

The World Brain as Seen  
by an Information Entrepreneur

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"Time was when the world was a little younger and smaller," Derek de Solla Price once reflected, "when we generated a lot of communication. People wrote papers; there came out daily newspapers, and anybody who was interested in any of that gradually accumulated the entire corpus of all that had been. Scientific papers were put down automatically into an archive of learning. Now, this is no longer true. The world is so big and the communications so numerous that the two different functions are pulled apart. The corpus of all scientific papers is no longer the literature of all science. There must intervene now a quite decisive packing-down process which we tend to neglect. We tend to put it on one side and call it education, and say that it's just for the young or for training."<sup>1</sup>

This neglect, which Price laments, is in fact the very processing of information. As Price points out, research which is channelled into the educational field often becomes inaccessible to others outside that special realm. There is no centralized information bank from which, for instance, a general practitioner could examine the latest biological research. Allow me to illustrate this point further.

Some years ago a scientist called ISI<sup>®</sup> and said that a member of his family was a victim of tardive dyskinesia. He had paid a specialist a very handsome fee for that information but the two-word diagnosis was all he got. So we conducted a search for him and found two

recently published articles on just this subject.<sup>2,3</sup>

I sent this person the articles and in an hour's reading he proceeded to learn more about the disease than most "specialists" could or would have told him. As a consequence of having read the articles the family physician discontinued the flow of tranquilizers to the patient, being adequately forewarned of possibly serious reactions which might result from this. Our reader had also called the author.

This incident reflects the problems of an inefficient communication system. The potential use of research information for practical purposes is very great. I say "potential" because, like the incident cited, research articles are written strictly for the research community, and rarely intended for the average practitioner or the educated public.

Since 1938, however, when H.G. Wells published his book *World Brain*,<sup>4</sup> there has been a movement afoot to amend this situation. Wells argued for vast reforms in the process by which we bring our accumulated knowledge to bear on our daily social, economic, and political affairs. He proposed the idea of a 'World Encyclopedia,' or some such alternative, in which we could gather together our wealth of knowledge.

In that same year the Austrian sociologist Otto Neurath suggested, metaphorically, that this international encyclopedia of science "should be constructed

like an onion, the different layers enclosing the 'heart'--comprising in this case the foundations of the unity of science."<sup>5</sup>

Twenty-four years after Neurath's suggestion, in 1962, these sentiments were echoed by Louis Shores, then editor-in-chief of *Collier's Encyclopedia*. He said that he considered *Collier's* to be "one of the few generalizing influences in the world of over-specialization."<sup>5</sup>

Back in 1945 Vannevar Bush coined the term "Memex" to symbolize the ideal information retrieval device.<sup>6</sup> Whereas Wells's "World Brain" symbolized the information stored, "Memex" referred to the storage device. This is an important distinction which the designer of any bibliographic system must recognize. The ideal storage device will prevent, as Price warned, the two areas of science and learning from being "pulled apart."

In previous articles<sup>7,8</sup> I discussed the requirements that a device of this kind must have to achieve universal bibliographic control. In that context I described the merits of the *Science Citation Index*<sup>®</sup> (*SCI*<sup>®</sup>) as a preliminary step toward achieving Wells's dream of the "World Brain."

The most recent extension of the "World Brain" idea is called WISE (World Information Synthesis and Encyclopedia). Its originator, Manfred

Kochen, is the editor of the book *Information for Action*,<sup>9</sup> from which my chapter follows. This book is a collection of papers that were presented at an AAAS meeting some time ago.

Kochen attempts to describe WISE by saying that, "It is not a new institution. Nor is it a plan or design for a system." However, WISE is three things at once. "First and foremost, it is a point of view, a way of reordering priorities, especially in the information sciences, in the direction of greater stress on synthesis and evaluation. It is an attitude." Second, "It is a potential social movement," and third, "It is a naturally evolving social organ." At the end of my chapter, Kochen takes a crack at me. It seems that I "misunderstand him entirely." Perhaps I understand him too well. Since WISE is a "naturally evolving social organ," is it unreasonable to wonder from what this "organ" will evolve? I thought it helpful to choose a model, so I referred to the Unified Index to Science which I proposed back in 1958. Subsequently ISI developed the *SCI* data base. In the reprint I expound upon this proposal, and speculate upon the nature of any future "World Brain" scheme that may evolve.

The publisher of this book decided to crop each chapter by eliminating the bibliography. In the following reprint, it has been reconstituted.

1. Price D J D. From the transcript of the AAAS Symposium on Reorganizing Information Resources to Improve Decision-Making, 27 February 1974, San Francisco, California.
2. Crane G E. Is tardive dyskinesia a drug effect? *Amer. J. Psychiatry* 130:1043, 1973.
3. ----- . Rapid reversal of tardive dyskinesia. *Amer. J. Psychiatry* 130:1159, 1973.
4. Wells H G. *World Brain*. (Garden City, New York: Doubleday Doran, 1938).
5. Collison R L. "Encyclopaedias; their history throughout the ages." In: *Encyclopaedia Britannica* (1974), *Macropaedia*, 6:779-99.
6. Bush V. As we may think. *Atlantic Monthly* 176:101-08, 1945.
7. Garfield E. Towards the world brain. *Current Contents*<sup>®</sup> (*CC*<sup>®</sup>) No. 7, 6 October 1964, p. 4-5.
8. ----- . 'World Brain' or 'Memex'? Mechanical and intellectual requirements for universal bibliographic control. In: *Foundations of Access to Knowledge*, ed. by E B Montgomery (Syracuse: Syracuse University Press, 1968), p. 169-96. Reprinted in: *Science Citation Index 1968 Guide and Journal Lists* (Philadelphia, Institute for Scientific Information<sup>®</sup>, 1969), p. 61-68.
9. Kochen M. *Information for action*. (New York: Academic Press, 1975).