UK Data Archive

Study Number 6099

'Brain Drain' Debate in the United Kingdom, c.1950-1970

USER GUIDE

ACTIVITIES AND ACHIEVEMENTS QUESTIONNAIRE

1. Non-Technical Summary

A 1000 word (maximum) summary of the main research results, in non-technical language, should be provided below. The summary might be used by ESRC to publicise the research. It should cover the aims and objectives of the project, main research results and significant academic achievements, dissemination activities and potential or actual impacts on policy and practice.

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 to 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 a notable absence of scholarly literature analysing the original debate.

The principal aim of this project was 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 to the early 1970s. A number of more specific aims and objectives underpinned this principal aim:

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.

The main source of data for the project was printed archival material, including government documents and media coverage pertaining to the 'brain drain'. This was supplemented by oral histories and a 'witness seminar' where four panellists familiar with the original 'brain drain' debate discussed their recollections before a small invited audience.

The main achievement of this project has been to assemble a historical narrative of the 'brain drain' debate. This traces the debate back to its roots in the late 1940s, through the adoption of the term 'brain drain' and subsequent debate in the 1960s, and to the close of the original debate in the early 1970s. Our findings show that, although the term 'brain drain' was novel in the press in the early 1960s, the 'brain drain' debate had a long build-up stemming from the 1940s. A key point of contention throughout the course of the debate was how to measure whether or not there was a 'brain drain'. For instance, it

was realised from early on in the 1950s that there was immigration of scientific personnel but in dealing with immigration there were no reliable statistics for science and it was not until the late 1960s that proper emphasis was given to the balancing effect of immigration on the 'brain drain'. Additionally, we found that the British Government eventually realised that even if they had accurate statistics, there was little they could do to intervene in controlling the 'brain drain'. Attempts to stem any 'brain drain' therefore were modest.

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'.

Our interviews and archival sources indicated that 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. The early press coverage, in contrast, focussed more on the emigration, actual or threatened, of high-profile scientific personalities. 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.

With respect to the end of the original debate, a 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 US (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 life, and according to several interviewees, the decline of the US Space Programme.

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 relatively 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.

RES-000-22-1375- The Anatomy of the 'Brain Drain' Debate in the UK

This study, conducted at University College London, provides a historical analysis of the debate surrounding the ‘brain drain’ in the UK- a post 1945 phenomenon wherein scientific and engineering personnel move overseas to further their careers. It shows that brain drain has been interpreted differently at different times and by different institutions.

Key Findings

Measuring the brain drain debate

- The brain drain debate had a long build up, stemming from the late 1940s, though the actual term ‘brain drain’ was not adopted until the 1960s, a time when the press became more widely interested in the phenomenon. The press interest followed conflicting government reports on scientific manpower over the late 1950s and early 1960s, but was particularly motivated by the publication of a Royal Society report on scientific migration which was instrumental in highlighting the issue.

- A key point of contention throughout the debate was how to measure whether or not there was a brain drain. While the emigration of scientific personnel certainly occurred earlier than 1960, the statistical evidence recorded was inadequate.

- What attempts there were to monitor the brain drain failed to take account of immigration into the UK. It was realised in the 1950s that there was immigration of scientists, but this was significantly understated. It was not until the late 1960s that the balancing effect of immigration was accurately noted.

Efforts to stem the brain drain

- The British government felt that there was little that could be done to stop scientists from emigrating and their attempts to stem the brain drain were modest.

- Research suggests that the brain drain debate was considered far less important within government than in industry and academia.

- The debate in Whitehall focussed on the difficulties in measuring migration and referred to aggregates rather than to individual talented scientists, whilst early press coverage focussed on the emigration of high profile scientific personalities.

Brain drainers overseas and returning

- The majority of brain drainers interviewed in the study went to North America, and they cited standard of living and salaries as the main reasons for leaving the UK. These were also the main reasons given for staying overseas.

- Those interviewed who returned to the UK said that they initially left the UK because they viewed time in North America as a necessary part of an academic career. Despite all these returnees having the opportunity to stay indefinitely, all said that they returned because they had only ever intended to spend a few years in North America.

The end of the brain drain debate

- While the institution of new immigration laws by the American government in July 1968 exacerbated the flow of scientific personnel from developing countries, it reduced British and wider European immigration into the US. This, alongside the Vietnam War, its effect on US campus life and the decline in research spending (particularly in connection with the US Space Programme) brought about the end of the brain drain debate.

About the Study

Research was led by Dr Brian Balmer, Dr Jane Gregory and Dr Matthew Godwin in the Department of Science and Technology Studies, University College London. Research methods included archival work, media analysis and semi-structured interviews with scientists.

Key Words

Brain drain, migration, Science, engineering, cold-war.

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*.[1] 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 Sub-committee 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'.[3] 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'.[4] 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.'[5] 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.
[3] The National Archives/Public Record Office [henceforward TNA/PRO] EW 24/128: Kirkness to Hudson, 20/09/67.
[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'[7]. 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

[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).

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[7] M. Shanks, *The Stagnant Society* (Harmondsworth: Penguin, 1961)

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)

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.

6.4.2. A report of the witness seminar appeared on the main UCL web-site on 16 May 2006 (http://www.ucl.ac.uk/news/news-articles/06051605)

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.*

The Anatomy of the 'Brain Drain' Debate in the UK
Research Proposal

Introduction

The term 'brain drain' was adopted in the 1960s in the context of increasing concerns within the UK that the country was losing skilled scientific and engineering personnel to other countries, notably to the US. Although the term has since resurfaced in a variety of academic, policy and popular discussions about the international mobility of scientists (e.g. ESRC 2004, Johnson and Regets 1998, Highfield 2004), there is a notable absence of 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 putative 'brain drain'.

The aim of this research is to provide, for the first time, a detailed historical analysis of the 'brain drain' debate as a social phenomenon in the UK during the 1950s and 1960s. It will draw primarily on recently declassified documents in the National Archive (Public Record Office) and print media coverage archived in the British Library Newspaper Library. These sources will be supplemented by other relevant archival material and oral histories.

Background

Although the scientific community frequently professes to be global and therefore indifferent to national boundaries, historians and sociologists of science have observed how science and technology are often regarded as important national resources (e.g. Pestre 1997, Kevles 1971). Since the end of the Second World War, science and technology have continually been invoked in government policies as essential to the economic, social and military well-being of nations (Elzinga and Jamison 1995, Gibbons and Wittrock 1985). Equally important in the Cold War context, science has been regarded as an important symbol of national prestige, with the ability of a nation to fund 'big' science or participate in international collaborative projects becoming surrogate flag-waving exercises (e.g. Agar 2003, Elzinga 1991,

Abraham 1998, Galison and Hevly 1992). In Europe, expensive scientific collaboration has frequently been justified as a means of keeping apace with the United States (Krige 1997, Gregory 2005). While levels and types of scientific activity can matter to a sense of national identity, an emerging geography of knowledge has demonstrated how regional differences may affect the constitution and acceptance of scientific knowledge (e.g. Livingstone 2003, Shapin 1998, Agar and Smith 1998). Such findings reinforce the notion that the implications of scientific migration are more far-reaching than being merely 'the same science, just done somewhere else' (see also Hoch 1987).

Historical Context

Set against a broad backdrop of 'declinism', and the particular significance of science and technology for proponents of the 'declinist' mood in the 1960s, one can see how an analysis of the 'brain drain' debate may further illuminate the more general themes of science and national status discussed above. Heightened by the Suez debacle in 1956 anxiety that Britain had declined into 'a stagnant society' became increasingly widespread in the post-war period, but reached a much higher level of public awareness in the 1960s (Jefferys 1997). A contemporary article in *The Economist* remarked '…friends abroad…say that Britain is badly governed, badly managed, badly educated and badly behaved – and the striking thing is that more Britons are saying the same, more stridently still' (1963, cited in Jefferys 1997, p110-11). Britain's decline was perceived to be economic - Britain was failing in comparison to its competitors. The reasons given for this downward spiral were often centred on the assertion that there had been inadequate investment in science and technology, as well as improper industrial management. As Edgerton has shown the key proponents of such arguments relating to science and technology are typically inaccurate (Edgerton 1996),[1] but it is against this backdrop of declinist rhetoric that the 'brain drain' debate was played out.

[1] Typical arguments put forward usually equate relative economic decline with failure, and the role of science and technology in this process is often misrepresented, i.e. that there was a failure to invest properly in science and technology.

The 'Brain Drain' Debate

An intergovernmental programme of visits by UK-trained scientists to the USA began shortly after the end of WWII to allow British scientists to catch up with the latest ideas and technology, and bring their new knowledge back to Britain. However, the Government's Advisory Council on Scientific Policy (ACSP) noted that by 1956, 40% of the postgraduate students who had taken up fellowships in the USA had never returned to Britain (see Crowther 1967). Not only that, but of British graduates, 6% of chemists, 10% of physicists and 8% of engineers were taking up posts in the USA. After Sputnik, the USA created many new jobs in the sciences, and with much better salaries than in Britain, thus creating plenty of rewarding opportunities for visiting British scientists, at any stage of their career. By the end of the 1950s, scientists in Britain were protesting about meagre funds and complex funding machinery in the UK, as compared to their colleagues in the USA, and some were using threats to emigrate to put pressure on the government.[2]

Through the early 1960s, heavy demands on limited funding served to focus scientists' dissatisfaction with working conditions in the UK. In February 1963, the Royal Society issued a provocative report entitled the *Emigration of Scientists from the United Kingdom* (Royal Society, 1963). The report highlighted the migration of scientists from the UK, claiming that, of the total science and engineering PhDs awarded in the UK each year, around 12% were being lost abroad, with 7% migrating permanently to the US. The stark conclusion of the Royal Society committee was that, in addition to the amount it had cost to educate these migrants, "we regard as much more serious the economic consequences of the loss to this country of the leadership and the creative contributions to science and technology which they would have made in their working lives".

Although it is presently unclear why the Royal Society report had a greater impact than the ACSP reports, it was followed within the month by a House of Lords debate,

[2] See, for example, *The Times*, 3 August 1960, Research into space: how much should Britain spend?, letter from Fred Hoyle; *Economist*, 6 August 1960, Space research: a question of proportion; *The Times*, 10 August 1960, Research into space: part Britain must play, letter from G.B.B.M. Sutherland; *The Times*, 12 August 1960, Space research, letter from Fred Hoyle; *The Times*, 11 August 1960, Space research, letter from Austen Albu.

in which Lord Hailsham introduced the notion of the 'brain drain'.[3] The term stuck, and throughout the 1960s a vigorous public and private debate took place over the existence and possible significance of the 'brain drain'. Various Government committees were formed specifically to discuss the 'brain drain', and continued to meet until the early 1970s.

This debate was given extra point, at a time when science was more prominent than ever before in the mass media (Gregory and Miller, 1998), when well-known scientists were involved: for example, the astronomer Fred Hoyle repeatedly invoked the brain drain, and threatened to emigrate, as part of a fund-raising effort in the mid-1960s. In 1964, Hoyle went so far as to tell the Department of Scientific and Industrial Research (DSIR) that astronomers were contemplating moving en masse to the USA. This campaign by Hoyle over several years brought about a major volte-face in Hoyle's favour from the DSIR, and not only did the government admit privately that keeping Hoyle in the UK was their main motivation, but they were also well aware that they had been manipulated, and prepared other stories about their funding decisions for public consumption (Gregory 2005). The press however was quite clear: *The Times* reported, on this occasion, that 'any danger that Professor Hoyle would be lost to America is thus averted.'[4] How typical this episode was would be a matter for investigation.

Towards the end of the 1960s and into the early 1970s various governmental reports argued that there was no real problem, and that emigration was a normal process. It appears (although this may be challenged on closer examination of the documents in the National Archive) that such pronouncements marked the close of the debate. The main focus of our research will be the 1960s, but the cut-off point for our research would therefore be the early 1970s.

Research Questions

There is little known about the formulation and implementation of policy around the 'brain drain' in the 1960s, and equally little about the dynamics of the debate within

[3] *Hansard*, 27 February 1963, pp.86-109.

the scientific and engineering community and print media. Drawing primarily on a wealth of government documents that have been declassified in the past decade, on archival print media sources and on oral histories, this research will provide a detailed account of the development of the 'brain drain' debate in the UK during this period. The work will focus on the following questions:

1. **How did the UK debate on the 'brain drain' develop during the 1950s, 1960s and early 1970s?**
   How and why were policy decisions taken? How did the dynamics of the debate change over time? How and why did perceptions of the reality and significance of the 'brain drain' change over time? What chief concerns, such as economic decline or national prestige, shaped the course of the debate? How was the term 'brain drain' deployed in, for example, appeals for resources?
2. **What roles did different groups and individuals involved in the 'brain drain' debate play?**
   How did different groups - politicians, civil servants, scientists and engineers, journalists – view the migration of scientists and engineers, interpret policy and influence the decision-making process? What roles did different individuals, committees and scientific organisations, such as the Royal Society, play in the debate?
3. **What were the key similarities and differences between the 'private' debate within Whitehall and the 'public' debate in the media?**
   How typical was the case cited above of Hoyle, where concerns were expressed differently in private and public by the Government?
4. **How did the UK 'brain drain' debate relate to wider developments in science, economic and other government policy?**
   What was the broader significance of the 'brain drain' debate for questions of national status and identity? What were the implications of the debate for perceptions about the role of scientists and engineers in society? How was the debate positioned within the broader rhetoric of declinism? This question will

[4] *The Times*, 6 June 1966, Prof Hoyle heads new institute.

also relate developments to the international dimension and the broader Cold War context.

We are less concerned in this proposed research with establishing the reality or otherwise of the 'brain drain'. Scientists and engineers did migrate in substantial numbers during this period, as evidenced by the statistics quoted earlier. We will not avoid the question of whether or not there was a significant 'brain drain' but, in line with other constructivist approaches in history of science (Golinski 1998), we are primarily concerned with how and why different actors variously interpreted the robustness and wider significance of the evidence pointing to a 'brain drain' from the UK, and its possible consequences for the quality of British science and engineering.

Sources and Methods

The two main sources of archival information for this research will be:

(1) Recently declassified material held at the National Archive, Kew (formerly the Public Record Office). A large but manageable number of departmental records are available on the 'brain drain'. The most extensive are: the records of the various Cabinet Office committees convened to discuss the 'brain drain', Treasury documents on measures to encourage scientists to remain in the UK, and Department of Scientific and Industrial Research/Science Research Council minutes.
(2) The British Library Newspaper Library, Colindale. This will provide access to the extensive coverage of the 'brain drain' debate in national print media.

Additional material will be consulted at relevant archives to be identified during the first month of the study, such as the Royal Society archives, London (where the seminal report on the 'brain drain' originated and where a number of scientists involved in the 'brain drain' debate were Fellows).

While the documentation now in the public domain can provide details of policy development and media coverage, oral histories offer the possibility of further insights into the meanings that actors associated with events (Ritchie 1995). This research

will locate and conduct qualitative unstandardised interviews (May 1997) with (a) a purposive sample of individuals who were directly involved in the 'brain drain' discussions and decision-making and (b) a sample of approximately 20 scientists and engineers who migrated during this period.

Unstandardised interviews provide space for interviewees to 'talk about the subject in terms of their own frames of reference' (May 1997, p112). The aim of the interviews with the purposive sample will be to obtain specific information about their own involvement and perceptions of the debate. These people would already have been fairly senior at the time of the debate, and we therefore anticipate being able to locate and interview only a small number (c.5). The second set of qualitative interviews aims to gather insights into the experiences and motivations of scientists who did migrate, and to understand their own views of the significance of the debate in the UK. Although it is not the aim of qualitative research to produce statistical generalisation, some stratification of the sample is intended to strengthen the data. Male and female scientists will be selected from the life science, physical science and engineering disciplines; we anticipate that approximately half the sample will still be resident in the United States. Because many of the researchers we could contact in the US are still employed by universities, we intend to identify potential interviewees who are attending major academic conferences taking place in the UK during the period of our research. This method has already used by one applicant [JG] in fieldwork for her current book, some of the scientists contacted for this project were also involved in the 'brain drain'. Alternatively, we intend to use UCL's video-conferencing facilities, thus reducing the need for, and cost of, repeat visits to the US to carry out fieldwork. These scientists are reaching the end of their career and may not be available for interview in the future, thus underlining the timeliness of our proposed research.

An equally fruitful and more efficient method for gathering first-hand accounts will be through a 'witness seminar', as pioneered by the Centre for Contemporary British History.[5] Here, a mixed group of academics, practitioners and 'witnesses' are presented with the preliminary findings of historical research and invited to offer their

perspectives. The meeting is usually recorded and transcribed. The seminar thus provides a dual function as both a source of data and a way of disseminating research findings to a diverse audience. Two of the researchers (BB / MG) have experience of presenting at or organising such events and we propose to organise a similar event for this research into the 'brain drain'. We propose that a small number (maximum 10) of witnesses are invited to the seminar, with a total of about 40 participants. In terms of practicability, there is evidence that a reasonable number of 'brain drain' scientists returned to the UK (Budworth 1981).

We also propose a half-day dissemination seminar (see dissemination plans), in consultation with UCL's Migration Research Unit. The meeting will involve a presentation of findings and open discussion. During the meeting we will explore the relevance of the historical findings to contemporary debate about scientific migration. For example, whether and how issues central to modern debates, such as the extent of in-migration and the degree of international networking generated (e.g. Ackers 2004, Straubhaar 2000, Koser and Salt 1997), featured in the historical debate.

Expertise

Brian Balmer has expertise on the contemporary and historical development and formulation of UK science policy, particularly in relation to the funding of research and policy issues in the life sciences. His most recent project has been a history of biological warfare policy in the UK from 1935-65, which focussed on the role of expert advisors. He has wide experience of conducting qualitative interviews and archival research. He has contributed to witness seminars as part of an occasional series on the history of chemical and biological warfare organised jointly by the Harvard Sussex Programme and the Foreign and Commonwealth Office.

Jane Gregory has expertise on science and the mass media in both a contemporary and historical context. She is co-author of *Science in Public: Communication, Credibility and Culture.* Her most recent project is an account of the career of the astronomer Fred Hoyle, who was centrally involved in the 'brain drain' debate. She has

[5] See http://www.icbh.ac.uk/icbh/witness/welcome.html for details of witness seminars at the Centre

substantial experience of conducting oral history interviews and archival work. She is also working on a project on long-term trends in the place of science in the public sphere since WWII. She has experience of research dissemination, currently through managing a collaborative programme on *Science, Citizenship and the Market* with the Royal Society of Arts and Manufacturing (RSA) which explores the ideas of public understanding of science, and the sociology of science and technology through discussions between academics and professionals from science-based industries.

Matthew Godwin is trained in history and philosophy of science, and is currently completing his PhD on 'British Space Science and the European Space Research Organisation, 1957-1972' at the Centre for Contemporary British History, University of London. This will be submitted and examined by the start of the award. The research involved oral history and archival work. Part of his research involved organising, conducting and analysing the results from a witness seminar. The witness seminar, *The Skylark Sounding Rocket, 1959-1972,* was held at the Science Museum and included key scientists and civil servants from the space science programme.

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Word Count: 3354

General BD Questions

1. When did you first become aware of the BD?
2. What was your impression of the state of British science in the 50s/60s?
3. The ‘brain drain’ was clearly widely discussed and publicised in the media, but how real did the ‘brain drain’ seem to be at the time?
4. The ‘brain drain’ was sometimes linked to a more general idea about a declining nation, for example Hailsham in his 1963 speech called for and end to “the constant deprecation of everything British that I hear daily all around us”. Do you have any comments on this?
5. a) For those of you who went abroad, how did you come to go to the US?
   b) One finding that is emerging from our interviews is that a number of scientists regarded emigration as part of routine training, rather than as being part of a ‘brain drain’ crisis – how does this square with your own experiences at the time?
   c) What was your impression of the reasons why some people stayed permanently and others returned?
6. What was your impression of the British reverse BD efforts (such as the Hoff Boards)? [do you think they were successful and why?]
7. What for you were the problems that needed to be faced in trying to tackle the brain drain?
8. The brain drain was variously associated at different times with: mainly scientists; with scientists plus engineers; with mainly engineers; and even with all highly qualified personnel – do you think there was any significance in these varying concerns?
9. What in your opinion became of the Brain Drain? Did it simply fizzle out?

Specific questions:

To Copisarow:

1. How robust were the statistics that the Government had available for setting policy on the BD?

Dear

Re: ESRC Funded Project on the History of the 'Brain Drain'

Thank you for agreeing to be interviewed for our research project recently. I have pleasure in forwarding a transcript of the interview for your records. The interview has been extremely useful in our research and we are in the process of planning publications from the research. In the interim, I have pleasure in attaching a briefing paper outlining some of our findings and used for our 'witness seminar' in May. I hope this will be of some interest.

Could I take this opportunity to remind you that the interview material will be used in a non-attributable form for our research project and, unless you wish otherwise, will be preserved as a reference resource for use in not-for-profit research, publication and education.

We would therefore like your permission to deposit a copy of your interview transcript in the ESRC Qualitative Data Archive at the University of Essex (http://www.esds.ac.uk/qualidata). Users of the archive undertake to use the material for not-for-profit research and to respect confidentiality and not to disseminate any identifying information:
(see http://www.esds.ac.uk/aandp/access/licence.asp).

I would be grateful if you could respond YES or NO to this e-mail to indicate whether you are willing to allow us to add your interview transcript to the ESRC archive. If you have any further questions, please do not hesitate to contact me.

Thank you, once again for your invaluable contribution to our research.

Yours sincerely

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Thank you, once again for your invaluable contribution to our research.

Yours sincerely

Dear Dr […..]

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Yours sincerely

Brian Balmer
Senior Lecturer

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DEPARTMENT OF SCIENCE & TECHNOLOGY STUDIES
UNIVERSITY COLLEGE LONDON

CLEARANCE NOTE AND DEPOSIT INSTRUCTIONS

The purpose of this deposit agreement is to ensure that your contribution to the ESRC funded research project entitled “The Anatomy of the Brain Drain in the UK” is used and archived in strict accordance with your wishes. All material will be preserved as a permanent public reference resource for use in research, publication and education. A transcript of the witness seminar will be deposited in the ESRC Qualidata Archive located at the University of Essex (http://www.esds.ac.uk/qualidata/)

I hereby assign the copyright of my contribution to University College London.

Signed

……

Date……

Address……
…

……

……

Signed for UCL

……

Date……

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b.balmer@ucl.ac.uk
www.ucl.ac.uk/sts

Dear

Re: ESRC Funded Project on the History of the Brain Drain debate

Thank you once again for your contribution to our 'witness seminar' in May. I have pleasure in enclosing a full (unedited) transcript of the seminar, for your records.

We would very much like to proceed to publish an edited version of the transcript and have already received an initial expression of interest from one of the editors of the high-profile *British Journal of Contemporary History*. In order to proceed with publication we need your permission and an assignation of copyright to UCL. We, in turn, anticipate assigning copyright of the edited transcript to the journal publishers.

We would also like your permission to deposit a copy of the full transcript in the ESRC Qualitative Data Archive at the University of Essex (http://www.esds.ac.uk/qualidata). Users of the archive undertake to use the material for not-for-profit research and to respect confidentiality and not to disseminate any identifying information: (see http://www.esds.ac.uk/aandp/access/licence.asp).

If the above arrangements are agreeable, we would be very grateful if you could sign the enclosed Clearance Note and Deposit Instructions and return it in the stamped, addressed envelope supplied. If you are not willing to assign copyright, please return the stamped, addressed envelope so that we are aware of your decision. If you have any queries, please do not hesitate to contact me. Thank you for your assistance,

Yours sincerely

Brian Balmer

Department of
Science and Technology Studies

UCL

The Anatomy of the 'Brain Drain' Debate in the UK

An ESRC funded research project

Click on one of the following to find out more:

Who is carrying out the research?
When is this research being done?
Were you a 'brain drain' scientist?

May 23rd 2006 EVENT - Brain Drain "witness seminar" (Click to find out more)

SEMINARS PRESENTING FINDINGS (CLICK HERE)

PRESENTATIONS (CLICK HERE)

Our Research

The term ‘brain drain’ was adopted in the 1960s in the context of increasing concerns within the UK that the country was losing skilled scientific and engineering personnel to other countries, notably to the US. Although the term has since resurfaced in a variety of academic, policy and popular discussions about the international mobility of scientists , there is a notable absence of 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 putative ‘brain drain’.

The aim of this research is to provide, for the first time, a detailed historical analysis of the ‘brain drain’ debate as a social phenomenon in the UK during the 1950s and 1960s. It will draw primarily on recently declassified documents in the National Archive (Public Record Office) and print media coverage archived in the British Library Newspaper Library. These sources will be supplemented by other relevant archival material and oral histories.

CLICK HERE FOR MORE DETAILS

Who is carrying out the research?

Dr Brian Balmer
Dr Jane Gregory
Dr Matthew Godwin

When is this research being done?

The project runs from July 2005 to the end of June 2006.

Were you a 'brain drain' scientist?

If you were a scientist who emigrated to the United States in the 1950s or 1960s, or were involved in any way in the 'brain drain' debate at this time, we would very much like to hear from you about your memories of the 'brain drain'.

Please contact:
E-mail: m.godwin@ucl.ac.uk

Or contact one of the other members of the project team (you can get their details by clicking on their names above).

Department of
Science and Technology Studies

UCL

The Anatomy of the 'Brain Drain' Debate in the UK

An ESRC funded research project

Background

Although the scientific community frequently professes to be global and therefore indifferent to national boundaries, historians and sociologists of science have observed how science and technology are often regarded as important national resources (Pestre 1997). Since the end of the Second World War, science and technology have continually been invoked in government policies as essential to the economic, social and military well-being of nations (Elzinga and Jamison 1995, Gibbons and Wittrock 1985). Equally important in the Cold War context, science has been regarded as an important symbol of national prestige, with the ability of a nation to fund 'big' science or participate in international collaborative projects becoming surrogate flag-waving exercises (e.g. Agar 2003, Elzinga 1991, Abraham 1998, Galison and Hevly 1992). In Europe, expensive scientific collaboration has frequently been justified as a means of keeping apace with the United States (Krige 1997). While levels and types of scientific activity can matter to a sense of national identity, an emerging geography of knowledge has demonstrated how regional differences may affect the constitution and acceptance of scientific knowledge (e.g. Livingstone 2003, Shapin 1998, Agar and Smith 1998). Such findings reinforce the notion that the implications of scientific migration are more far-reaching than being merely 'the same science, just done somewhere else' (see also Hoch 1987).

Historical Context

Set against a broad backdrop of 'declinism', and the particular significance of science and technology for proponents of the 'declinist' mood in the 1960s, one can see how an analysis of the 'brain drain' debate may further illuminate the more general themes of science and national status discussed above. Heightened by the Suez debacle in 1956 anxiety that Britain had declined into 'a stagnant society' became increasingly widespread in the post-war period, but reached a much higher level of public awareness in the 1960s (Jefferys 1997). A contemporary article in The Economist remarked '…friends abroad…say that Britain is badly governed, badly managed, badly educated and badly behaved – and the striking thing is that more Britons are saying the same, more stridently still' (1963, cited in Jefferys 1997, p110-11). Britain's decline was perceived to be economic - Britain was failing in comparison to its competitors. The reasons given for this downward spiral were often centred on the assertion that there had been inadequate investment in science and technology, as well as improper industrial management. As Edgerton has shown the key proponents of such arguments relating to science and technology are typically inaccurate (Edgerton 1996), but it is against this backdrop of declinist rhetoric that the 'brain drain' debate was played out.

The 'Brain Drain' Debate

An intergovernmental programme of visits by UK-trained scientists to the USA began shortly after the end of WWII to allow British scientists to catch up with the latest ideas and technology, and bring their new knowledge back to Britain. However, the Government's Advisory Council on Scientific Policy (ACSP) noted that by 1956, 40% of the postgraduate students who had taken up fellowships in the USA had never returned to Britain (see Crowther 1967). Not only that, but of British graduates, 6% of chemists, 10% of physicists and 8% of engineers

were taking up posts in the USA. After Sputnik, the USA created many new jobs in the sciences, and with much better salaries than in Britain, thus creating plenty of rewarding opportunities for visiting British scientists, at any stage of their career. By the end of the 1950s, scientists in Britain were protesting about meagre funds and complex funding machinery in the UK, as compared to their colleagues in the USA, and some were using threats to emigrate to put pressure on the government.

Through the early 1960s, heavy demands on limited funding served to focus scientists' dissatisfaction with working conditions in the UK. In February 1963, the Royal Society issued a provocative report entitled the Emigration of Scientists from the United Kingdom (Royal Society, 1963). The report highlighted the migration of scientists from the UK, claiming that, of the total science and engineering PhDs awarded in the UK each year, around 12% were being lost abroad, with 7% migrating permanently to the US. The stark conclusion of the Royal Society committee was that, in addition to the amount it had cost to educate these migrants, "we regard as much more serious the economic consequences of the loss to this country of the leadership and the creative contributions to science and technology which they would have made in their working lives".

Although it is presently unclear why the Royal Society report had a greater impact than the ACSP reports, it was followed within the month by a House of Lords debate, in which Lord Hailsham introduced the notion of the 'brain drain'. The term stuck, and throughout the 1960s a vigorous public and private debate took place over the existence and possible significance of the 'brain drain'. Various Government committees were formed specifically to discuss the 'brain drain', and continued to meet until the early 1970s.

This debate was given extra point, at a time when science was more prominent than ever before in the mass media (Gregory and Miller, 1998), when well-known scientists were involved: for example, the astronomer Fred Hoyle repeatedly invoked the brain drain, and threatened to emigrate, as part of a fund-raising effort in the mid-1960s. In 1964, Hoyle went so far as to tell the Department of Scientific and Industrial Research (DSIR) that astronomers were contemplating moving en masse to the USA. This campaign by Hoyle over several years brought about a major volte-face in Hoyle's favour from the DSIR, and not only did the government admit privately that keeping Hoyle in the UK was their main motivation, but they were also well aware that they had been manipulated, and prepared other stories about their funding decisions for public consumption (Gregory in press). The press however was quite clear: The Times reported, on this occasion, that 'any danger that Professor Hoyle would be lost to America is thus averted.' How typical this episode was would be a matter for investigation.

Towards the end of the 1960s and into the early 1970s various governmental reports argued that there was no real problem, and that emigration was a normal process. It appears (although this may be challenged on closer examination of the documents in the National Archive) that such pronouncements marked the close of the debate. The main focus of our research will be the 1960s, but the cut-off point for our research would therefore be the early 1970s.

Research Questions and Methods

There is little known about the formulation and implementation of policy around the 'brain drain' in the 1960s, equally little about the dynamics of the debate within the scientific and engineering community and print media. Drawing primarily on a wealth of government documents that have been declassified in the past decade, on archival print media sources and on oral histories, this research will provide a detailed account of the development of the 'brain drain' debate in the UK during this period. The work will focus on the following questions:

1. How did the UK debate on the 'brain drain' develop during the 1950s, 1960s and early 1970s?

2. What roles did different groups and individuals involved in the 'brain drain' debate play?

3. What were the key similarities and differences between the 'private' debate within Whitehall and the 'public' debate in the media?

4. How did the UK 'brain drain' debate relate to wider developments in science, economic and other government policy?

We will be using documentary sources from archives, supplemented with a small number of oral histories.

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Department of
Science and Technology Studies

UCL

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Summary

The Department of Science & Technology Studies at UCL is holding a Witness Seminar to examine the development of the 'Brain Drain'. The term 'Brain Drain' was adopted in the 1960s in the context of increasing concerns within the UK that the country was losing skilled scientific and engineering personnel to other countries, notably to the US.

The witness seminar will bring together a number of figures involved with the 'Brain Drain', including officials and former émigrés, who will discuss their recollections. This event is part of a wider UCL project on the history of the 'Brain Drain' funded by the ESRC.

Date and Venue: 23rd May 2006, JZ Young Lecture Theatre UCL, 2-5pm.

Chair: Dr Jon Agar (University of Cambridge)

Panelists:
Prof Ron Bullough, FRS (AERE Harwell / UK-US Recruitment Boards)
Sir Alcon Copisarow (Scientific Civil Service)
Sir John Maddox (Science Journalist and Former Editor, Nature)
Prof Mike Hayns (AERE Harwell)

Others to be confirmed.

Draft Programme:

2.00pm Introduction - welcome and overview of the history of the "brain drain" (Dr Matthew Godwin, Dr Brian Balmer and Dr Jane Gregory)

2.30pm Session 1: Panel Discussion

Chair: Dr Jon Agar (University of Cambridge)

3.45pm Tea

4.15pm Session 2: Open Discussion

Chair: Dr Brian Balmer

4.45pm Conclusion

This event is free to attend, but prior booking is required. For booking or further details please contact Matthew Godwin, Department of Science & Technology Studies, UCL, Gower St, London, WC1E 6BT. Email: m.godwin@ucl.ac.uk

Please feel free to pass on details to colleagues who may be interested.

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EVENTS:

1. 'Brains, drains and mobility: scientific migration in the 1960s'
Matthew Godwin, Jane Gregory, Brian Balmer

Department of Science & Technology Studies Seminar Series
Room G3, 22 Gordon Square, **30 April 2007**
University College London

ALSO

Institute for Historical Research, Senate House, London
Contemporary British History Seminar Series
Venue: Wolfson Room, IHR. **24 October 2007**, 5.00pm

The much-publicised scientific 'brain drain' in the UK in the 1960s was controversial, but the debate owed little to the actual count of scientists who left the UK to work overseas. Very little data on migration was available to the civil servants and scientists who worried about this perceived loss to Britain. Whitehall focused on the difficulties of attempts to measure migration, while the early press coverage, in contrast, focused more on the emigration, actual or threatened, of high-profile scientific personalities. Overall, concerns about the loss of scientific workers seem to reflect more general fears about the decline of the UK – fears which were particularly acute where the emigration was to the USA.

2. 'The Anatomy of the 1960s 'Brain Drain' Debate in the UK'
Matthew Godwin, Brian Balmer, Jane Gregory

BSHS Annual Conference, **28 June – 1 July 2007**
University of Manchester

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. These concerns were widely reported by the British press, 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'. This paper traces the main contours of the debate, from the landmark 1963 Royal Society report on

emigration of scientists, to the gradual closing down of the debate in the early 1970s. We argue that the 'brain drain' debate overlay a far more protracted, less high-profile, debate about scientific migration that originated in post-war manpower policy. A crucial feature of both these debates was the problem of measuring migration, and therefore of visualising it as a concrete policy problem, which made it difficult for the Government to assess the issue. Finally, we underline the heterogeneous nature of the 'brain drain', which was interpreted differently at different times, in terms of, for example, individual talent vs mass migration; loss of scientists or engineers or of all skilled personnel; and as a recent panic vs a slow-burning issue.

3. Inventing the 'Brain Drain': science, policy and the popular press
Jane Gregory

University of Manchester, Centre for History of Science, Technology & Medicine
,**27 November 2007**
CHSTM Seminar Room, 2.57 Simon Building

PUBLICATIONS

Godwin, M, Gregory, J and Balmer, B (2008), 'The Anatomy of the Brain Drain Debate, 1950-1970s: Witness Seminar', *Contemporary British History* in press

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