UNITED KINGDOM

Britain's Slow Decline, Through American Eyes

As an economic power, Britain has slipped into fourth place in Europe, behind Germany, France, and Italy. But as a scientific power, it still ranks at the top. British researchers published 412,000 papers in the 1980s (over 100,000 more than German researchers), with an average citation rate of 5.65 per paper (again, just above Germany at 5.15). But ask just about any British scientist what the future holds and you will be told that a succession of tight research budgets and cutbacks in higher education are pushing the nation's scientific standing in the same direction as its economic standing. To get some outside perspective on how British science is faring in tough economic times, *Science* turned to researchers in the United States who have worked in Britain, and asked them for their views. Here are some of their impressions:

Molecular biologist **George Stark** left Stanford to join the Imperial Cancer Research Fund in London 9 years ago. This August he will return to the United States to be chairman of the research institute at the Cleveland Clinic:

"There is only one major problem with British science, and it is underfunding. The government has chronically underfunded research for a very long time, and is continuing to do so."

"The government has taken the fact that private charities are willing and able to fund research as an excuse to back out of that area."

"One thing that is particularly pernicious is that there are a very limited number of positions for young people here....Many of the bright young people are choosing not to go into science because it's obvious to them it doesn't hold a bright future."

R. Russell Betts, a British physicist who has worked in the United States since 1968, spent 2 years at the department of physics at Oxford in the mid-1980s. He is now at Argonne National Laboratory:

"Science is highly politicized. People seem to spend an inordinate amount of time playing politics, and there is a sense of frustration in trying to get things done.

"Teaching and administrative loads in the universities are very heavy compared to this country. I don't know how good scientists manage to do it. A consequence of these heavy loads is that the principal investigators are much less hands-on than they are in this country. More of the work is done by graduate students. The thing that saves the situation is the tremendously high quality of the average UK graduate student."

"Overall, there is not enough money to fund science at the appropriate level. Britain doesn't put the same fraction of its wealth into science as other countries do."

Microbiologist **David Shore** of Columbia spent 1982-87 as a postdoc with Kim Nasmyth at the Laboratory of Molecular Biology in Cambridge:

"It was a fantastic place to work... organized in a way that made interactions very useful and strong."

"My perspective is really skewed [because] the MRC lab in Cambridge is an ivory tower....The rest of the country is suffering enormously."

"In general for young British scientists, it's pretty desperate....Most leave and don't come back."

"The salaries are horrific."

Harvard neuroscientist **David Hubel** spent time as a visitor at Oxford last year:

"The feeling I got there was that people were really worried, that they absolutely would not be able to keep up the level they had been at for the last 50 or 60 years. I don't have the impression it will be the same in 10-20 years."

Geneticist **Mark Meuth** spent 8 years at the Imperial Cancer Research Fund, and recently took a position at the University of Utah:

"The Oxbridge circle is very strong... there are an awful lot of resources going to those universities, and the other places are suffering."

"ICRF is an island—how long can you go on keeping a high-caliber scientific community when everything else is deteriorating?...It gets hard to get students and technicians."

"Unless things change in the next 5 years or so, I am pretty pessimistic about what the future holds....I asked students I was interviewing, 'Do you acknowledge the necessity that you'll probably have to leave the country in order to be able to pursue a career?' Most of them said, 'Yes, I am prepared to do that.' "

Harvard immunologist **Jack Strominger** spent several months last year at the Molecular Medicine Institute of John Radcliffe Hospital at Oxford, as a visiting researcher:

"I saw only one place; a premier place.... Spectacular science was being done there."

"They are making do with about 50% of the space per person" that U.S. labs have. "It's a little inhibiting, but it works. The crowding makes people cooperate not only with equipment, but intellectually."

"I have heard that other institutions are much less well of....I heard an awful lot of complaining about the grant situation, so there must be some reality in it."

Neurobiologist **Michael Hanley** was on the staff of the MRC for 14 years, before taking a position recently at the University of California, Davis:

In Britain, "we're seeing more applied science, and science being evaluated on shorter and shorter time scales. Many people think this indicates Britain is dropping out of the modern scientific race. I would argue the opposite. I believe this is the indication of where we all will find ourselves. We'll all have to make our peace with applied science, shorter review periods and greater public accountability. Britain is the most advanced in terms of moving in that direction."

"The abolition of tenure [in Britain] is the first hint that accountability is being put in very concrete terms. If you do not perform, you do not hold your job."

"Increasingly the scientist is regarded as an employee," especially in situations in which industry has stepped in to fund university researchers, or even whole departments. "In streamlined, private-sector-model science, distracting personalities may be regarded as an unaffordable luxury. Britain has always been a haven for the eccentric personality.... If they are lost, Britain will lose what is its greatest strength—risk-taking."