

DINNER/DISCUSSION SUMMARY

Science and the City

Held at The Royal Society on Wednesday 1st December, 2004

We are grateful to the following for support for this meeting:

ARM,
Comino Foundation,
GlaxoSmithKline (GSK) and
HEFCE

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

Speakers: **Paul Myners**
Chairman, Marks & Spencer
Stephen Timms MP
Financial Secretary, HM Treasury
Dr Peter Goodfellow FRS FMedSci
Senior Vice President, Discovery Research, GlaxoSmithKline

MR. MYNERS said that Research and Development (R&D) leading to improved and new technology was essential for all industries, not just those thought of as science based. It was clearly linked to higher productivity, which, in a full employment economy was the only path to growth. But this was easier to see from the sidelines than from the viewpoint of those seeking finance and investment opportunities. The City was accused of short-termism; its search for early profitability was not aligned to the length of time it took for R&D to result in commercial success. But industry did not take account of the many occasions when R&D had failed to deliver. Failure of communication lay at the heart of the problem. Industry did not give sufficient information about R&D work; and sometimes indulged in hype over new products, later found unjustified. It did not appreciate the justified scepticism of investors, and their need for evidence of a good track record. Different accounting standards and practices such as pre-emption needed to be addressed. The new requirement for enhanced information in the Operating and Financial Review should help, but the scientific community should press for it to contain full information about R&D. Industry should understand that before they fund R&D, investors need to understand how well the business understands R&D; the history of R&D in that business or sector; how well the business is connected to academia; how the result of R&D will benefit customers; and, finally, will the public trust the science and its application. Regulatory acceptance is not enough.

MR. TIMMS emphasized the Government's strong support for increased R&D. R&D intensity had a clear connection with productivity, which, he agreed with Mr. Myners, was essential to economic growth. If we could reach the Government target of 2.5% of R&D in GDP by 2014 we would be in a strong position to compete internationally. The challenge from developing economies – e.g. China, India – would intensify, and cannot be met without strong R&D investment in the UK. It was the Government's policy to encourage R&D in both the private and public sectors. R&D needed to grow, not only in areas where it is already strong – such as defence and pharmaceuticals – but also in areas

where it was weak, particularly in SMEs. Use should also be made of multinationals. The Government was providing tax credits; there was also the £80m collaboration fund and the DTI was setting up sector teams to look at innovation and growth. He accepted the need to improve access to finance so that investments to fill gaps in the application of science. But he agreed with Mr. Myners that both the City and businesses needed to understand each other better, so as to appreciate that R&D investment is an asset, not a risk. We must seek to make markets work more efficiently; to improve collaboration between business and academia; and to improve the transfer of knowledge. The Lambert review had signalled the importance about clarity of IPR and contracts. There was an important role for RDAs in supporting businesses in their areas, through providing information about opportunities for investment and collaboration with Universities.

DR. GOODFELLOW said that the pharmaceutical industry stood on the boundary of a pure market approach. It had a 25-year product cycle – 14 years for development, 11 years of sales. This did not fit with normal investor's view of returns on investments. The high costs of launching new products lay in the intellectual development of the product. If society found the resulting price of the product unacceptable, it would have to find other means of financing the development. It was necessary to take account, not only of the cost of the product which was successful, but also the costs of developing ideas, which were not, in the end, commercially viable. Only 30% of new drugs covered the cost of development and production. While it was important to encourage R&D expenditure by SMEs, we must not forget that it was the big companies in the high technology areas which spent the most on R&D. 40% of R&D spend lay in pharmaceuticals; 15% in aerospace; 6% in automotives; 6% in IT. Pharmaceuticals were particularly difficult because of the complexity of the product; the paramount requirement for safety; and the many skill sets of different professions involved. It was crucial to develop new drugs for needs, which had not yet been met. But society must make up its mind whether it will accept the market ap-

proach. Of course, in many cases, it is the Government of a country where the drug is used which sets the price, but if any price is set too low, then, in a common market, "parallel trading" will take place – i.e. the low price drug will be exported to other countries and undermine the whole commercial structure of sales. The implied contract was that industry would develop drugs, and society would allow the profits. For there to be good R&D investment in businesses, you needed a strong science base, a trained work force, staff security, a pro-business culture, and a good regulatory environment.

The discussion focussed on the factors in business, which encouraged R&D, and the methods by which investors evaluated them. Businesses must understand what they were doing. This was not easy or quick. The danger of major changes in industry structure – e.g. nationalization – was that 25 years were lost before the new owners understood what they were doing. But there could be advantages in such changes – privatization of the utilities had, indeed, meant that R&D had been reduced; but much of it had been R&D which added to the cost of the product without benefiting the consumer. Did the cultural differences between scientists and businessmen hold back investment? Should more scientists be appointed to company boards? Certainly executive directors dealing with scientific issues needed to understand their science, but non-executives were not there to take scientific decisions, but to supervise the development of the business. Their job was to ensure that systems were in place that provided the knowledge base; not provide it themselves. Mr. Myners had suggested questions which companies must expect investors would ask. It was perhaps more important that company boards should be able to answer those questions themselves. There was some doubt that they could. But the answer was not more scientists on the board but a better understanding on business and investment by the board members. Business schools should train students (whether they became company directors or analysts) to know how to interrogate scientists. Perhaps the very large size of pharmaceutical and defence companies inhibited the development of radical ideas: smaller companies without a bureaucratic structure might be better at giving highly original – outrageous - proposals a better chance. Possibly; but there was no evidence which supported this suggestion; the problem was that one original but uncommercial idea could be supported by other successes in a large company. In a small company it might sink the ship.

But one should not pretend that investment managers scrutinized the performance of each company within a sector. They were more concerned with asset allocation between sectors; and meeting the appropriate weighting. This meant, for example, that any investment manager would have to have shares in GSK if he was allocating assets to the pharmaceutical sector. But this was true primarily of very large companies; smaller listed companies could find themselves disadvantaged if their R&D costs did not seem to be related to early profits. It might be that investment banks were encouraging companies to list at too early a date; listing restricted management flexibility and might not compensate by an easier access to capital.

Some thought the city and Government should be more concerned about the closure of chemistry Departments in a number of universities. There was room for concern if such closures damaged high quality research and meant that

students who wanted to do chemistry could not find opportunities to do it. But it must be remembered that some chemists were recruited outside the UK; the restrictions on entry of researchers into USA Universities could provide a valuable opportunity for the UK academia and companies to pick up talent. The government should concentrate on knowledge transfer, which meant ensuring that that the IPR regime was effective. While there must be some form of market monopoly of research for some period, nobody thought the present regime was perfect. But change meant agreement from a large number of conflicting interests. Patents were not the answer in many cases. Technical know-how was the basis of many profitable technological advances.

While trust between investors and businesses was crucial, it must be seen against a background of public suspicion of science, and a strong feeling that there were social, as well as commercial, objectives that scientific advances ought to be serving. For example, did research in the food industry serve the aims of securing adequate nutrition and preventing obesity in children? Were the oil companies seriously interested in reducing the use of carbon fuels? The answer to such concerns lay in the need for businesses to recognize public concerns early enough for them to develop products that would address the concern profitably. The efforts of the food industry to develop low salt and low fat products which customers wanted to buy, and the investment oil companies were putting into fuel cells and solar power were examples of such responses.

Sir Geoffrey Chipperfield KCB

Background links

Paul Myners: the impact of shareholders' pre-emption rights on a public company's ability to raise new capital

An invitation to comment:

www.foundation.org.uk/801/myners.pdf

Innovation Report - Competing in the global economy: the innovation challenge

www.dti.gov.uk/innovationreport/innovation-report-full.pdf

The UK's Productivity Gap

www.esrc.ac.uk/ESRCContent/downloaddocs/UK_Productivity.pdf

The Frontiers of Innovation: Wealth Creation from Science, Engineering and Technology

www.scenta.co.uk/news/viewnews.cfm?ciid=1308&ctid=1

Science & innovation investment framework 2004-2014

www.hm-treasury.gov.uk/spending_review/spend_sr04/associated_documents/spending_sr04_science.cfm

Lambert Review of Business-University Collaboration

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

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www.foundation.org.uk/pdf18/fst18_5.pdf

www.arm.com

www.cominofoundation.org.uk

www.gsk.com

www.hefce.ac.uk

The presentations are available on our web site

www.foundation.org.uk