

One man's achievement

Bodmin, Cornwall

FIVE winners of six Nobel prizes were among more than 100 scientists gathered in Bodmin last week to celebrate 25 years of a unique 'double experiment' at Peter Mitchell's Glynn Research Institute. At Glynn, Mitchell developed the theory of chemiosmosis (for which he won the Nobel prize for chemistry in 1978) and proved that a small independent research group with a talent for persuasive communication can have a disproportionate influence on its field of study.

Mitchell left the University of Edinburgh in 1963, plagued by stomach ulcers, to turn a derelict Cornish mansion into a research environment more sympathetic to what Mitchell describes as his "independent temperament" than the rigours of academic teaching and research. Joined by his former Edinburgh colleague Jennifer Moyle, Mitchell recruited a small team of like-minded researchers. From 1965, he refined and tested the chemiosmotic theory, which has since become a standard textbook theory in bioenergetics. Mitchell showed that oxidative phosphorylation of adenosine diphosphate in mitochondria to produce adenosine triphosphate, the 'energy currency' of the cell, depends on the movement of protons across mitochondrial membranes. Previously, biochemists had been searching for an energy-rich chemical intermediary to drive the process.

The replacement of this 'chemical coupling' theory with the idea of chemiosmosis as biochemical orthodoxy depended partly on Mitchell's concerted strategy of persuasion. From the late 1960s, sceptics were invited to Bodmin to discuss the conflicting theories. Mitchell says these meetings in Glynn's secluded

BIOTECHNOLOGY

Money no object

Washington

GENENTECH, Inc., in its first major project announcement since the completion of its \$2,100-million merger with the Swiss-based health-care conglomerate Roche Holdings Ltd, last week outlined plans to build a \$75-million research centre close to its main facility in South San Francisco. The merger agreement, which was completed on 7 September, provides Roche with a 60 per cent controlling interest in Genentech in return for the infusion of about \$490 million in capital by Roche (see *Nature* 343, 495; 1990). This sudden cash windfall has allowed Genentech to accelerate plans to expand its drug discovery research programme. The research centre, which is scheduled for completion by mid-1992, will provide research facilities for 420 people.

Diana Gershon

atmosphere were vital to resolve the "failure to communicate", that prevailed in the literature and during the hurly-burly of scientific conferences. The success of the strategy was documented on a campaign map (the 'Glynn Persuasion

Glynn House, Cornwall — a scientist's dream come true.

Monitor') with the leading proponents and opponents of the chemiosmotic theory around the world identified by colour-coded pins (green 'for'; red 'against'; and white 'on the fence').

Mitchell's success in his research, and in influencing his colleagues, is undoubted, but does the Glynn Institute provide a useful alternative model of how to run research at a time when science is becoming increasingly centred on huge collaborative efforts and dependent on central funding bodies? In a discussion of 'cost-effective research' at the jubilee meeting, Professor Harold Baum, from Kings College London, and a member of Glynn's governing council, argued that this is the case. Sir John Kendrew, winner of the 1962 Nobel prize for chemistry for his work on globular protein structure, lamented the current difficulty in getting grants to support original research. The assembled Nobel laureates, he said, had spent years "getting no results, other than bad ones" early in their research careers, and would not have been funded today.

Few would disagree that an independently funded group of fewer than ten researchers can provide a conducive atmosphere for original research. But even Glynn, headed by a Nobel prizewinner, must work hard to keep its head above water. The prospects for a series of Glynn-styled institutes would be bleak.

In its early days, Glynn's funding came from the sale of stock in a large construction company held by Mitchell and his brother. The 1978 Nobel prize cleared the bank overdraft, Mitchell says, but Glynn now relies on donations from wealthy individuals, charitable trusts and industry for its overhead costs, and central grant-making bodies (research councils, the

European Commission and others) for its research funding. Mitchell has largely retired from research to become a full-time fund raiser, handing over to the present director of research, Peter Rich, recruited from the University of Cambridge in 1987.

Rich says that a single donation of several million pounds from some "eccentric

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individual" and some astute investment would be sufficient to provide permanent funding for the institute. Until then, with reserves that would last for four years at the most, the struggle to maintain the supply of smaller donations is the priority. But Baum believes major benefactors will be forthcoming, most probably wealthy Japanese individuals, inspired by the "zen-like feeling" of the Glynn Institute.

Mitchell himself seems content simply to keep the Glynn Institute alive, rather than using its example to inspire the creation of similar research groups elsewhere. Glynn's methods are different from those in larger organizations, not necessarily better, he says. But he believes his own research success depended on Glynn's independence — if the institute was part of a larger organization, his research would have had to be "planned too far ahead", in order to justify continued funding.

Baum's enthusiasm for Glynn as a model for research organization is tempered somewhat by the realization that the institute is seen as an "aberration or artefact" by some sections of the scientific community. The concept of an independent laboratory run by a 'gentleman scientist' does seem more in tune with the nineteenth century than today's reliance on international collaboration in 'big science' projects; and few working scientists have the resources to follow Mitchell's example and set up their own institute. But as Roger Bourne, an Australian postdoctoral researcher recently arrived at Glynn, observes: "If a group of scientists sat down, got drunk, and fantasized about the type of laboratory they'd like to build — this would be it".

Peter Aldhous