

Book Reviews

An Ill-Fated Technological Solution

Fish Protein Concentrate. Panacea for Protein Malnutrition? ERNST R. PARISER, MITCHEL B. WALLERSTEIN, CHRISTOPHER J. CORKERY, and NORMAN L. BROWN. MIT Press, Cambridge, Mass., 1978. xxii, 296 pp. \$17.50.

This case study relates the technical, economic, political, and bureaucratic factors at work in the story of fish protein concentrate (FPC), "a stable, wholesome protein supplement of high nutritive value and low caloric content prepared from whole fish." It is in many respects a model case study. After an appropriate amount of historical background—a discussion of cultural attitudes toward consumption of fish and of efforts from the late 19th century onward to develop FPC—the basic account spans a dozen years from the initiation of an FPC program in the United States in the early 1960's through the termination of the program a decade later. The respective roles of the Congress, the various government agencies, and private industry are analyzed. Country-by-country cross-national data are also presented, with special emphasis on Canada, Morocco, Chile, and Sweden. The concluding chapter reflects on the policy implications of the experience. Useful technical references follow the narrative. The authorship is collaborative—two food chemists (both of whom were closely involved in the development of FPC), one political scientist, and one writer—suggesting the analytical and reporting skills perhaps needed in cases of this complexity. And the presentation is mercifully brief.

The U.S. story is told in three chapters. One provides a chronology of program initiation, development, implementation, decay, and termination from 1961 through 1975; another focuses on the conflict between the agency promoting FPC, the Bureau of Commercial Fisheries (BCF), and the agency regulating its introduction to the U.S. market, the Food and Drug Administration (FDA); and the third discusses the evolution of FDA standards of acceptable "filth" in food.

Several major themes run through the book. The dominant one concerns the U.S. government's policy commitment to a specific technical intervention (FPC) aimed at helping to solve the world malnutrition problem and the inept performance by federal agencies in the implementation of that policy. A relatively new, and technically weak, agency (BCF) receives a mandate to develop FPC—conceived of (wrongly, it turns out) as a "solution" to the world food problem (wrongly diagnosed as simply a protein shortage). Lacking a domestic constituency in either private industry or academic science, BCF is powerless either to secure adequate financial and technical resources or to resist political decisions that override critical scientific and technical considerations. Parallel research approaches to solvent extraction of FPC are jettisoned in favor of a single "best" approach, though the technical reasons are far from clear; lean fish become the focus of the program because it is easier to extract FPC from them, though fatty fish represent a much larger potential resource; a commercial-scale demonstration plant is developed by the government, though prudence would have dictated a series of smaller steps between the laboratory and the demonstration project. The Marine Science Council (MSC), located in the Executive Office of the President and chaired by Vice President Hubert H. Humphrey, forcefully enters the fray in the mid-1960's as a high-placed advocate for the program. Ruefully we observe its advocacy overriding its obligation—implicit in its status as a presidential staff agency—to probe the critical scientific, technical, and economic uncertainties surrounding FPC. Rather than such probing we witness a promotional effort that eventually withers as the MSC itself lapses into bureaucratic nothingness during the first Nixon Administration. In the process, however, the Agency for International Development (AID) has fastened upon it the responsibility (reluctantly accepted) to promote the use of FPC as a food additive in several AID-

recipient countries around the globe. This responsibility comes to naught in due course because of the complexity of introducing FPC as a protein supplement into the culturally rooted diets of needy populations in non-Western countries. Bad enough that BCF should have the "commercialization" task for FPC without having a complementary strategy; worse yet that it should hand off that task to AID, an agency lacking the financial resources, technical capabilities, and incentives to carry the FPC flag to the undernourished, protein-deficient poor of the world.

The second theme, running both parallel and counter to the first, is that of regulatory behavior that effectively constrained the development of FPC, limited its use in the domestic U.S. market, and all but precluded its use overseas. The FDA banned the use of whole fish on the grounds that the head, viscera, and so on constituted "filth" under the Food, Drug, and Cosmetic Act. Though the authors argue that the FDA exceeded its statutory authority in an aggressive manner, relying upon esthetic and not nutritional criteria, they also acknowledge that the agency found support from the dairy and wheat industries for its position. The FDA also restricted the potential use of FPC to that of a food additive, not a whole food. Not content with these constraints, the FDA further precluded the sale of FPC in the United States in other than one-pound units, the "bulk packaging restriction." The FPC story, if it tells any tale, provides a clear instance of federal regulation constraining technical innovation.

The third theme, running throughout the book but brought home forcefully at the end, is that FPC constituted a technical solution that, had everything gone well at the technical or bureaucratic or political levels, still had no promise of having a significant quantitative impact on world malnutrition. The exuberance and enthusiasm that surrounded the program in the 1960's yielded in time, necessarily, to the recognition that the cultural, social, economic, and political determinants of world malnutrition could not be finessed by a "technological fix." The authors do draw out the positive lessons from the experience, but the weight of the analysis bears on the dimensions of failure. The lessons of this dispassionately drawn picture deserve more than fleeting attention in both policy and scientific quarters.

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