Book Reviews

Essays for the Left Hand

On Knowing. Essays for the left hand. Jerome S. Bruner. Harvard University Press, Cambridge, Mass., 1962. 165 pp. $3.75.

Jerome Bruner has collected into a little book ten essays on knowing, to which he gives the subtitle "Essays for the left hand," on the strength of the dictum that symbolizes the doer by the right hand and the dreamer by the left. But these essays do not record Bruner's dreams, in any sense of that word. They are the organized though occasional remarks of a noted psychologist who has studied as well as thought about the act and the concomitants of knowing. He has also read and reflected about many aspects of life other than the cognitive, and these little excursions outside his science are evidently meant to be taken as expressions of wisdom and philosophy, in addition to whatever knowledge of knowledge they impart.

Strongly favoring such deliberate digressions from the severely "eyes front" march of science, I took up Bruner's book with a lively anticipation of modern essays akin to William James's *Talks to Teachers*, a book (by the way) which still contains nearly all that anyone need know of educational "method." Bruner justifies by his choice of topics the comparison I am making. "The conditions of creativity," "The art of discovery," "On learning mathematics," "After John Dewey, what?," "The control of human behavior," "Fate and the possible" are very Jamesian concerns. James himself, despite his loyalty to friends, might have asked, "After John Dewey, what?" I was therefore primed for a rare satisfaction, and it grieves me to say that I was disappointed.

I must hope that my eagerness did not distort my judgment; but from the outset the tone and diction no less than the assumptions and conclusions of the obviously gifted and cultivated author made me aware of the chasm yawning between us. Bruner seems to me obsessed with the idea and the uses of metaphor. In two pages of his introduction, he uses the word six times, and (as I think) without serving precision. Indeed, lack of precision is his chief defect, and I am led to wonder whether the love of metaphor is not its instinctive cloak. Bruner tells us, for example, that in himself and his colleagues "the forging of metaphorical hunch into testable hypothesis goes on all the time." This is itself a metaphor; "all the time" is an exaggeration; but what is "metaphoric hunch"? Earlier we are told that since childhood, Bruner has been "enchanted by the fact and the symbolism of the right hand and the left." What happens to the "fact" when we see people who do things with their left hand? And in what sense is it a "fact" that dreaming goes on exclusively *sinistra*? I use the Latin to throw in an additional connotation and to suggest the kind of perpetual slipping from notion to notion which distresses and repels me in Bruner's philosophizing.

Since the discussion of terms can be mistaken for quibbling, I must give an example where misusage and metaphor clearly entail the confusion of high matters. In the essay "The conditions of creativity" we find a good deal of common sense inflated by jargon and mixed with references to works of literature, classic and modern. Thus: "I would propose that all of the forms of effective surprise grow out of combinatorial activity—a placing of things in new perspectives." This "surprise" is later defined as "metaphorical effectiveness." It remains a question throughout the essay what Bruner actually means by creativity. At times he follows the current cant of believing that everybody has his share of this virtue and displays it daily in small ways. He assures us, "I have been speaking of creativity, not of genius." But at other times, as when he adduces examples from the works of Sophocles and Goethe, or from the mathematical insights of the psychologist Weber, it is certainly genius that he has in mind. One paragraph asserts that the talk is not of genius but of creativity, the next says that the subject under discussion is "the production of novelty." It is evident that for all his enjoyment and knowledge of art and science Bruner has a very hazy idea of what novelty is and how rare. Genius is in fact the only producer of it—and that is how we know genius when we see it.

Bruner—and this is for me the fundamental cause of his difficulties and his failure to resolve them—writes as a naive scientist who has glimpses of the moon and would revisit them. With a candor that disarms ridicule, he says of what he calls "the production of novelty": "It is reasonable to suppose that we will someday devise a proper scientific theory capable of understanding and predicting such acts." The prediction of novelty is a program worthy of Swift's Laputans or Flaubert's Bouvard and Pécuchet. But the endearing thing about Bruner is that he catches himself up, and four sentences later he confesses: "Perhaps it is our conceit that there is only one way of understanding a phenomenon." A little more awareness of the stifling effects of scientific or any other professionalism, a little more consecutiveness in drawing implications, a little less love of metaphor and artistic reference, and Bruner would become the philosophical writer he has the ability and ambition to be. At the moment his chief trouble is that the left hand does not sufficiently know what the right is doing.

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Free Speculation Invited

Continental Drift. S. K. Runcorn, Ed. Academic Press, New York, 1962. xii + 338 pp. Illus. $12.

In this assemblage of essays, published 50 years after Wegener first presented his concept of drifting continents, workers in several fields of earth science consider the hypothesis in the light of current evidence and concepts. Rapid advances in the study of paleomagnetism receive particular emphasis. The general principles and methods involved in this study are outlined, and a sequence of maps shows changing loca-

tions of the magnetic pole through geologic eras, as these changes are indicated by analyses of the magnetic properties of rocks from the several continents. The results indicate that polar positions have wandered widely and that curves through these changing positions, based on evidence in Europe and in North America, are generally parallel but consistently far apart. This suggests that these landmasses were separated fairly late in geologic time.

Paleoclimatic evidence for drift, used effectively by Wegener, is reviewed and brought up-to-date. Climatic conditions are reflected in floras and faunas, and also in certain types of sedimentary deposits such as evaporites, bauxites, glacial materials, and bioherms. Convincing evidence for widespread glaciation late in the Paleozoic Era, at present-day low latitudes in South America, Africa, Australia, and India, continues to be one of the most potent arguments for the concept of continental drift.

Large lateral movement has occurred on the San Andreas, the Alpine, and other active strike-slip faults. Seismologists report that, for a large majority of recorded earthquakes, the first motion has an important lateral component. Recent surveys of magnetic intensity in the northeastern Pacific Ocean reveal evidence of large-scale strike-slip faults in the ocean floor. What mechanism may account for such movements, for the major deformation in mountain belts, and for the shifting of whole continents? Some of the authors favor the concept of gigantic convection cells in the earth's mantle, with movements as slow as a centimeter per year. One author cites the recently reported worldwide rift in the ocean's floor and suggests that slow expansion of the earth may account for separation of the continents. These profound problems invite free speculation.

Authors of the scientific essays are H. Benioff, P. Chadwick, T. Chamalaun, R. S. Dietz, T. F. Gaskell, B. C. Heezen, J. H. Hodgson, F. A. Vening Meinesz, N. D. Opdyke, P. H. Roberts, S. K. Runcorn, and V. Vacquier. In the concluding paper, J. Georgi presents an effective testimonial to the ability and staunch character of Alfred Wegener, once Georgi's teacher and field companion, who was last seen on his 50th birthday when he started by sledge from a station on the Greenland ice cap and was lost in an arctic storm.

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Animal Behavior

Behavioral Aspects of Ecology. Peter H. Klopfer. Prentice-Hall, Englewood Cliffs, N.J., 1962. xv + 173 pp. Illus. Trade ed., $5.25; text ed., $3.95.

In this brief account of many segments of animal behavior, Klopfer provides a focus that is rather different from the more common treatments of the subject. His material is organized around five primarily ecological and evolutionary problems: predation, interspecies competition, species diversity and maintenance, and the integration of animal societies. Within this framework, he records a variety of ethological and less readily classified observations and experiments, many of them on birds, in which the author is especially interested, and with which much beautiful work has been done.

Much of the book is openly speculative, and the author warns explicitly against uncritical acceptance of certain lightly supported hypotheses. Armed with such warnings the student is not likely to go too far astray. However, on a number of occasions, ecological assumptions, made rather offhandedly, may cause the psychologist to consider these as proven facts, and one has the impression that Klopfer's grasp of the ecological literature is not quite adequate to the task he has set himself. To the extent that his expressed objective is to stimulate experimental work in behavior, Klopfer's book should be highly successful. Both the approach and his intelligent reasoning are clearly designed for such a purpose.

The rest of Klopfer's intention is to make clear the relevance of behavioral studies to ecological problems. Part of my reaction to this was to rebel. Perhaps this is unreasonable, but one is almost forced to the conclusion that, since at least three of the problems posed by the author exist among plants as well as among animals, behavior may well be primarily an obstacle to their investigation. Moreover, the other two problems—why predators do not overeat their prey, and how communities are organized—quickly assume such a restricted meaning in the context of this book that, were they to be solved, ecologists should still have to ask the same questions in a broader sense. The worthy attempt to promote a closer relationship between ecology and behavior loses some of its force by seeming to be, in part, an attempt at promotion. Where it is successful, as in the chapter on species diversity, this is the result of evidence of a relationship rather than of hyperbole. The book would have profited from explicit recognition of the role of behavior as one component of the nexus called adaptation.

A number of mistakes, and reference to an "accompanying figure" that is nowhere to be found (p. 54), attest to hasty preparation, perhaps dictated by tight publication schedules. These defects are partly compensated by the bibliography, which is remarkably up-to-date, with a median age of citations of less than five years. The author also notes a number of personal communications from various more or less illustrious friends. After reading one such sequence, I was unable to restrain the thought that, had there been just one more of these, the book might have been truly inspired.

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Africans without Masks

The Human Factor in Changing Africa. Melville J. Herskovits. Knopf, New York, 1962. 569 pp. Illus. $6.95.

Any reader drawn to this volume by the exotic native masks staring from its jacket is due to see aboriginal Africa fade before his eyes. In its place will arise a land of Africans born to a mixed Afro-European tradition which they take for granted and accept as theirs. As a scholar, Melville Herskovits probes these historic origins with a lifelong conviction that to understand change one must also recognize the continuities of culture.

Some may find it unnecessary to trace these roots into the Paleolithic in order to understand the present, but Herskovits, the teacher, could not resist the opportunity to open with an attack on current notions that aboriginal Africa is without its own history and prehistory. His justification lies in the fact that this book is not for the specialist in African anthropology, despite the footnotes on most of the pages, which declare the pedigree of his statements. It is a work for the intelligent reader, attracted neither by masks nor footnotes but by a desire to interpret the tumult of today's Africa in terms of reasonable human reactions. Despite Herskovits' strong personal feelings about African affairs, he writes with