

BIOTECH 84

BUSINESS TAILORED TO NATIONAL NEEDS

Delegates to Biotech 84 Europe were greeted at London's Wembley Conference Center by a 50 foot long, 10 foot high fermentor parked on the bit of lawn just in front of the doors—hardly large enough to contain the ideas and interests to be processed inside. Kenneth Baker (Minister of State for Industry, U.K.), Paola M. Fasella (Commission of the European Communities, Brussels, Belgium) and Sydney Brenner (Laboratory of Molecular Biology, Cambridge, U.K.) addressed the plenary session.

Baker emphasized the importance of basic research and university/industry collaboration to biotechnology, observing that the "seed corn" provided by government funding had allowed British university scientists to excel by following their noses. As did many other speakers at the conference, Baker noted that U.S. scientists are the most entrepreneurial; U.K. scientists must be taught about secrecy and patenting in order to increase the commercial potential of their discoveries.

The public, Baker said, needs education in biotechnology, and Open University television programs on the subject are planned. He also stressed the international character of biotechnology, calling for collaboration enhanced by lowered trade barriers, information exchange, and non-duplication of efforts.

This point was underscored by P. Fasella, who added that the European community should strive to support intellectual property rights and encourage homogeneity in rules and regulations governing biotechnology. In the past 10 to 15 years, European industry has invested less money in research and development than its competitors. For example, he cited a study of the European pharmaceutical labor market concluding that European workers are not nearly as productive as American or Japanese workers. The Western European sector employs 391,000 people to produce \$23 million worth of goods, or \$61,000 per worker; comparable figures were \$98,000 per worker for the U.S. and \$148,000 per worker for Japan. Fasella also called for cooperative development of expensive facilities, especially when they would permit common toxicology studies and cost savings by reducing the number of animal experiments.

Sydney Brenner claimed we have passed through classical development

to a period of baroque biotechnology. Assuming the next few years will be rococo, he warned that we must stay in contact with the front line of research if we are to avoid the decadent period and pass directly on to the neoclassical. Principles of amplification seem to be overshadowing the need for rigorous laboratory studies—he fears that we may soon have to fund a project to turn interferon into methane. Brenner thinks the present growth areas are development of multicellular organisms and regulatory signals. His view of academic/industrial relationships requires separate roles for scientists and business people, with scientists concentrating on developing tomorrow's biotechnologies.

Sessions in the business stream centered on worldwide development in biotechnology, patenting, licensing and regulation, and successful commercialization of research developments. Ronald Cape (Cetus Corp., Emeryville, CA) explained the U.S. leadership in commercial biotechnology in terms of the entrepreneurial spirit of American scientists and the U.S. record of scientific innovation. Japan has a strong national interest in biotechnology, he said, but the industry is driven by established firms. His scenario for Western European countries is less optimistic because of late startups, and biotechnology in the Third World is beset with problems related to different needs, limited financing, and doctrinaire traps.

Toshio Itoh (Nomura Research Institute, Tokyo, Japan) pointed out that large trading companies, which play a major role in Japanese industry, are concentrating on integrating biotechnology into established businesses like sugar refining and petrochemicals. Few small entrepreneurial biotechnology firms are seeking private financing in Japan; hence biotechnology will center around commercial application rather than innovation. This approach is similar to that taken by Japanese electronic companies.

Business strategists and financial experts analyzed the evolution of biotechnology businesses—a difficult task since they are mainly based on new, and so far unproven, markets. They all agreed on the need for managerial strength and communication between scientists and business managers in an open and creative format. Environments that allow scientific innovation to flourish are essential for

business success. Irwin Oreskes (Biotechnology Review Associates, New York, NY) emphasized the importance of the peer review process in a biotechnology business strategy, explaining that qualified "second opinions" on scientific merit can help avoid in-house myopia or prejudice.

Interesting models for technology transfer to the commercial world were presented by Owen McShane (Development Finance Corporation, Wellington, New Zealand) and Bruce Haddock (Bioscot Ltd., Edinburgh, Scotland). They have built on local strengths—natural resources that yield thermophilic organisms in New Zealand, intellectual resources in university faculties in Scotland—and have added an entrepreneurial thrust.

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