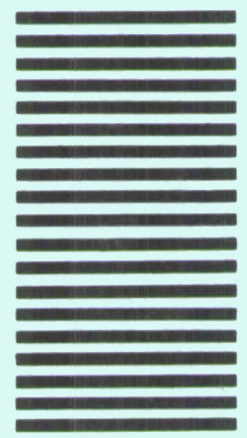


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Hemispheric laterality in animals and the effects of early experience

Victor H. Denenberg, *University of Connecticut*

A review of research with chicks, songbirds, rodents, and nonhuman primates indicates that the brain is lateralized for a number of behavioral functions. These findings can be understood in terms of three hypothetical brain processes: hemispheric activation, interhemispheric inhibition, and interhemispheric coupling. It is predicted that functional lateralization, when present, will be similar across species: the left hemisphere will tend to be involved in communicative functions while the right hemisphere will respond to spatial and affective information; both hemispheres will often interact via activation-inhibition mechanisms when affective or emotional processes are involved. Homologous brain areas and their connecting callosal fibers must remain intact throughout development for lateralization to reach its maximum level. On the basis of the finding that in rats early experience can induce laterality or facilitate its development in an already biased brain, it is hypothesized that one major function of early experience is to provide stimulation during development, which acts to enhance the growth and development of the corpus callosum.

With Commentary from M. C. Corballis, G. Ettinger, C. E. Giurgea, L. Goldstein & J. Nelsen, R. A. W. Lehman, R. Puccetti, D. N. Robinson, T. E. Robinson & J. B. Becker, J. M. Warren, and others.

The case for mental duality: Evidence from split-brain data and other considerations

Roland Puccetti, *Dalhousie University*

The hypothesis that dual consciousness is characteristic of brain organization has been rejected, if not refuted, by almost every neuroscientist and philosopher of the mind who has bothered to consider it. Principal objections have been that it is counterintuitive and based on an arbitrary notion of what constitutes the basis of mind or person. This paper attempts to meet those objections, gives an evolutionary rationale for double consciousness in the normal brain, and invokes evidence from two kinds of visual defects that seems inexplicable on any other theory.

With Commentary from R. M. Anderson, Jr. & J. F. Gonsalves, J. E. Bogen, J. L. Bradshaw, J. W. Brown, P. S. Churchland, J. C. Eccles, M. S. Gazzaniga & J. E. LeDoux, N. Geschwind, M. B. Green, C. E. Marks, D. N. Robinson, E. A. Weinstein, K. V. Wilkes, and others.

Among the articles to appear in forthcoming issues of BBS:

- M. T. Ghiselin, "Categories, life, and thinking"
- H. C. Plotkin & F. J. Odling-Smee, "A multiple-level model of evolution and its implications for sociobiology"
- R. M. Warren, "Measurement of sensory intensity"
- L. J. Cohen, "Can human irrationality be experimentally demonstrated?"
- C. H. Vanderwolf & T. E. Robinson, "Reticulo-cortical activity and behavior: A critique of the arousal theory and a new synthesis"
- H. Rachlin, R. Battalio, J. Kagel, & L. Green, "Maximization theory in behavioral psychology"

The nature of hemispheric specialization in man

J. L. Bradshaw and N. C. Nettleton, *Monash University*

The traditional verbal/nonverbal dichotomy is inadequate to completely describe cerebral lateralization. Nor does there seem to be a specialist processor for the encodedness of speech in the left, or for dealing with faces in the right; rather, both functions may stem from hemispheric differences in terms of analytic/holistic modes of processing, with other distinctions (e.g., focal/diffuse and serial/parallel) being special cases of this. More fundamentally, sensory discriminations and motor control of aspects of temporal order, sequencing and rhythm characterize left hemisphere processing, and more purely spatial function characterizes the right, there being a continuum of function between the hemispheres rather than a true dichotomy.

With Commentary from H. H. Brownell & H. Gardner, G. Cohen, W. E. Cooper, J. C. Marshall, W. F. McKeever, M. J. Morgan, F. Nottebohm, R. Puccetti, M. Studdert-Kennedy, and others.

Contrasting approaches to a theory of learning

Timothy D. Johnston, *North Carolina Division of Mental Health*

Current opinion in the study of animal learning is divided between two groups: those who advance the "general process" view that ecological differences among species do not affect the generality of learning principles, and those who argue that "biological boundaries" on learning severely limit the generality of such principles. Although the latter approach has provided several important criticisms of the general process view, it has only limited potential as an alternative to that view. An ecological approach to the study of learning is proposed that grounds its analyses in descriptions of what it is that animals normally learn. The ecological approach expressly advocates a search for general principles of learning, while not assuming the existence of general processes; it thus offers a powerful alternative to current approaches to the study of learning.

With Commentary from P. Bateson, W. R. Charlesworth, M. T. Ghiselin, R. A. Hinde, J. Kruse & E. Reed, J. L. & R. Lachman, L. Petrinovich, H. C. Plotkin & F. J. Odling-Smee, H. Rachlin, B. Schwartz, and others.

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