The Anatomy of the ‘Brain Drain’ Debate in the UK

1. Background

The term ‘brain drain’ was adopted in the 1960s in the context of concerns within the UK that the country was losing skilled scientific and engineering personnel to other countries, notably the USA. Although the term has since resurfaced in a variety of academic, policy and popular discussions about the international mobility of scientists, there is little scholarly literature analysing the original debate. This is especially surprising, considering that the original debate was widely covered by the British media, generated protracted discussion within Whitehall, and provoked substantial claims and counter-claims from various quarters about both the existence and possible significance of the ‘brain drain’.

The aim of this project has been to provide, for the first time, a relatively detailed historical account and analysis of the ‘brain drain’ debate as a social phenomenon in the UK from the 1950s until the early 1970s. This twelve month project was funded under the ESRC responsive mode, small grants scheme.

2. Original Aims and Objectives

1. To provide a detailed historical analysis of the 1960s ‘brain drain’ debate in the UK based on archival sources and supplemented where possible with oral histories.

2. To provide an account of the role of different groups and institutions involved in the debate – how they viewed the existence and significance of the ‘brain drain’, interpreted policy and influenced decision-making.

3. To compare and contrast the debate as conducted in the privacy of Whitehall with the debate in the public arena.

4. To relate the ‘brain drain’ debate to developments in science, economic and other government policy and to the wider Cold War context.

All the aims have been met and will be discussed in the results section below.
3. Methods

The project used a number of methods to gather data from a range of sources:

3.1 Archival Work

Archival print material formed the core data source for the project. Our initial scoping of this material for the proposal indicated that the ‘brain drain’ debate occurred from the late 1950s until the early 1970s. While this finding was largely borne out by the media coverage, it soon became apparent that the debate had much deeper roots, thus necessitating more archival work than originally anticipated. We successfully gathered National Archives material pertinent to the build-up of the debate from the late 1940s onward.

3.1.1. We consulted UK National Archives material from the following departments: Treasury, Cabinet Office, Prime Ministerial, Economic Affairs, Ministry of Technology, Department of Education & Science, Lord President of the Council, Civil Service Commission, Ministry of Labour and National Service, War Office, Foreign Office, Overseas Development.

3.1.2. We consulted the archives of the Royal Society and found relevant documents, particularly material providing background on their 1963 report, *The Emigration of Scientists*.

3.1.3. A search was undertaken of relevant publications in *Nature, New Scientist, Science, Minerva and Hansard*. Contemporary books discussing the ‘brain drain’ were also located.

3.1.4. We undertook an overview of media coverage of the ‘brain drain’ debate, starting from two points: mass media materials archived by actors with the records described above; and an online keyword search of *The Times*. These data led us to significant dates, themes and voices which were explored in more detail in a range of media materials at the British Newspaper Library, Colindale.
3.2 Oral Histories

We conducted semi-structured qualitative interviews with 28 people: scientists (both ‘brain drainers’ who returned [11] and those still in the USA/Canada [7/5]) and officials [5] (both within Whitehall and those employed on the Hoff Boards that recruited UK scientists back to this country). Officials included the then Minister of State for Higher Education and Science, and a senior civil servant in the Department of Education and Science with responsibilities covering the ‘brain drain’ and scientific manpower policy. Our total is slightly more than our original target of 25 interviews. Most interviews were recorded and transcribed. Four could not be recorded because of technical problems and notes were taken instead.

Although we originally proposed a round of face-to-face interviews over a fortnight period in the USA, this was changed to telephone interviewing for the following reasons. We originally aimed to recruit our ‘brain-drainers’ through personal contacts and lists of attendees at international conferences (see proposal) but this soon proved difficult and time-consuming, with only a small number of ‘brain-drainers’ recruited for interview. Instead, we wrote a short letter soliciting interviewees and published it for free in two professional journals: Chemistry World and The Biologist. The response was extremely good, identifying potential interviewees from the UK and abroad. Although we would like to have gained a better spread across scientific disciplines, a statistically representative sample would not necessarily have been appropriate for this type of qualitative research.

While this recruitment method meant that a larger than anticipated number of respondents were male chemists or chemical engineers there were unanticipated advantages. First, using telephone interviewing, we were able to interview permanent emigrants with greater geographical dispersal than we had originally planned for. Secondly, we had initially assumed that the ‘brain drain’ debate was largely a UK-US debate and our original purposive sampling would have proceeded accordingly. Surprisingly, a number of people responded who self-identified as ‘brain-drainers’
and had migrated to other countries, notably Canada. Introducing actors’ own definitions into our sampling therefore challenged our own assumptions about the nature of the ‘brain drain’ debate (see Section 4.2.1.4). Thirdly, a number of people who contacted us (both those interviewed and those who were not) provided additional correspondence concerning their recollections of the ‘brain drain’ debate. This material provided a valuable additional and unanticipated, albeit unstructured, source of qualitative data. Finally, although the telephone interviews tended to be shorter than our face-to-face interviews, we consider that the quality of the information gained was not significantly compromised. The interviewees had actively volunteered, often quite enthusiastically, to be interviewed by responding to our adverts, which meant that establishing rapport over the telephone was made easier. This enabled us to cover the key points in our interview schedule in succinct detail.

3.3 Witness Seminar

A half-day witness seminar was held at UCL on May 23rd 2006 at which four panellists and a small audience (16), which included at least two ‘brain-drainers’, were invited to discuss the ‘brain drain’. The witness seminar was recorded and transcribed. The panel members were:

Professor Ron Bullough, FRS (AERE Harwell / UK-US Recruitment Boards)
Sir Alcon Copisarow (Scientific Civil Service)
Sir John Maddox (Science journalist and former Editor, Nature)
Professor Mike Hayns (AERE Harwell and former ‘brain-drainer’)

4. Results

4.1. The main ‘result’ from this research project is a historical narrative of the ‘brain drain’ debate. A full account will appear in publications rather than in this summary report. Readers are referred to the attached Witness Seminar briefing paper and

1 Other journals were approached but would not allow a letter to be published and charged a prohibitive amount for an advertisement.
chronology for an overview. Here, we outline some of the analytical points arising from the project and organised around the aims and objectives set out in Section 2.

4.2 Results in Relation to Aims and Objectives

4.2.1. To provide a detailed historical analysis of the 1960s ‘brain drain’ debate in the UK based on archival sources and supplemented where possible with oral histories.

4.2.1.1 The ‘Brain Drain’ Debate Had a Slow Build-Up

Although the term ‘brain drain’ was novel in the press in the early 1960s (see below), we found that the debate had a long build-up stemming from the late 1940s with the creation of the Advisory Council on Science Policy (ACSP) and the identification of scientific manpower as a key national issue.\(^2\) The UK is widely considered the first country to try systematically to quantify and predict scientific manpower needs. We traced this effort, beginning in 1950 with the creation of the Manpower Subcommittee of the ACSP, commonly referred to as the Zuckerman committee after its chairman, Solly Zuckerman. In this context of concern over scientific manpower, as early as 1952 the ACSP noticed early signs of apparently increased emigration. However, the processes employed to calculate manpower needs were crude and largely dismissed by the early 1960s when two annual reports on manpower produced widely varying predictions, one of too few scientists, the other of too many. A similar situation arose when trying to measure and predict emigration.

4.2.1.2. A Key Issue was How to Measure Whether or Not there was a ‘Brain Drain’

It soon became apparent to officials that statistics with which to monitor the situation were inadequate - whilst originally emigration had been monitored, the system was scrapped in 1964 under pressure from the growing airlines which objected to the form-filling which they said irritated passengers. Statistics that did exist were based on small samples and were known to be unreliable. Significantly, the exercise also failed to take accurate account of immigration into the UK. It was realised from early
in the 1950s that there was immigration of scientific manpower, however this appears to have been significantly understated. Again, in dealing with immigration there were no reliable statistics on scientific manpower and it was not until the late 1960s that attention was given to the balancing effect of immigration on the ‘brain drain’.

This change occurred in the context of growing realisation that a ‘brain drain’ might particularly affect developing countries. As one official observed, referring not only to scientists, ‘it would be as inconvenient for us to renounce the employment of our immigrants from the Commonwealth, as for the United States to renounce our emigrants. For one thing, the National Health Service would collapse’. For this reason Government officials were not in favour of some suggestions that Britain act unilaterally to institute controls to restrict international scientific migration from developing countries. Such controls were only considered acceptable if employed by all countries, particularly the USA.

In the broader Cold War context, however, this situation presented a problem. Some officials believed that departure of the best educated people from developing countries meant that these countries were impoverished. One official noted that skilled migration made it very hard for these countries to build up a body of qualified people and remarked that ‘fields will be left uncultivated in India because America must put a man on the moon’. This situation potentially could provoke considerable bad feeling towards the West in the developing world and, it was thought, opened these countries up to possible Soviet influence and Communist revolution. Indeed, the ‘brain drain’ from developing countries to the USA was frequently brought up by the Soviet Union at the United Nations.

In sum, the ‘brain drain’ debate marked the end of ‘the old liberal concepts about free movement of talent [which] were conceived in an entirely different era when movement was a great deal slower and on far smaller a scale.’ It was thus widely

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2 We recognise that ‘scientific manpower’ is a gendered term but use it in this report to avoid anachronism.
4 TNA/PRO EW 24/128: Dell to Secretary of State (Economic Affairs), 13/11/67.
5 TNA/PRO EW 24/128: Dell to Secretary of State (Economic Affairs), 13/11/67.
accepted by the 1960s that there was now an international market of manpower which could travel wherever it chose with ease.

4.2.1.3. *There Were Only Modest Efforts to Stem the ‘Brain Drain’*

The British Government therefore realised that in fact even if they had accurate statistics, there was in any case little the Government could do to intervene in controlling the ‘brain drain’. The only significant move the Government made was the institution of the Hoff recruitment boards to try and facilitate the return to Britain of British scientists working in North America. Although small-scale and concentrating only on public sector bodies, the Hoff boards marked a significant intervention on the part of the Government. An attempt was made to extend this type of scheme in the mid-1960s by contracting a private recruitment company to target industrial scientists, but officials judged it largely unsuccessful.

Where the government did make gestures this was largely dictated by political expediency – the ‘brain drain’ often surfaced as a topic of debate between the Conservative and Labour parties during the 1964 general election, each addressing the issue in the context of their wider science policies. The Labour party in particular capitalised on popular concern, notably calling for a Royal Commission on the Brain Drain in the long build up to the 1964 general election. The ‘brain drain’ was specifically mentioned in Wilson's famous ‘white heat’ speech. The ‘brain drain’ also proved emotive in terms of nationalism - a particular example was the purported recruitment of scientists from Dounreay by the American company Westinghouse. Dounreay was then a showcase facility in developing new reactors. The press reported on the Ministers’ ‘pleading’ of the scientists to remain in Britain and demands to call in the American ambassador. The incident had caused considerable debate in Parliament, but in fact it transpired that the mass emigration from Dounreay was actually rather slight, but had been amplified by media attention.

4.2.1.4. *The ‘Brain Drain’ also Included an Element of ‘Brain Circulation’*

Oral histories of British scientists still in North America show how the standard of living and salaries were these scientists’ main reasons for staying. Those who returned
to the UK commented in interviews on how they were initially attracted to North America because to spend time there was considered a necessary part of an academic career. Despite in all cases having the opportunity to stay permanently, those respondents who returned to the UK say they did so because they only ever intended to spend a few years abroad. Family ties to the UK were also a notable influence on those who returned. In the language of contemporary debate about skilled migration, these returners were part of a ‘brain circulation’.

The impression drawn from oral histories is that these ‘brain-drainers’ believed that a majority of emigrés returned to the UK, generally after a post-doctoral position. The exact numbers involved are difficult to determine (as they were at the time of the debate). Our interviewees also suggested that many more emigrés have subsequently returned in retirement. Our interviews and witness seminar also revealed that while the original ‘brain drain’ debate was regarded by the media and Government as a largely UK-US phenomenon, migrants to other countries, notably Canada and Germany, considered themselves a part of the ‘brain drain’.

4.2.2. To provide an account of the role of different groups and institutions involved in the debate – how they viewed the existence and significance of the ‘brain drain’, interpreted policy and influenced decision-making.

The Royal Society’s 1963 report into the ‘brain drain’ came significantly at a time when the Royal Society was suffering poor relations with the Government. In the early 1960s several representations were made by senior figures in the Society to the Minister for Science (Lord Hailsham) that he and his department repeatedly ignored the Royal Society and did not use its expertise as much as it should. The Royal Society’s report, while subject to some degree of criticism, was highly significant for framing the debate as a significant policy problem, and it cast a long shadow: its influence continuing to be seen in the eventual Government report of 1967.

As discussed above, both Conservative and Labour parties treated the ‘brain drain’ similarly as a real problem throughout most of the 1960s. With the Royal Society report and increasing media coverage, the problem developed a more public profile under Labour and they arguably took it more seriously, for example by holding a
government enquiry. Willingness to take action was possibly influenced by Labour politicians being generally less pro-US than the Conservatives, as evidenced in the case of the Dounreay scientists (discussed above) when Labour’s Tony Benn was openly very critical of the USA. Despite some willingness to examine the potential problem, generally there was not much Government did to intervene, except through the Hoff Boards, and funding a few extra fellowships and Royal Society professorships.

Civil servants and scientific advisers within Whitehall had, as mentioned, been aware of scientific migration as a potential problem since at least the early 1950s. Prior to and throughout the ‘brain drain’ debate much of their energies was focussed on compiling statistics which would lend or take credence from the claims about the reality of the phenomenon. Towards the end of the 1960s officials within Whitehall began to cast doubt on the severity of the ‘brain drain’. Although not disputing the existence of the ‘brain drain’, Zuckerman had begun to question the statistics used in the Government’s 1967 ‘Brain Drain’ report. He instigated several small-scale surveys, one, for example, with the head of the Cambridge University Engineering department, which all suggested that the problem was not so severe. Indeed, in 1971 statistical studies by the Government began to reveal that the ‘brain drain’, despite having occasional peaks, had not been so severe as previously thought.

The term ‘brain drain’ was itself a media product. Although frequently associated with Lord Hailsham, it was actually first used by a journalist on the Evening Standard, a popular London newspaper, on the occasion of the publication of the 1963 Royal Society report. Snappy, memorable and assonant, the term became a journalistic signifier that cast a clearly negative slant on many aspects of scientific migration, and issues in science policy more widely. A keyword search for the term using Times online reveals a sudden peak in 1963, and subsequent fluctuations around key events (such as further reports and parliamentary debates), which referred specifically to the loss of scientific manpower to the USA. However, searches for the issue of scientific migration before the invention of the term ‘brain drain’ show less coverage but a much older discussion, dating back to the 1940s. During the 1960s, the ‘brain drain’ appears to have gained popular currency, and to refer to a skilled workforce beyond science; and a verb appeared to go with the noun: for example,
personal advertisements were placed by job-seekers threatening “to brain drain”, or offering houses for sale because the owners were “brain draining”. Towards the 1970s, the ‘brain drain’ meant any loss of skilled workers from any country; in the early 1970s, this was in particular the loss of Jewish scientists from the Soviet Union.

Media coverage of science in the UK press was at its highest levels since the war during the mid-1960s - science was news. The ‘brain drain’ was news in this context, and particularly since the tone of science reporting was shifting from celebratory to critical during the period studied in this project, and taking on a strong political angle. A new mood in science journalism, of critique and campaigning, allowed the story to build momentum. The opportunity for personalisation, as individual scientists invoked the ‘brain drain’ in their campaigns for better conditions in the UK, spread the story beyond the policy discussion in the drier official papers. Although we have yet to analyse the full range of coverage in detail, the general tone appears consistent across papers and the political spectrum: Britain must improve conditions for its scientists here, or risk decline and vulnerability on the world stage.

Our research indicates that within industry there were disparate views on the severity of the ‘brain drain’. Government officials regarded industrial views as inconsistent, with Zuckerman even complaining that if you want to know what industry needs, don't ask industry as they have no idea. Industrial representatives often called for release to industry of personnel from government research establishments where they thought the best people often worked, and they also criticised universities for retaining the best personnel. They also considered the status of industry compared to academia as a general problem. This argument was mirrored within Government, with officials commenting that engineering held less status than pure science.

Our interviews, witness seminar and printed sources suggest that among academics a common view was that US academic life was superior: salaries were far higher and conditions better; US academia was less formal and scientists had higher status; in the USA scientists were thought to be more autonomous with less dominance by their head of department. This said, our sources were not univocal, for example one witness seminar panel member pointed out that it was a myth that there were numerous top
jobs available in the USA at this time. Furthermore, individual scientists, such as Fred Hoyle, used the threat of joining the ‘brain drain’ as leverage to try and better their conditions in UK academia, where they intended to remain.

4.2.3. To compare and contrast the debate as conducted in the privacy of Whitehall with the debate in the public arena.

Our interviews with the Minister of State and a senior civil servant support the archival sources insofar as the debate was generally considered of far lower priority within Whitehall than outside. The debate in Whitehall tended to focus on the difficulties of attempts to measure migration, and therefore concentrated on aggregates rather than individual talented scientists. As the debate continued throughout the 1960s, the focus on academia and scientists also changed with engineers, doctors and all skilled labour falling within the ambit of Whitehall discussions at various times. Discussion in Whitehall was also marked by a growing realisation that little could be done by government to control the situation, and also that the ‘brain drain’ was just one of a number of issues then arising within the relatively new distinctive field of science policy.

Records also show that the Whitehall agenda was in large part driven by having to react to media coverage in the 1960s. The early press coverage focussed more on personalities, such as Hoyle, Bush (a senior MRC physiologist), and Pople (director of the National Physical Laboratory). Media coverage was also often anti-American in tone, criticising the USA for stealing British talent. That said, within Whitehall some officials were equally derisory about the USA, for example one civil servant stated: ‘This is the first age in which a large and affluent country has deliberately set about robbing the rest of world of the best of its qualified manpower’.6

4.2.4. To relate the ‘brain drain’ debate to developments in science, economic and other government policy and to the wider Cold War context.

Our research locates the ‘brain drain’ debate within wider UK manpower policy. While the original public and media debate was largely a 1960s phenomenon, as
discussed, the build-up to this debate can be traced back to at least the late 1940s. Additionally, Whitehall’s focus on the ‘brain drain’ of scientists was relatively short-lived, as consideration of the ‘brain drain’ expanded in mid-1960s to include other skilled professions.

Concerns about the ‘brain drain’ paralleled great efforts in the UK to increase scientific manpower in the post-war period, with significant consequences for higher education policy. The development of new universities in the 1960s can be traced back to planning in the 1950s to develop new universities principally for the purpose of increasing scientific manpower. Significantly the post of Minister for Science was combined by the Conservative Government with the Higher Education portfolio in 1963, thus creating a Minister for Higher Education and Science.

The ‘brain drain’ debate was undoubtedly bound up with broader concerns about national decline, which crystallised after publication of the widely publicised book ‘The Stagnant Society’. We found that the links made by historical actors between migration and general decline were frequently indirect, for example at the witness seminar panellists generally denied any link between declinism and the ‘brain drain’. This position was challenged by two ‘brain drainers’ in the audience, while later in discussion one panel member opined that ‘brain drain’ became a cipher for journalists to write about something more concrete and newsworthy than a nebulous sense of malaise.

Within the broad Cold War context, our sources point to some concerns about immigration from developing countries and the effects upon those countries (see 4.2.1.2. above). Also, with respect to the end of the original debate, a late 1960s OECD report stated that the UK had too many scientists for absorption into the economy. A further significant development was the institution of new immigration laws by the American government in July 1968. This had the effect of reducing British and wider European immigration into the USA (although served to exacerbate the flow from developing countries). Other factors which appear to have influenced the end of the ‘brain drain’ debate were the Vietnam war and its effect on US campus

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6 TNA/PRO EW 24/128: Dell to Secretary of State (Economic Affairs), 13/11/67.
life, and according to several interviewees, the decline of the US Space Programme. Although the Apollo programme continued into the 1970s, the early R&D work was wound down from the late 1960s. There had been particular concern in the UK about the pull effect of the Space Programme in America, and so the winding down can be seen a significant marker in the decline of the ‘brain drain’ debate.

5. Activities

5.1. Witness seminar
Witness seminars combine data gathering with research dissemination. Our panellists were provided with a briefing paper based on our research (attached), and a small audience (16) attended including other academics, ‘brain-drainers’ and representatives from potential ‘user’ organisations (such as the Royal Society and British Library).

The briefing paper was also sent to interviewees, together with a copy (where available) of their individual interview transcripts.

5.2. Presentations
We are scheduled to give a paper on this project in the UCL Science & Technology Studies Department seminar series for 2006-7.

Annual conferences at which we plan to present in 2007-8 include: British Society for History of Science, European Association for the Social Study of Science & Technology (EASST), Society for the Social Study of Science (4S). We also plan to submit a paper to the next Annual Anglo-American conference at the Institute of Historical Research (IHR), University of London, the theme of the conference is highly relevant to our research as it will be ‘Identities: National, Regional and Personal’. We have also contacted the organisers of the Contemporary British History seminar series at the IHR to discuss presenting in their seminar series.

5.3. Media
A short piece ‘Did the Brain Drain Exist?’ describing the project appeared in ESRC’s The Edge magazine (Issue 21, March 2006, p28).

5.4. **Collaboration**

The project promoted collaboration with Professor Dorothy Zinberg, John F. Kennedy School of Government, Harvard University. Professor Zinberg has carried out extensive research on the training and employment of foreign scientists and engineers internationally, and we have started to plan a collaborative project re-visiting research on scientific labour policy that Professor Zinberg undertook in the UK in the 1960s.

6. **Outputs**

6.1 **Web-site**

The project has a dedicated web-site describing the project and associated activities ([http://www.ucl.ac.uk/sts/balmer/balmer-braindrain.htm](http://www.ucl.ac.uk/sts/balmer/balmer-braindrain.htm))

6.2. **Datasets**

1. Interview transcripts – oral histories;
2. Witness seminar transcript;
3. Miscellaneous correspondence detailing recollections of people contacted during and after interview recruitment.
4. Copies of archival source material, together with datasets 1-3, now form a ‘brain drain’ information bank located at the Department of Science & Technology Studies, UCL;

6.3 **Publication Plans**

6.3.1. We plan to publish the witness seminar briefing paper and an edited version of the seminar transcript in the *British Journal of Contemporary History* and have received an expression of interest from one of the journal editors.

6.3.2. We are preparing an article providing an overview of the ‘brain drain’ for a special edition of the *British Journal for History of Science* on the 1960s, guest edited by Dr Jon Agar (Harvard University).
6.3.3. During 2006-7 we will be preparing publications to be submitted to a number of academic journals, including: *Minerva* (which carried analyses of the debate in the 1960s), *Science, Technology & Human Values* (which has published articles on the history of quantifying aspects of national science), *Notes and Records of the Royal Society* (as the Society was centrally involved in the original debate). In the longer term, we have identified *Twentieth Century British History* and *Historical Research* as journals suitable for publishing our research.

6.4. *Other Outputs*

6.4.1. The editor of *Research Fortnight* has invited us to write a short (750 word) overview of the project.


6.4.3. The Research Fellow employed on the project, Dr Matthew Godwin, has proceeded to a 3 year Leverhulme Trust funded research project on the history of Operations Research in the Cold War.

7. *Impacts*

The primary impact of this work will be a greater understanding and scholarly interpretation of the original ‘brain drain’ phenomenon, contributing to our knowledge about science during the Cold War. With regard to current academic and non-academic debates about the ‘brain drain’, a historical perspective shows how concepts which have recently gained currency – in particular the notion of ‘brain circulation’ – are not new phenomena. By providing a detailed historical account of the original debate, our work also underlines the importance of taking account of the heterogeneous nature of any putative ‘brain drain’. Our account highlights how ‘brain drain’ was interpreted differently at different times (e.g. individual talent vs mass migration; loss of scientists or engineers or all skilled personnel; recent panic vs slow build-up) and how the issue of how to quantify, and therefore ‘visualise’, the ‘brain drain’ persisted throughout the debate. The research has already attracted interest from a number of potential ‘users’ (some who attended the ‘witness seminar’ or wanted to come but were unable).
8. Future Research

With further time and resources we could have pursued industrial archives, e.g. Unilever, and also personal papers e.g. Solly Zuckerman, Gordon Sutherland. The enthusiastic response to our adverts for respondents suggests that a larger-scale survey or continued series of qualitative oral histories would be feasible if resources were available to pay for advertising in high profile journals such as Nature or Science.