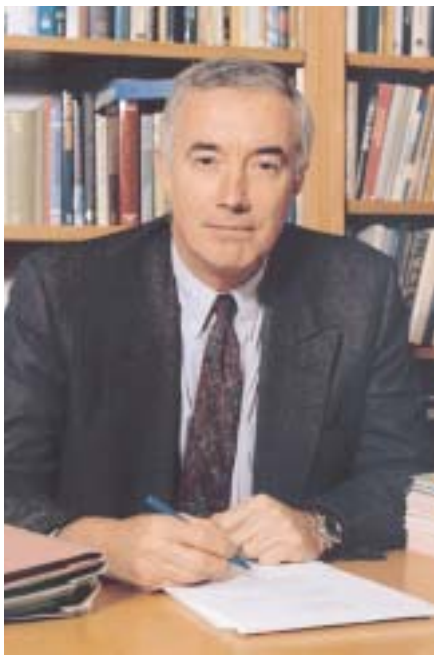
The role of the Chief Scientific Adviser, MOD

Professor Roy Anderson FRS, FMedSci, MOD Chief Scientific Adviser



The Chief Scientific Adviser (CSA) post at the Ministry of Defence is the longest standing Science Adviser post in Government. It has its origins in the critical role played by scientists in the Second World War, and the very close relations developed during that period between the operational commanders and the defence research staff. The Chief Scientific Adviser's post was formally established with the creation of the Ministry of Defence, and the first in what has been a very distinguished list of scientists in this role, Sir Solly Zuckerman, was appointed in January 1960.

The responsibilities of the post have remained broadly similar since its creation. In addition to the traditional role of providing scientific advice to the top of the Department and to the armed forces, the Chief Scientific Adviser is responsible for the management of the defence research budget and also chairs the Board responsible for providing advice to Ministers on major investment and equipment procurement decisions, most recently entitled the Investment Approvals Board. The Chief Scientific Adviser also takes a very close interest in strategic technology issues across the broad science spectrum of relevance to defence, including those relating to nuclear affairs. In addition to having a seat at the Defence Council and the Defence Management Board, this breadth of responsibilities gives the MOD Chief Scientific Adviser post broad influence and authority.

The arrangement of breadth in responsibility has advantages for the MOD. It reflects the fact that science and technology are critical enablers for the UK armed forces, and defence issues in the broadest sense, perhaps more so now than has ever been the case given increased uncertainty in future threats. The pace of technology change continues to increase. And as developments in defence-relevant technology are now sometimes driven by the civil sector, rather than in defence laboratories, new problems emerge from the rapid proliferation of technologies that can pose a threat if in the wrong hands. For example, research advances in biomedical fields can be double edged. On the one hand they may improve our ability to develop new drugs and vaccines, but on the other hand they may make it easier to develop and manufacture novel pathogenic agents. Furthermore, changes in the geo-strategic environment since the end of the Cold War present a considerable challenge for long-term defence planners. Whilst our perception of the medium to long term threat has in the last few years changed on a yearly, if not monthly, basis, the MOD has to try to manage equipment and technology acquisition programmes often lasting up to 50 years from inception to disposal. One solution to this problem is to focus on the acquisition of "skeletal" platforms or frameworks, which can be easily adapted to, as it were, "plug and play" new sensor or weapon technologies.

One obvious response to a future scenario of increased threat uncertainty is to ensure that we stay at the cutting edge of the development of new technologies. This not only benefits defence but also the civil industrial sector in the UK. This implies that we need to sustain our investment in defence science given the ever increasing pace of technological change, so that we have the technological ability rapidly to generate solutions to meet newly emerging threats. In doing so, we will be in a better position to manage the key process of inserting technology into on-going equipment programmes and also to de-risk technology before we commit to major investment decisions.

This all poses many new challenges for the defence science and engineering community. We need to do better at developing new ideas and, even more importantly, building on these new ideas to develop new products ready for the market place. In doing so, the defence research programme can help drive innovation and competitiveness in the UK defence industry. We have sought to focus our investment into those technology areas we believe are likely to be the most important in the future and also to achieve a better output from this investment plan. The incremental transfer of a significant element of the MOD's defence research laboratories into the public sector, through the establishment and gradual privatisation of QinetiQ, is aimed at moving the tremendous body of scientific knowledge and expertise in this organisation closer to the market place, so that it can better be exploited by both defence and civil sectors. Through the progressive introduction of competition, where this makes good sense, we have also sought to diversify our supplier base. This means we are now more often investing directly with industry and the University sector, helping to drive innovation and at the same time deliver improved value for money. And finally, the creation of new companies to help "spin-out" technology from our in-house laboratory, the Defence Science and Technology Laboratory, into the commercial world is helping to ensure that the UK economy continues to benefit from the Government's investment in defence science.

This, then, is the challenge faced by me and my colleagues in defence science. Our record is a good one. Inventions such as the new world-leading sonar system for the Royal Navy's submarines, the highly advanced techniques we use for dealing with terrorist bombs (both of which are saving lives, as I write, in Iraq), the new Storm Shadow missile and the world-leading chemical and biological detection and protection equipment used by our armed forces all have their origins in the defence research programme. And much less widely appreciated is the fact that much defence research has been responsible for many inventions that have created wealth and jobs in civil industry, including radar, the internet, thermal imaging systems and body imaging systems for medical and security applications.

In summary, this is an immensely exciting time for defence science and technology. We have a proud record of delivering world-leading technology to the UK armed forces, which has also had great benefits to the wider civil economy. As the Chief Scientific Adviser in the MOD, I greatly look forward to building on this record of success in tackling the many challenges facing the defence world as we move into the 21st Century.