THE LAST WORD

by Gerard H. Fairtlough

SECRECY STIFLES CREATIVITY

The explosion of human knowledge has revolutionized human capability. Every six years or so there is a doubling of scientific information, as measured by articles published in leading journals. This has had a qualitative effect so that the developed world is completely different from the past. Large segments of economic activity have become knowledge-intensive rather

than labor- or capital-intensive. All of this is readily visible in our biotechnology industries.

To stifle the exchange of scientific information would halt most of our great movements forward. One of these stifling actions is to withhold company secrets from active, participating employees. Unfortunately, most secrecy reflects the conventional, perhaps archaic, structure of some business organizations.

Today, the well-educated people lower in the hierarchies of business organizations often know more than people at the top. Knowledgeable people get huge satisfaction from using their knowledge. And they can do so better in small organizations, and in fields where networking is an accepted practice.

This raises the question of how knowledge should be exchanged, and whether only selected, "trusted" employees should be privy to what are considered "company secrets." At Celltech Ltd., a small specialist biotechnology company, we have designed a business structure and atmosphere to encourage networking and information exchange at all levels of the company. Our concept, fittingly, is based on biological principle.

Life everywhere is organized in cells. Biologists believe that this may be because cells provide a certain degree of isolation which forces the molecules within them into a high frequency of interaction. The term *compartmentation* is used to describe this partial enclosure from the environment which allows multi-order feedback to develop with the compartments of a system.

I believe that compartmentation is the key to all self-organizing and adaptive systems, whether biological or social. At Celltech, new ideas are generated by the intensive interactions within compartments, with the multi-order feedback being between knowledgeable people rather than between organic molecules.

As Abernathy and Utterback stated in their work on *Patterns of Industrial Innovation*, product innovation requires a creative leap, while process innovation depends basically on gradual improvement of existing procedures. Product innovation depends on having a group of people whose knowledge spans a wide field of technologies. Their combined knowledge leads to a novel set of connections between different parts of the field which can spark the creative leap. In essence, interconnections lead to innovation, and interconnections depend on compartmentation.

We encourage interaction at Celltech through the physical and social structure of our facilities. Everyone works within walking distance of each other, and all eat lunch in the same room. Conversation corners are located everywhere. Many people have responsibility for a specific project in addition to their scientific or commercial duties, or are members of a multidisciplinary project team. Most have a regular occasion to present aspects of their work to an audience drawn from all areas of the company. Senior executives discuss the financial progress of the company with all staff, and all participate actively in discussions about corporate strategy.

Communication is strongly developed by Celltech and is founded on the principle of *openness*. Scientific communities value openness very highly, with articles in journals as the medium on which they thrive. Openness leads to knowledgeable colleagues who can then challenge you more effectively. Admittedly, there are real risks in the route to openness. When a development cannot be protected by patent, for example, to what extent should this information be made available within the company? On one hand, knowledge of the development could well suggest complementary ideas to researchers in other parts of the company, and unexpected benefits could arise as they consider its implications. But, the more people in on a secret, the greater the chance of an accidental leak to a competitor. The dilemma is real. Nevertheless, a company committed to openness will decide to spread the knowledge—emphasizing, of course, that the compartment is where the secret has to stay. We keep each other very well informed through frequent scientific seminars, internal newsletters, regular reviews on business progress open to everyone, open books on company policies, and intensive consultation (even though this is hard work in a rapidly changing business).

Openness is practiced by myself and other senior people, and this example spreads. It is not an easy policy. It needs time, and there are decided risks with confidential information; but, our dedication to it is wholehearted, and our staff respects this.

A file of company correspondence is collected weekly and can be seen by all staff. (Only matters such as personal details on staff members are excluded.) Despite being rather bulky, the file is regularly read, and its availability is valued by all. Most of the staff have a financial stake in the company and understand the trust implied by the policy of openness practiced within the compartment.

As the growth of knowledge is absorbed by society, we must be aware that the structure of society will change to absorb this knowledge and put it to use creatively. There is much to ponder. Celltech has tried to achieve this goal through the use of openness in a compartmented organization. It may be a biological principle, but it has a real business practicality.

Gerard H. Fairtlough is chief executive of Celltech Ltd., 244-250 Bath Road, Berkshire, SL1 4DY, U.K. These opinions are the author's own, and are not necessarily those of Bio/Technology.