

DEBATE SUMMARY

Is the Haldane Principle fit for purpose in the 21st Century?

Held at The Royal Society on 3rd June, 2015.

The Foundation is grateful to Innovate UK for supporting this debate.

The hash tag for this debate is #fsthaldane .

Chair:The Earl of Selborne GBE FRS
Chairman, The Foundation for Science and TechnologySpeakers:The Lord Hennessy of Nympsfield FBA
Member, House of Lords Science and Technology Select Committee
The Lord Rees of Ludlow OM Kt FRS
Former President, The Royal Society
The Rt Hon David Willetts
Former Minister for Universities and Science

Panellist: Professor Jane Elliott Chief Executive, Economic and Social Research Council

LORD HENNESSY outlined the history and evolution of the Haldane Principle from the 1918 Report of Lord Haldane's Committee on the Machinery of Government¹ to the present day. That Report dealt with machinery of Government issues extending beyond the administration of publicly funded scientific research. The Committee's views on that topic were not contained in a single statement but could be deduced from observations scattered throughout the Report about the relationship between the State and scientific and technological research, with relevance, too, for arts, humanities and social science: phrases such as "the duty of investigation and thought as preliminary to action". The essence of those observations was that decisions about the spending of research funds were best taken by researchers themselves, supported by peer review, and not by Government Ministers. The first statement of what now carried the name "Haldane Principle" appeared in 1964 when Lord Hailsham (who as a Minister had been in charge of the Research Councils in the Conservative Government from 1957 to 1964) attacked the new Labour Government's plans for a Ministry of Technology.

The Coalition Government of 2010 to 2015 issued a full statement of the Haldane Principle in December 2010. This was further developed in the December 2014 White Paper "Our Plan for Growth" with its list of the eight "grand challenges for society". In a typically UK way a guiding principle of great value and importance had not been created as a deliberate act of policy but had emerged and evolved over the decades. The value of the Haldane framework for Government-funded research could be seen in the excellence of UK science and of UK Higher Education Institutions (HEI) from which the nation had greatly benefited. The Principle had provided a fruitful reconciliation between the researcher's and scholar's love of mess and uncertainty from which speculations and new knowledge emerged and Government's love of order, tidiness and predictability. He hoped that the current drive towards impact statements and performance indicators would not undermine what had proved so beneficial.

LORD REES said that science was so vital for the nation that some form of Government oversight was justified. Moreover there were some areas where Government guidance would be beneficial. But should that oversight be "hands on" or "light touch"? Certainly that oversight and guidance should be such that science could continue to prosper for the benefit of the nation. Key to that success was recognition of what motivated scientists: curiosity, reputation, problem solving and not just money. Good scientists welcomed useful outcomes and were good judges of what problems were timely and tractable. The best results were achieved when the judgements of scientists were backed. He believed that the UK's dual support system for research was superior to that of the USA but he was concerned that pressure on scientists to demonstrate beneficial impact and developments in the Research Excellence Framework (REF) could undermine the very quality of science which they were meant to foster. It was a fact of life, not be neglected, that

¹ Report of the Machinery of Government Committee, Ministry of Reconstruction, The Viscount Haldane of Clone OM KT (Chairman), www.civilservant.org.uk/library/1918_Haldane_Report.pdf

Treasury paymasters liked to see large and clear pay-offs from scientific endeavour. On the other hand it had to be recognised not only that blueskies responsive-mode research lacking any perceived beneficial impact was important (and could pave the way for huge benefits many decades later) but also that non-science academic endeavour had large and identifiable pay-offs (for example the works of C S Lewis and Tolkien are a major source of wealth for the creative industries).

Unchecked application of the Haldane Principle could be harmful. He had been dismayed to learn that the mean age when USA researchers receive their first grant was now 43; often the best science came from young researchers. Selfgovernment by older academics could not be relied upon to put that right. He acknowledged the tension between the need for excellence to be allowed to flourish wherever it existed and the need to avoid excessive concentration of science in particular locations.

A third issue was whether there should be favoured funding for priority or strategic subjects. These were all issues where Government and science needed to work together to find solutions. It was reasonable for Government to set the national challenges and priorities but it should be left to scientists to determine what action to address them was feasible. In the UK government and science had shown themselves generally able to work well together, although he believed that the relationship would be improved if there existed a body akin to the Advisory Board for the Research Councils (abolished in 1993) to provide Ministers with high level science-based and engineering-based advice on capital investments and research priorities. Finally he referred to the existence of Haldane-type practices in the European Research Council and to the wellmanaged European collaboration for "big science" facilities such as CERN and the European Space agency.

RT HON DAVID WILLETTS took as his theme the carefully crafted statement of the Haldane Principle of the in Annex Α December, 2010 BIS report on the 2011/2015 allocation of the science and research funding². The Annex set out a balanced relationship between the essentials for good science and the requirements of responsible Government. For example Ministers should not be responsible for sharing out the research budget of individual Research Councils but Ministers should set out challenges (e.g. the eight strategies set out in the December 2014 Science and Innovation White Paper³) to which Research Councils should and could have regard to without crowding out other areas of their missions, especially responsivemode research. He also believed that Research Councils should not give regional policy considerations greater priority than the pursuit of excellence; Ministers should provide the Councils with a separate budget if they wanted the Councils to assist regional policy objectives.

He insisted that politicians had to play a major role in international dealings involving horsetrading with other Governments over such projects as the Large Hadron Collider and the European Spallation Source.

Commenting on the proposal by Lord Rees that there should be the equivalent of an Advisory Board for the Research Councils he suggested that a way forward could be a refresh of the role and structure of the Council of Science and Technology (CST). He is also supported the view that the Director General in BIS responsible for the Research Councils should be recruited from the research community.

He also thought that Ministers could usefully engage with scientists over issues other than funding, such as the risks that scientific enthusiasm could run ahead of public opinion and acceptance as had been the case with, for example, genetically modified crops, driverless cars and fracking to extract oil and gas from shale. He shared the previous speaker's concerns about the age issue, adding the importance of ensuring that peer review was not age cohort based. He questioned whether the December 2010 science and innovation strategy had adequately addressed the implications for research in response to global challenges. He believed that the UK should be enabled to engage in world-class science in all fields but he feared that funding constraints could place that under threat, posing new strains on the Haldane Principle.

Introducing the first discussion period, PROFESSOR JANE ELLIOTT suggested that the discussion might usefully focus on six issues identified in the preceding three presentations in order to answer the question whether the Haldane Principle was still fit for purpose: first, although it seemed to be agreed that it had worked well in the 20th century, was it the right way of dealing with the challenges of the 21st century; secondly, could scientists still be trusted to identify and deal with the relevant and tractable problems of the modern world; thirdly, was not the process of scholarship in research just as important as the actual products resulting from that research; fourthly, to what extent were the scope of the Nurse Review and the arguments raised in the presentations about the need for some kind of high-level source of scientific advice compatible with the existing governance of Research Councils; fifthly, the age issue raised by the previous speakers; and sixthly, to what extent should Ministers be involved in the grey area between individual research grants (where they definitely should not be) and the really big

www.gov.uk/government/uploads/system/uploads/attachment_d ata/file/422477/bis-10-1356-allocation-of-science-and-research-funding-2011-2015.pdf

www.gov.uk/government/uploads/system/uploads/attachment_d ata/file/364455/industrial-strategy-booklet-3.pdf

research projects (where they definitely had to be). As contributions of her own she urged a broad definition of science, not confined to the natural sciences. She stressed the role of research in developing concepts as well in solving problems and the value of research as a contribution to growth in capability as well to economic growth.

In the discussion periods a number of contributions pointed out that the Haldane Principle was of relevance to only a relatively small proportion of research expenditure in the UK - that channelled to Higher Education Institutions and Research Councils through the dual support system. Indeed the push towards the Rothschild contractor/customer model for Governmentfunded research in the 1970's had resulted in money being diverted from Research Councils to Government departments where there was a regrettable lack of such guiding principles and, where, subsequently (apart from Defence and Health) research budgets had suffered from cuts. It was also noted that the physical sciences were more dependent on the Research Councils than were the biomedical sciences which benefited from a number of other funding sources such as The Wellcome Trust where Haldane did not apply.

Questions were raised by a number of speakers about the ability of the Haldane Principle to cater for the growing need for collaborative and interdisciplinary research. Fears were voiced that Research Council studentships were becoming too linked to the "eight challenges" at the expense of blue-skies missions. One contributor asked where responsibility lay for overseeing the quality of Government/science relations. The answer was Parliament and members of the panel paid tribute to the work of the Parliamentary Select Committees.

Other topics arising were:

Is the autonomy of HEI under threat? Some feared that it was but others pointed to evidence of the contrary, such as the loss of power to those who had been the founding sponsors of the new universities.

Is peer review as effective as it should be? Many comments supported the concerns expressed by the panel about detrimental age bias while others stressed the vital importance of ensuring that the review task was undertaken by people still actively carrying out research work.

The British Antarctic Survey was an interesting example of an area where political priorities and scientific priorities pointed in the same direction to mutual advantage.

The overall message emerging from the debate was the Haldane Principle had served the nation well in the research areas where it applied and that it was as relevant to the 21^{st} century as it had been to the 20^{th} . However, its detailed formulation needed to be adjusted over the years in response to external developments.

Sir John Caines KCB

Open this document with Adobe Reader outside the browser and click on the URL to go to the sites below.

Haldane Principle Definitions:

Report of the Machinery of Government Committee, Ministry of Reconstruction, The Viscount Haldane of Clone OM KT (Chairman) www.civilservant.org.uk/library/1918 Haldane Report.pdf

Annex A – The Allocation of Science and Research Funding 2011/12 to 2014/15, BIS Report, December, 2010 <u>www.gov.uk/government/uploads/system/uploads/attachment_data/file/422477/bis-10-1356-allocation-of-science-and-research-funding-2011-2015.pdf</u>

Annex B - The Allocation of Science and Research Funding 2015/2016, BIS Report, May, 2014 www.gov.uk/government/uploads/system/uploads/attachment_data/file/332767/bis-14-750-scienceresearch-funding-allocations-2015-2016-corrected.pdf

Academy of Medical Sciences <u>www.acmedsci.ac.uk</u>

Arts and Humanities Research Council www.ahrc.ac.uk

Biotechnology and Biological Sciences Research Council <u>www.bbsrc.ac.uk</u>

British Academy www.britac.ac.uk

Centre for the History of Science, Technology, and Medicine, Imperial College London Edgerton, David, Time, Money, and History, Isis, Vol. 103, No. 2 (June 2012), pp. 316-327 www.jstor.org/stable/10.1086/666358

Edgerton, David, Video of Royal Society Lecture https://royalsociety.org/events/2009/social-function-history/

Department for Business Innovation and Skills www.gov.uk/government/organisations/department-for-business-innovation-skills

Economic and Social Research Council www.esrc.ac.uk

Engineering and Physical Sciences Research Council <u>www.epsrc.ac.uk</u>

Government Office for Science www.gov.uk/government/organisations/government-office-for-science

House of Commons Science and Technology Select Committee <u>www.parliament.uk/business/committees/committees-a-z/commons-select/science-and-technology-committee/</u>

House of Lords Science and Technology Select Committee www.parliament.uk/hlscience

Innovate UK www.gov.uk/government/organisations/innovate-uk

Medical Research Council <u>www.mrc.ac.uk</u>

Natural Environment Research Council www.nerc.ac.uk

Royal Academy of Engineering <u>www.raeng.org.uk</u>

The Royal Society www.royalsociety.org

The Royal Society of Edinburgh www.royalsoced.org.uk

Science and Technology Facilities Council www.stfc.ac.uk

The Foundation for Science and Technology www.foundation.org.uk

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