A Great Encyclopedia Doesn't Have To Be Good?

Derek J. de Solla Price

Little more than a century after the origin of the scientific paper in about 1660, the world was hit by what we have since learned to recognize as an information crisis. A result of the burgeoning embarrassment of new knowledge at that time was the beginning of a movement to divide science and its societies and journals into their various subdisciplines, which rapidly became autonomous and thereby were allowed to increase mightily. Another result was the establishment of a revolutionary means of comprehending and drawing together all the basic knowledge of the age—the technique of the encyclopedia.

It is now about 200 years since those first steps in encyclopedism. On the whole, it has been a remarkably successful and useful episode in the history of intellectual organization, and there is little doubt that the place of honor in today's world is assumed by the *Encyclopaedia Britannica.* Through generations, it has been able to draw upon contributions by the most eminent authorities, and it has been able to count on being purchased by almost every friendly neighborhood library, so that it now reaches the point where other encyclopedia firms must some times be hard put to explain that *Britannica* is not a synonym for their products.

Against this paragon of virtue and its dollar turnover, which rivals that of the rest of the entire hardbound book trade, there now rides at full tilt Harvey Einbinder, the author of **The Myth of the Britannica** (Grove Press, New York, 1964. 400 pp. $7.50). Einbinder is a dedicated prince among iconoclasts, and he rips into his subject from all angles and with devastating effect. By profession he is a consulting physicist, but clearly, it is the avocation of this book which is his absorbing forte. Not only does he castigate every shortcoming he can find in the editorial work, which he accuses of slackness in bringing entries up to date and in taking notice of the best modern scholarship, but he also shoots at such matters as general policy with regard to style and the often criticized commercial practice of the Britannica's sales and publicity organization.

It is perhaps not a matter of primary importance how far Einbinder is correct in his detailed, comprehensive criticism of the errors of omission and commission, and how far he is nitpicking. In his enthusiasm for attack, he may well have found some faults that exist only within his own knowledge, but, in general, I am sufficiently convinced by a majority of his cases. It helps, too, in arriving at this evaluation to find him admitting with exasperation that, at each edition, they meet some of his criticism by saying it has already been attended to in the forthcoming version—which it has. If he has half the ability he seems to have in detecting inaccuracies and sloppiness over an awe-inspiring range of subject matter, I would sincerely suggest to the editorial board of the *Encyclopaedia Britannica* that they offer Einbinder a worthily munificent salary and plead with him to act as their chief watchdog and troubleshooter.

I rather hope that Einbinder would go along with such a scheme, because men with such dedication to the cause of encyclopedias, albeit in a negative way, seem vanishingly rare. Perhaps, this is the true and inner cause which has produced the effects that Einbinder seizes upon so readily. Up to the "Great Eleventh" edition of 1910 and 1911, the *Encyclopaedia Britannica* was a product of dedicated professional scholarship—so much so that, even today, there exist nostalgic scholars who will cling to that edition and resist the blandishments of the bad new knowledge that drives out the good old material. But new knowledge has proceeded apace through a new phase of the information explosion and, today, it is only in the most limited fields, and then only at the expense of unswerving and all-consuming allegiance by scholars who might have done other things, that an encyclopedic publication can be achieved in the old style. A case in point may be the Pauly-Wissowa *Real-Encyclopädie der classischen Altertumswissenschaft.* Beyond this point, the organization of encyclopedic knowledge could not go without a change of state. Perhaps I am wrong, but I think it fortunate that sales and profits could be contrived in such a way as to pay for an organization in the Madison Avenue and mass-circulation journal traditions, where all that one has to do is to hire a sufficient number of editors and editorial assistants of various breeds and adequate general education. This is not the old devotion and dedication, but probably it is the best that can be done unless there are more like Einbinder in the country.

On one point, the author scores a hit that will be applauded by most readers of this review. It is totally unrealistic and unprofessional for any scientist to accept the rate of 2¢ per word for his contribution to the *Encyclopaedia Britannica* and believe that he is being rewarded by immortal fame because his contribution will stand there with those of so many Nobel prize winners. If Einbinder is to be believed, William Benton and the University of Chicago are milking the profits too heavily, and some of the profit should be returned to scholars by means of a rate at least ten times greater than this.

Even though encyclopedias have been throughout somewhat of a business matter, there is need for this product as a tool of scholarship and almost as a national heritage. Periodically the Chinese used to embalm their civilization in the great dynastic histories—*Great Books of the Western World* is a miserably produced analogue of this—and schools and libraries

The reviewer is chairman of the Department of History of Science and Medicine, Yale University. His most recent books are *Little Science, Big Science* (Columbia University Press, 1963) and *Science Since Babylon* (Yale University Press, 1961).

need this crystallization and distillation of our learning. It seems fair judgment to me that some disservice is being done by lack of scholars in the right places, and by the intrusion of big business methods where they least belong. I have some fears that Einbinder's hard-hitting attack reads so well and convincingly that it may engender only despondency in some and defense and opposition in others, rather than helpfulness and progressive change. I fear too that, whether he is largely right or largely wrong, we shall have to begin to realize that, all their sales pitch notwithstanding, an encyclopedia is *not* a substitute for conventional learning or for books. We shall have to warn students, and even schools and colleagues with increasing frequency, that not even the *Encyclopaedia Britannica* is more than a reference source and key to greater or lesser use of a real library.

Form or Substance: A Matter of Precedence

Melvin Kranzberg

Thousands of Americans—more likely hundreds of thousands—will derive their ideas of machines from this volume of the *Life* Science Library: **Machines** (Time, Inc., New York, 1964. 200 pp. $3.95) by Robert O'Brien and the Editors of *Life*. What will they get from the volume? First, they will be exposed to a rapid-fire, well-written, and surprisingly accurate historical survey of the evolution of machines. They will be made aware of the esthetic qualities inherent in machines by the breathtakingly beautiful picture essay entitled "The beauty of machines at work." They may even get some idea of how common household devices work from another picture essay that describes the faucet, the automatic toaster, the telephone, and the oil burner ("modern flame thrower in the basement"). But above all, they will get the feeling that it is great to be alive in this wondrous world of modern mechanical and electronic devices. As Henry Ford II says in the introduction, "This book shows how far man has come in using his God-given gifts to improve the conditions of his life."

Actually, this 200-page book is two books. The first is the text itself—a history of machines, loosely organized along chronological lines. Each chapter is followed by a picture essay that deals with a topic which sometimes illustrates the text but which often strikes out along different paths.

When one considers the fact that all of the textual material on the history of machines occupies only some 80 pages, one realizes what a fine job has been done. There are virtually no errors, although one might quarrel with a "periodicity" that places the invention of printing in the Middle Ages. However, in any such summary account there are bound to be many omissions. Some topics are not mentioned—for example, the bellows—and some are slighted: with the exception of the lathe, the development of machine tools is discussed in one sentence which is merely a list of the various types. But this is quibbling, and in view of the span of time covered and the vast scope of machine development, the historical material is excellent.

The full-color illustrations used in the picture essays are beautifully done, but the essays themselves are quite another matter. Sometimes they contradict the text—for example, Eli Whitney is credited with the idea of interchangeable parts (p. 60), although the historical text more accurately gives Polhem and LeBlanc priority (pp. 76–79). And the definition of automation in the picture essay (p. 179) is somewhat different from that given in the chapter on automation (p. 167).

When matters not considered in the historical chapters are discussed in the picture essays, things sometimes go awry. In the picture essay "Today's inventor, genius in harness" (pp. 110–121), all the clichés about team invention are repeated, but there is no indication that some statistical and case studies reach quite different conclusions. Similarly, one would not suspect from reading the picture essay "The helping hand of the Patent Office" (pp. 154–165) that many economists, sociologists, and inventors are critical of the policies and procedures of the Patent Office and consider the "helping hand" to be more like *mortmain*.

How are we to account for the disparity between the quality of the historical text and the weakness of the picture essays? Apparently the answer is in the organization—or should one say over-organization?—involved in producing this book. On the title page we find that three very eminent scientists and men of letters (René Dubos, Henry Margenau, and C. P. Snow) are the consulting editors for the *Life* Science Library; we also find that this book was written by Robert O'Brien and the editors of *Life*. O'Brien is a veteran journalist who has done some science writing in his time, and he is undoubtedly responsible for the fast-pace and easy-reading style of the text. But these are only a beginning. On the back of the table of contents is listed the editorial staff for this particular volume in the *Life* Science Library. The list consists of editors, assistants, designers, staff writers, and researchers—a total of 30 people for the editorial and art work on this book alone. But that is not all. On page 196, 40 others are thanked for helping with the preparation of the book. One should not sneer at such a multitude of collaborators—the work of 70 men was required to produce the *Septuagint!*

Melvin Kranzberg, a historian of science and technology, is a professor of history at Case Institute of Technology (Cleveland, Ohio) and editor of *Technology and Culture*, a quarterly journal published by the Society for the History of Technology.