

Royal Postgraduate Medical School in Hammersmith and with the Charing Cross and Westminster Medical School. Eventually the college is expected to include several other specialized institutes, such as the nearby Institute for Cancer Research.

The second college will be focused on University College, London, which has ambitious plans to become one of Europe's leading medical research centres. A new grant of £14.5 million (US\$23.2 million) will in particular allow the college to convert the nineteenth century Cruciform Building, the original University College Hospital, into a new centre for teaching and research.

This money will be supplemented by a further £11.5 million (US\$18.4 million) from the Wellcome Trust, which the college plans to use to build facilities for research teams that can bridge the gap between basic research (in subjects such as pain research and cardiovascular disease) and clinical practice.

The third cluster will be made up of groups working at King's College, St Thomas's Hospital and Guys' Hospital. The precise allocation of tasks between the three institutions remains under fierce debate, particularly since the hospitals will each be required to give up some of their specialist services.

However, one firm decision is that a major neurosciences and neurosurgery centre, funded directly by the Department of Health itself, will be set up at King's, a decision based partly on the proximity of the college's medical school to the Institute of Psychiatry at the adjacent Maudsley Hospital.

In addition, £240 million (US\$384 million) is being invested in new facilities to be shared by St Bartholomew's and the London Hospital, which — despite a long campaign of opposition from supporters of the former — are to be combined on the site of the latter in East London to form the core of the fourth cluster.

Bottomley claims that each of the moves is in line with the government's aim of increasing the overall effectiveness of funds invested in the National Health Service, in particular by concentrating funding on centres of excellence in both research and treatment, while shifting some resources previously allocated to hospitals to primary and community care.

DAVID DICKSON  
London

## R & D opportunities in India

Recent changes to Indian patent law and India's new 'liberalized' economic policies are causing some multinational drug companies — concerned about the soaring cost of drug development back home — to take a long, hard look at India as a place to do research and development (R&D). The availability of a skilled workforce at lower cost and relatively easy access to animals for drug testing purposes are also factors that would seem to make good business sense for foreign firms.

For years, Indian drug companies have prospered under the 1970 Patent Act that did not recognize product patents. This enabled companies to churn out copycat versions of drugs developed by foreign firms, ranging from headache pills to cyclosporin, without having to spend money on costly R&D. An amendment to India's 25-year-old patent law, made three months ago by a presidential ordinance, means that product patents will now be recognized under Indian patent law. Moreover, patented products or technologies can be produced only under licence and with the payment of royalties, whether or not alternative processes have been developed or used.

Taking the lead among pharmaceutical companies is US-based Eli Lilly, which has its headquarters in Indianapolis, Indiana. Lilly has formed a joint venture with Delhi-based Ranbaxy Ltd, India's largest drug company, with sales of US\$240 million last year. Together, they are setting up a \$60 million 'research, development and manufacturing' centre in Punjab.

"Eli Lilly is going to shift projects — not its people — and there will be a pooling of technical resources," says J. M. Khanna, Ranbaxy's executive vice-president. Sidney Taurel, Khanna's counterpart at Lilly said that the tie between Lilly and Ranbaxy symbolized a new direction for the global pharmaceutical industry and that he expected that the new alliance would provide Lilly with access to product development capabilities in India that will enable it to develop "high-quality products at low cost."

Other multinational companies are not far behind. An application by Astra AB of Sweden, which has been approved by the Indian government, will allow

the company to set up a major R&D laboratory in Bangalore in which Astra would retain full ownership. Hoffmann-La Roche of Nutley, New Jersey, is also shifting part of its R&D efforts to India, and Hoechst recently announced plans to refocus its Indian operations to emphasize new drug molecules.

"Many multinationals are still talking with potential partners," says S. D. Joshi, president of the Bombay-based Organization of Pharmaceutical Producers of India. "They first want to set up joint ventures for marketing," he says. "Joint research will come later."

Foreign firms are also contracting research out to those government-funded laboratories in India with expertise in synthesizing molecules using alternate and more cost-effective methods.

Abbott Laboratories of Chicago, Illinois, for instance, has paid a fee of US\$100,000 to the Indian Institute of Chemical Technology in Hyderabad in the hope that the institute can, among other things, develop cheaper and more efficient routes of synthesis for a protease inhibitor of the human immunodeficiency virus, which is now undergoing clinical trials in AIDS patients in the United States. Abbott, which needs larger amounts of the drug than is usual with most other medicines, is getting low yields from its own manufacturing process.

Science ministry officials consider foreign collaborations in the area of drug development as a positive spin-off from the government's new liberalized economic policies. "In the long run, it is going to raise the standard of R&D in the pharmaceutical sector," says H. R. Bhojwani, an advisor at the Council of Scientific and Industrial Research, based in Delhi.

K. S. JAYARAMAN  
New Delhi

IMAGE  
UNAVAILABLE FOR  
COPYRIGHT REASONS