

Future of the scientific journal

Is the scientific journal doomed? Some have said so. Skyrocketing page costs and the 8½-year doubling time in the quantity of scientific literature have led to predictions that the written journal as a form of communication among scientists cannot long exist.

Robert A. Day, managing editor for the American Society for Microbiology, which publishes 9 scientific journals totaling 20,000 text pages in 1975, says journals are an endangered species, due to rising costs, but are by no means doomed to extinction. He and colleagues considered the subject at the recent AAAS meeting in Boston.

They basically conclude that journals in the future will look much the same as today but that they will be produced by vastly more efficient technologies. They put to rest the once-popular idea that microfilm and microfiche will supplant the printed journal. "Microfiche is no closer to supplanting the scientific journal than it was 10 years ago," says Day. He believes "print on paper" is still the ideal vehicle for communicating research results.

Revolutionary alternatives for producing printed journals are on the horizon. Day foresees the combination of the new technology of optical character recognition (OCR) with the now widespread computerized phototypesetting plus the concept of editorial processing centers (EPC's). The EPC idea is now being studied in an experiment funded by the National Science Foundation. But it is the addition of OCR equipment, Day says, that "adds the revolutionary breakthrough."

"Now we can visualize a system where composition is eliminated; i.e., the second keyboarding traditionally supplied by the publisher can be eliminated. The first keyboarding, that supplied by the author, can now be machine-read and processed throughout to printed words on paper." He believes the OCR-computer-phototypesetting system "may turn out to be the most significant revolution in the history of publishing since the invention of movable type."

Day considers the scientific journal a precious part of our heritage and says we should do everything to preserve it. "While being conservative in our preservation of the traditional journal, we should be liberal to radical in our approach to . . . new and perhaps revolutionary concepts for producing our journals."

Fatalistic future

After the spate of regional and international conferences of the past few years, each addressing some isolated aspect of world problems, it was inevitable that some foundation would call together experts from diverse fields to meet in some idyllic spot to form an overall view of the human condition. The location turned out to be Baja; the sponsors, Charles F. Kettering Foundation and the Wright-Ingraham Institute; the just-released message—*A Query into the Quarter Century*—a predictably spine-chilling catalog of ills with few ready solutions.

Specifically, the interrelated problems of population, food production, land use, climate and environmental quality were discussed by 20 participants and observers, mostly academics, none from the Third World. Their conclusion in a nutshell: "Famine, social unrest and possible political chaos may not be far away. . . . By the year 2000 the problems in food production, storage, transportation and distribution will make today's problems appear as child's play."

The participants marshaled some impressive statistics. By the turn of the century, world population will rise from 4 billion to 6.4 billion people, with urban population increasing nearly fourfold because of a "growing, almost frantic, thrust into

overcrowded cities." To adequately provide for these people, a fourfold increase of food and a sixfold increase of energy consumption would be required. But at the same time cultivated land is expected to decrease some 240 million hectares due to urbanization and erosion (despite opening of some new lands), and unemployment will skyrocket. (In Mexico and Bangladesh, for example, three persons will be entering the job market for each vacancy.)

Recent studies of climatic history indicate that the next quarter century is likely to be less beneficial for crops than the last quarter century has been. Even more immediate than threats of famine, however, may be shortages of water due to increased urban use. Says one participant: "In this case the time to disaster is so much shorter than for food that possible world response to such a crisis is likely to be totally ineffective."

Abortion increasing worldwide

Two-thirds of the world's women now live in countries with liberalized abortion laws, compared with only one-third just five years ago. The impact of this development is "one of the most rapid social changes of this decade," conclude Lester R. Brown and Kathleen Newland of Worldwatch Institute, in their latest study, *Abortion Liberalization: A Worldwide Trend*.

But many of the estimated 40 to 55 million abortions performed each year are still done illegally—often by virtually untrained personnel using very crude procedures. "In no country does the illegality of abortion prevent its practice," the report concludes. In Colombia, for example, which has one of the strictest abortion laws in the world, the largest maternity hospital in Bogota must devote fully half the beds to cases arising from complications of illegally induced abortions. In Brazil, it is estimated that half of all conceptions end in abortions. In general, the effect of abortion liberalization is to reduce complications: After American courts legalized abortion here, patient deaths dropped to scarcely one-fifth their prior levels.

The authors admit that "few would choose abortion as the ideal means of birth control," but to reduce reliance on this procedure, they say, requires improved sex education, increased availability of family planning services and development of more satisfactory contraceptives.

Family planning effectiveness

A more optimistic note on the possibility of controlling the world's population explosion is sounded in the February *WAR ON HUNGER*, published by the Agency for International Development (AID). R.T. Ravenholt, director of AID's Office of Population, writes that contrary to widely published statements that family planning programs have failed, their beneficial impact is already substantial and growing.

The "most notable discovery of recent years," Ravenholt says, is that poor and illiterate peasants will use fertility control to the same extent as literate urban residents, if the means are provided. Also, "most of the technological and strategic difficulties" facing population programs in the 1960s have now been solved, he says.

"It is now apparent that essential international assistance for population and family planning, even in large countries such as the Philippines and Indonesia, can achieve substantial progress within a time frame of about 10 years and at a total average cost of about one dollar per capita," Ravenholt concludes. It is now feasible, he says, to reduce the world's population growth rate to below 1 percent a year by 1985 (against 2.8 percent now) and thus keep the population to less than 5.5 billion people by the year 2000 (compared with estimate given above of 6.4 billion: see "Fatalistic future").