THE FOUNDATION FOR SCIENCE AND TECHNOLOGY

DINNER/DISCUSSION SUMMARY

Richard Lambert Review and the DTI Innovation Review

Held at The Royal Society on Tuesday 2nd December 2003

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In the Chair: The Rt Hon the Lord Jenkin of Roding
Chairman, The Foundation for Science and Technology

Speakers:
Richard Lambert
Chairman, Lambert Review for HM Treasury
David Hughes FREng
Director General, Innovation, DTI
Sir Colin Lucas
Vice-Chancellor, Oxford University
The Lord May of Oxford OM AC Kt PRS FMedSci
President, The Royal Society

MR. LAMBERT set out the context of his report[1] (to be published on 4th December). There were two strong trends, both favouring the US, but which, because of the UK's strength in university research, could benefit us. These were, first, companies moving away from using large in-house research facilities, and, second, the globalisation of research, with multinationals putting their research capacity where it most benefited from its surroundings (e.g. Novartis going to Cambridge, Mass.) Corporations had to research in a wider range of disciplines, and understand every technological advance in order to meet global competition. Researchers themselves were more mobile. So the resources of good universities were valuable for business. In order for universities to seize this opportunity, they must have clear rules on research work; on collaboration with business; on rewarding staff; managing conflicts of interest, and encouraging innovation. Their own motive for encouraging technology transfer should not be to get large funds for themselves (this was, in any case, an illusion), but to enhance the "public good". Above all, they must not forget that their primary function was to teach. Public policy could help – building bridges between business and universities; sowing seed corn; practising a research funding policy, which both supported excellence in a few major centres, and encouraged other universities with special skills or opportunities to develop. But the major problem was the lack of demand for research from business – particularly SMEs. Reasons were historic – ignorant management, companies growing by acquisition, inefficiency, and a poor macroeconomic climate. Signs of improvement were visible, notably technically trained management, but there was a long way to go. Universities should seek to change the culture of their researchers – make them less risk averse, give them freedom to experience the benefits of change and reward, and move in and out of business. They needed to stop thinking of business as just wanting to rip them off, and put a realistic valuation on their IP.

MR. HUGHES (whose report is provisionally scheduled for publication on 17th December) defined innovation as the successful exploitation of new ideas – this could be in new business practice, personnel policy, products or services. It was crucial for economic success. The economic background was that we cannot compete on a low cost basis; that technological and scientific understanding was increasing ever more quickly; that global communications meant consumers knew about, and wanted, the latest and best; and that product life cycle now reducing dramatically. So UK business, to be successful, must compete by adding greater value – i.e. capitalising on innovation, bringing new and superior products and services into operation. The Government spend was considerable – DTI programmes, tax credit, technology transfer programmes, DfE spend, the RDAs, the science budget, and, perhaps most important, government procurement. But the strategy and priorities needed to be defined. Collaboration and networking by both businesses and universities was crucial. New technologies needed to be applied to a variety of products and services. A successful innovation strategy would build on existing and new skills; cooperation within regions; informed public procurement; wise regulation and exploitation of our national assets.

SIR COLIN LUCAS accepted that innovation was the driver of economic success. Universities, as the creators and transmitters of knowledge, must be at the heart of it. It was a commonplace that universities must seek to transfer knowledge to the wider economy and have suitable struc-

[1] www.hm-treasury.gov.uk/media//EA556/lambert_review_final_450.pdf

tures for doing so. Collaboration between business and universities was essential, but the difficulties should not be underestimated. There were the difficulties, for both parties, of finding partners; when found there were difficulties because of divergent cultures; there were difficulties in finding appropriate research projects – universities were very different in their needs, aims and skills, and needed always both to align their research work with their resources and to balance it against their other objectives. Above all, universities existed to produce the trained and skilled people that all sectors of the economy needed: Mr. Lambert was right to emphasise both the importance of teaching, and the primary function of knowledge transfer being "the public good". But it would be wrong to try to prescribe innovative outputs. People do best at what they want to do, and the best results come from letting people get on with their passions, and not attempt to manufacture specific outcomes. Effective supporting structures in universities were vital for supporting technical transfer: there must be staff with expertise to collaborate with business (not academics); investment in realistic valuation of IP; adequate sources of seed corn finance. Ever present was the danger that commercial pressures could affect research programmes by requiring short-term results, or diverting research from fundamental work. Oxford was well run; it had had suitable structures and resources.

LORD MAY said that the knowledge economy had three legs - research, researchers and cashing in on the results. The first two legs were the job of universities; the third the job of industry and business. There were two sets of costs in doing basic research – the direct cost of the carrying out the project, and the indirect cost of creating the infrastructure to enable the work to be done. The RAE was defective in relating the two, both because it did not adequately recognise cross institutional or disciplinary work, and because the 5 to 10 year gap between creating the infrastructure and seeing the results of projects, produced impossible financing problems for smaller institutions. Moreover the system did not recognise collaboration with industry, and tended to devalue teaching. But the UKs achievements should not be undervalued- we did well in international comparisons on high technology exports; we were increasing university/business collaboration and patent filings. The research gap between the US and Europe lay in the private sector, not universities. It was businesses which had the problem, not universities. By all means, change the averse risk taking culture in universities, and encourage researchers to go into business, but do not erode the fundamental academic values of the search for knowledge wherever it may be found. Governments must not think that they can achieve their economic aims by persuading researchers to do work which is not the centre of their passionate involvement (or, more colloquially, which they find fun)

In the following discussion, there was little dissent from the analyses which had been presented. But there was concern that the problems; and opportunities afforded by the intense international competition for high quality researchers, had not been fully understood. The UK had great advantages in being able to attract and retain good researchers who wished to exploit innovation, because of the English language and the sound legal and commercial systems. But rewards were low compared with the US; facilities were nowhere as well funded, and a drain westwards must be expected. Why should the UK taxpayer fund the education of researchers who left the country? Was it right to seek to attract able researchers from less developed economies? The answer must lie in the motivation of researchers. If it were right that their primary motivation was passion for their research, then they would go where the best opportunities existed for pursuing it. So the UK must maintain universities of the highest quality, with outstanding facilities, if we were to keep attracting and retaining research leaders. European opportunities should not be neglected: there was room for collaboration on transnational research. But outside the fundamental research sphere, international competition from other universities was not the threat; it was multinational companies on the look out for good scientists and technologists who could be tempted away. If such people were to be kept in the UK then the need for collaboration between business and universities must be strengthened. The task was both for business to demand research and development, and researchers to search for project opportunities. Neither would happen unless networks came into being where they could meet each other, and discover each other's potentialities.

Speakers also explored the concept of "adding greater value". Was this simply a cry to create more advanced products, or had it a wider meaning? Could it be seen as promoting linkage between design, social issues, such as ecology or CO2 reduction, and purely technological advance? Given the increasing importance of design and social responsibility in commercial success, such linkage was of great value. But perhaps the largest area where "greater value" could be found was in development, rather than in research (inventing the jet engine was easy; making it work very difficult – Sir Frank Whittle). Businesses did not appreciate that universities could help all the way through the development process; and universities did not realise what the opportunities were. Because universities had not organised themselves to be effective on assisting development, one major company suggested that development work could not be effectively placed in the UK.

It was agreed that technology transfer should be for the public good, not to increase university revenues; but if so, industry would expect the public purse to pay for it. But the better doctrine was that the public purse paid for the creation of knowledge, not its commercial exploitation: "public good" was a motivation for universities, not another means of taxing the public. But there were tensions between public support and commercial interests. Some government organisations compete directly with businesses, and, in particular, where government procurement programmes demand publicly funded research, it should be clear that such research does not benefit just the eventual supplier. Trust, it was agreed, was crucial; trust between business and universities, and trust between both and the government. Trust meant long term stable arrangements, which could inhibit flexibility; it also meant secure funding programmes and business arrangements which gave people the confidence that they could take risks, without sudden shocks from changes in Government policy. Changing cultures was not without risk; it was the task of Government, in implementing the two reports, to find the right path.

Sir Geoffrey Chipperfield KCB