

classrooms filled with children and adults who have *both* halves ready to go. The 1960s were marked by curriculum models developed from psychologic foundations born of concern for rational thought processes. Bruner, Gagné, Piaget, and dozens of others told us of the function of the cognitive domain. From these insights came a decade of curriculum projects designed to serve half of the human brain.

The 1970s are here, with new responsibilities. Everywhere there is the cry for wholeness. College students and school students are aware that the only alternative to Vietnam is not "good ol' State U." Sinking college enrollments already testify to this. Instead of the hallowed halls of rationality, the kids can grab a pack, buy a dog, and try their own version of Steinbeck's *Travels with Charley*.

Education must wake up to the whole human. At just the time when we have the spectre of the four-day work week upon us, we shudder with the realization that another camper trailer, a bigger boat motor, and a new barbecue just *won't* do the job. Education can never hope to divorce itself from rationality and logic, but it must serve the whole of the humans who engage in it with an equal concern for the metaphoric-intuitive side of the human brain. The psychology of consciousness is the log of a journey well worth taking.

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Evolution

THE ORIGINS OF LIFE: MOLECULES AND NATURAL SELECTION, by L. E. Orgel. 1973. John Wiley & Sons, New York. 245 p. \$4.25 softback, \$7.50 hardback.

It is no doubt difficult to write a book of this type without including much basic biology and other science. This seems to be overdone in this case, and about half the book deals with fundamental principles. The writing style, however, is very clear throughout, with precise explanations. In fact, the total presentation is provocative, interesting, and delightful. The illustrations are essentially line drawings, which are used very well to explain complexities, such as molecular structure. A sentence on p. 183 stresses the complexity of the problem under discussion: "We have even more to learn about the origin of life than about the origin of species."

Although the book is definitely directed toward the general reader or beginning biology student, it would serve as a good review of molecular biology and origin of life theories for almost any biologist (except the most up-to-date professional). Because the book is intended for a general audience, one does wonder about the heavy prepara-

tory emphasis in part 1 on molecular biology. The author often takes a long time to get to his point, even though he does it skillfully. If you know the "story" of the origin of life, you understand and appreciate the important points the author is making. It seems that the necessary material here could have been interestingly woven into the major topic, the origin of life. This would have permitted a more complete discussion of some of the extremely interesting and fascinating topics, such as the evolution of cells, a disappointing section of the book. More speculation on membrane development and how cells could have formed with DNA as the controlling element would have enhanced this section. The next section, on the evolution of metabolism, carefully explains an interesting and novel way in which biosynthetic pathways could have developed. Another novel aspect of this work is the proposal for the use of the term CITROENS for a living system found anywhere. (CITROENS = Complex Information-Transforming Reproducing Objects that Evolve by Natural Selection.)

Every aspect of the origins of life (including extraterrestrial life) is covered in this book. It is well done, and explanations are carefully and skillfully done (perhaps overdone in some instances). This reviewer would prefer an expansion and more discussion of part 2, where the more familiar topics of the origin of life are treated. More interesting examples of research and speculations in the areas of prebiotic syntheses, sources of energy, formation of polymers, replicating and coding molecules, and formation of cells could have been presented to stimulate the general reader.

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Health Care

THE CASE FOR AMERICAN MEDICINE, by Harry Schwartz. David McKay Co., New York. 1972. 252 p. \$6.95.

Rumors, hearsay, incomplete information—they can yield solutions that are totally ridiculous. So is it with the status of American medicine. Many of us believe that there is a "doctor shortage," that the medical profession is at fault for increasing costs, that many countries have better medical care than we do, that socialized medicine would solve everything. But few of us can get our gut feelings into facts.

Schwartz depicts a view of medicine that opposes the doomsday warnings of many, including Senator Edward Kennedy. And he does it well. The book could be based on more statistics and somewhat less opinion and emotion; but the statistics that are presented cause the reader to think twice about any proposed health crisis.

The author stresses the premise that our nation's medical problems are mostly problems of the social structure (poverty, education, and life style), and not of medicine. At the basis of this problematic area is the fact that people resort to medical diagnosis and treatment much more when such services are "free"; that is, when paid by a third party, such as an insurance company or the government. The author says "the essence of the problem is not a doctor shortage but a patient surplus."

Whereas many ridicule the health of Americans, Schwartz reminds us that our increased longevity (an increase in the life span of Americans, from 1930 to 1971, of 11.4 years) must be due in part to increasing health standards. He also outlines the problems of Medicare and Medicaid, one being the fact that all people 65 and over, even the wealthy, receive free care.

The book has some shortcomings. (i) There is a lack of source references—many suggestions and comments are ascribed to unnamed sources. (ii) Chapter 4 begins with "... the notion of a medical cost explosion is obsolete ..." but the rest of the chapter attempts to justify the reasons for the present medical cost explosion: a \$1.8 billion federal outlay in 1965 jumping to \$14.5 billion in 1970. (iii) He stresses the stabilization of medical costs since the Nixon freeze, but forgets that an inflation cannot be judged as being deflated, "obsolete," while an involuntary price freeze is on. (iv) The book is terribly overpriced. (v) The very last sentence of the very last chapter should not have been written—it is in very poor taste.

But Schwartz proposes several good solutions to the socially induced health-care crisis. For this reason, and the fact that a very sincere and logical mind is Schwartz's, the book is worth reading.

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Human Sexuality

HUMAN SEXUALITY AND THE MENTALLY RETARDED, ed. by Felix F. de la Cruz and G. D. LaVeck. 1973. Brunner/Mazel, New York. 365 p. \$8.95 (hardback).

This is a collection of provocative papers—some specific to the title, others dealing with sexuality in general. Although it is tempting to conclude, as Robert B. Edgerton has in his paper, that the mentally retarded display every conceivable form of sexual behavior and that it is difficult to generalize, certain important considerations do emerge. In a study reported by Janet Mattinson, heterosexual pairing of retardates improved team performances: each complemented the other's deficiency. Yet in other papers little emerges save that the