Consent and the Construction of the Volunteer: Institutional Settings of Experimental Research on Human Beings in Britain during the Cold War

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List of Abbreviations

ABC	Applied Biology Committee
ACI	Army Council Instruction
AD(M)	Assistant Director (Medical)
AMD	Army Medical Directorate
BDP	Biological Department, Porton
BW	biological warfare
CAMR	Centre for Applied Microbiological Research
CCRU	Common Cold Research Unit
CDAB	Chemical Defence Advisory Board
CDEE	Chemical Defence Experimental Establishment, Porton Down
CO	commanding officer
COSHE	Committee for the Safety of Human Experiments
CRAB	Chemical Research Advisory Board
CRC	Clinical Research Centre
CW	chemical warfare
DCI	Defence Council Instructions
DDGAMS	Deputy Director-General, Army Medical Services
DPS	Directorate, Personal Services (Army)
ERS	Ergonomics Research Society
MoD	Ministry of Defence
MPI	Maudsley Personality Inventory
MRC	Medical Research Council

MRD	Microbiological Research Division
MRE	Microbiological Research Establishment
NBC	Nuclear, Biological and Chemical
NBI	Notice-board Information
NCO	Non-commissioned officer
NHS	National Health Service
NIH	National Institutes of Health
NIMR	National Institute for Medical Research
RAF	Royal Air Force
RAMC	Royal Army Medical Corps
RN	Royal Navy
RPM	Raven's Progressive Matrices
PUS	Permanent Under Secretary
SBPO	Sick Berth Petty Officer
WHO	World Health Organisation
WMA	World Medical Association

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Abstract

This study challenges the primacy of consent in the history of human experimentation and argues that privileging the cultural frameworks adds nuance to our understanding of the construction of the volunteer in the period 1945 to 1970. Historians and bio-ethicists have argued that medical ethics codes have marked out the parameters of using people as subjects in medical scientific research and that the consent of the subjects was fundamental to their status as volunteers. However, the temporality of the creation of medical ethics codes means that they need to be understood within their historical context. That medical ethics codes arose from a specific historical context rather than a concerted and conscious determination to safeguard the well-being of subjects needs to be acknowledged. The British context of human experimentation is under-researched and there has been even less focus on the cultural frameworks within which experiments took place. This study demonstrates, through a close analysis of the Medical Research Council's Common Cold Research Unit (CCRU) and the government's military research facility, the Chemical Defence Experimental Establishment, Porton Down (Porton), that the 'volunteer' in human experiments was a subjective entity whose identity was specific to the institution which recruited and made use of the subject. By examining representations of volunteers in the British press, the rhetoric of the government's collectivist agenda becomes evident and this fed into the institutional construction of the volunteer at the CCRU. In contrast, discussions between Porton scientists, staff members, and government officials demonstrate that the use of military personnel in secret chemical warfare experiments was far more complex. Conflicting interests of the military, the government and the scientific imperative affected how the military volunteer was perceived.

Chapter I: Introduction

While human experimentation remains a controversial practice, perceived multifariously, the procedure of consent to such experiments has become black-boxed as a formality such that it is no longer considered worthy of discussion. Indeed, consent as a formality of practice is well-established today. However, when these two topics (consent and human experimentation) are viewed historically, they turn out to have a complex and interwoven past. The nature of consent turns out not to be a timeless norm, but one deeply embedded in the practice of the experiments themselves.

The purpose of this study is to explore how volunteering was understood within different cultural frameworks in the UK between 1945 and 1970. By deliberately focusing on the role of volunteers and perceptions of volunteering, a clearer understanding of the processes of consent comes to light. The primary research questions were: How were volunteers perceived in society? What influence did the role of science in society have on volunteering? What were the institutional perceptions of volunteering? How did these factors shape the construction of the volunteer? Using two research institutions for comparison, the Common Cold Research Unit (CCRU) and the Chemical Defence Experimental Establishment, Porton Down (Porton), this study looks at how volunteering was constructed to serve the research needs of the establishments.

Recent scholarship which related to the research interests at Porton in connection with medical ethics codes left a number of issues unresolved.[1] The central argument of this work was that the existence of medical ethics codes had been ignored by Porton and their failure to act in accordance with the principles of the Nuremberg Code in their use of Servicemen as human subjects was a contravention of contemporary medical ethics. However, there appeared to be a marked discrepancy between policy and practice in relation to the ethically acceptable use of human subjects that was not confined to the secret tests at Porton. Moreover, the focus of this research on the implementation of medical ethics at Porton failed to offer any comparison with other research establishments. It did not take account of

[1] T. Bolton, 'Films, Ethics and Politics at Porton Down, 1939 to 1968' (unpublished MA thesis, 2004).

the wider cultural context within which Porton was operating (other than the Cold War political situation). In particular, it failed to challenge the meaning of the word 'volunteer' in the post-World War Two period but instead accepted that a volunteer was defined by medical ethics codes rather than attempting to understand its meaning within society.

Adhering to the definition of a volunteer as a consenting individual who understood the nature and the risks of an experiment prior to participation as set out in the Nuremberg Code (1947) ignored the original purpose of defining a volunteer in such terms - the trial of twenty three Nazi doctors at Nuremberg. By comparing the civilian (the CCRU) with the military (Porton), similarities and differences in the use of human subjects are evident and a sharper image of the cultural determinants that shaped the volunteer emerge. To understand the departure from the policy of consent as defined by the Nuremberg Code in research practices, it is necessary to look at those research practices in the use of human subjects and how consent played out in the context of the research agendas.

i. Methodology

Cultural history seeks to understand a particular culture through their ideas, interactions and alternative viewpoints. The links between cultural history and anthropology, which focus on human behaviour, interaction and social organisation, are evident and it was an anthropological interpretation of culture that was used by C.P. Snow. He described scientists, as well as 'literary intellectuals', as 'cultures within the anthropological scope' because of their 'common attitudes, common standards and patterns of behaviour, common approaches and assumptions.'[2] This approach was later used by Bruno Latour and Steve Woolgar who acknowledged that scientists can be equated with an indigenous tribe, with the observer of science attempting to understand scientists' surroundings, codes of behaviour and relationships without placing his/ her own ideals upon it.[3]

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[2] C.P. Snow, *The Two Cultures: and A Second Look* (CUP, 1965), p. 64. Snow first presented a lecture in 1959 entitled 'The Two Cultures' which was published in the same year; in 1964 it was re-printed with additional commentaries on how his lecture was received and responded to. Snow predicted the emergence of a third culture, in which social historians, scientists and literary intellectuals were on 'speaking terms', p. 71.
[3] This approach was pioneered in the study of science in action by B. Latour & S. Woolgar, *Laboratory Life: the social construction of scientific facts* (Sage Publications, Beverley Hills, 1979).

The research of the philosopher-turned-anthropologist Latour, with the sociologist Woolgar's assistance with the writing up, focused on a group of scientists working in the laboratory of Professor Roger Guillemin in California. Latour and Woolgar referred to their two year research study between October 1975 and August 1977 as an 'ethnographic investigation of one specific group of scientists', with the focus being on the 'particular setting' of the laboratory.[4] Latour and Woolgar attempted to demonstrate the social construction of science through observations of the actual practices of the scientists - how they regarded their own roles within the laboratory in relation to each other, the scientific community and the broader community. They observed the scientists' intrinsic behaviour in relation to the publication of their scientific research, how secrecy was absorbed as part of the scientific process, and how publications were regarded by the scientists as 'the main objective of their activity'.[5]

Latour and Woolgar's study provides a useful model for the historian because it encourages us to think as much about the environment as the agency within it, attempting to understand the practice of science and medicine from within the cultural setting. However, it is not easy to claim that this can be done in any complete measure in the study of history. After all, as Musgrave observed, 'historians, alas, cannot make field trips into the past ...'[6] While Latour and Woolgar's approach provides a model for studying historically the scientists' cultural community - their codes of behaviour; intrinsic and extrinsic preoccupation; and their material environment - it fails to offer any direct advice to the historian of science who cannot actually observe the scientists under investigation. The use of cultural anthropology as a methodology to study the practice of science demands a 'detached approach' but as historians, we are unable to directly observe our historical actors. As Lenoir notes:

> ... [historical] knowledge is always situated, local, and partial. The object of knowledge and the interpreter do not exist independently of one another; knowledge is a form of interpretation, involving temporal, bodily

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[4] B. Latour & S. Woolgar, *Laboratory Life: the social construction of scientific facts,* p. 28.
[5] Ibid., p. 71.
[6] A. Musgrave, *Commonsense, science and skepticism: A historical introduction to the theory of knowledge* (CUP, 1993), p. 65.

> engagement with the world rather than the detached, disembodied, contemplative stance favored by the sociology of science.[7]

This line of enquiry ultimately goes 'full circle' in the debate regarding the epistemology of history, but just as we have to impose some kind of order on our material, so we have to do the same with our methods. However, the sociology of scientific knowledge (SSK), the underpinning methodology used by Latour and Woolgar who adopted a 'detached' position, has provided historians of science with a method from which they have developed the historical study of science.

SSK grew out of a rejection from the mid-twentieth century of the Enlightenment view of science as a progressive, objective enterprise, to the acknowledgement that science is, and has been, underpinned by social interactions and situations. In 1962 the historian of science Thomas Kuhn published *The Structure of Scientific Revolutions.* Kuhn described the culture of scientists in terms of 'paradigms', which has been interpreted as the collective beliefs of scientists in the construction of scientific knowledge. Kuhn's influence in the field of the sociology of science, especially in relation to the epistemology of scientific facts, has been significant. Even with revisionist challenges that Kuhn's work has been misread, that paradigms were not shared beliefs but shared acceptance of standards in scientific practice,[8] he was influential in the way that science has since been conceptualised as a process of human, social interaction and how historians of science address the field.[9]

The study of the history of science employing SSK as a methodology has also been called 'constructivism', which has been defined as: 'the central notion that scientific knowledge is a human creation, made with available material and cultural resources, rather than simply

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[7] T. Lenoir, *Instituting Science: The Cultural Production of Scientific Disciplines* (Stanford University Press, Stanford, 1997), p. 5.

[8] J. Rouse, 'Kuhn's Philosophy of Scientific Practice' in T. Nickles, (ed.), *Thomas Kuhn* (CUP, 2003), p.109.

[9] Rouse views Kuhn's paradigms as a methodological tool rather than collective thought, p. 108; however Barry Barnes notes that the Kuhnian notion of 'scientific collectives' is no different to any other culture or subculture, 'Thomas Kuhn and the Problem of Social Order in Science', in Nickles, (ed.), *Kuhn*, p. 133. These discussions demonstrate the influence of Kuhn in the development of our understanding of the construction of scientific knowledge, even if philosophers, sociologists and historians do not agree precisely on how to interpret Kuhn's theory.

the revelation of a natural order that is pre-given and independent of human action.'[10] This approach is particularly useful in micro-studies focusing on a particular institution as it enables the historian to study the social relations within a scientific community and explore the cultural context of the laboratory, as a place of experiment and production of knowledge, or scientists' territory, or even an unknown space.[11] As Latour and Woolgar note, the construction of 'facts' lose the "social" factors' once the fact is established.[12] Therefore, by looking at the construction of the volunteer it is possible to draw out the social factors which led to the establishment of the 'fact', in this case, the volunteer. The method of looking at cultures in their social settings has a strong anthropological approach which Latour dubbed 'The "Anthropology" of Science'.[13] While Kunal Parker warns fellow anthropologists not to be 'seduced' into employing historical methods in anthropology,[14] historians of science seem to be more open-minded to the benefits of adopting anthropological approaches in the study of scientific cultures.[15] The social construction of knowledge in the construction of the volunteer is important to understand how the term 'volunteer' came to be seen within the institutions and by what processes it happened.

Counter to the social construction of science runs the argument outlined by historian Donald Brown who asserts that an over-reliance on the 'insider' perspective that focuses on the intrinsic cultural differences which resonate in a given society, or emics, is problematic. Brown argues that an emics perspective causes the historian to focus too strongly on cultural determinants and ignores the role of human nature.[16] His appeal for historians to consider human nature within their research reflects similar issues which have concerned historians of science. What role does human nature have in the history of human

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[10] J. Golinski, *Making Natural Knowledge: Constructivism and the History of Science* (Cambridge University Press, 1998), p. 6.
[11] For example, see D. Gooding, T. Pinch & S. Shaffer, (eds.), *The Uses of Experiment: Studies in the natural sciences* (CUP, 1989).
[12] Latour & Woolgar, *Laboratory Life,* p. 23.
[13] Latour & Woolgar, *Laboratory Life,* p. 29.
[14] Parker, 'Thinking Inside the Box: A Historian Among the Anthropologists', *Law & Society Review* (Dec. 2004), vol. 38, no. 4, p. 859.
[15] As well as Latour & Woolgar, see for example, S. Traweek, *Beamtimes and Lifetimes: The World of High-Energy Physicists* (Harvard University Press, Cambridge, MA, 1988) cited in Golinski, *Making Natural Knowledge,* pp. 167-8.
[16] D. Brown, 'Human nature and History', *History and Theory* (Dec. 1999), vol. 38, no. 4, Theme Issue 38: The Return of Science: Evolutionary Ideas and History, p. 155.

experimentation and to what extent *should* we be looking for a culturally constructed explanation for the actions of scientists and volunteers? The nature of this study, focusing on institutional settings of human experimentation, lends itself to an emic approach because of the specific cultural context. Indeed, attempting to get into the individual minds of the scientists seems not only inadequate, because we cannot hope to know exactly how people thought, but also inappropriate to the historical context. As Steven Shapin noted, sociology concerns 'collective aspects of human conduct' and this seems particularly relevant to scientific communities where knowledge is negotiated between those community members.[17] Furthermore, Brown suggests a single 'human nature' that remains constant at all times and in all situations whereas this study is concerned with how motivation depends on a number of factors including individual and collective motivation and particular circumstances.

Through a process of continuous reflection, critical analysis and an acute awareness of the limitations of this study, a better understanding of the institutional settings, and therefore the scientific culture, of Porton Down and the Common Cold Research Unit can be discerned. The normative implications of this study are limited because current practices in human experimentation are rigorously monitored. However, this was recently called into question when six volunteers who took part in a drug trial at Northwick Park Hospital, North West London, in March 2006 experienced severe adverse reactions.[18] The safety of clinical trials became a focus of discussion and the assumption that adequate safeguards were in place were revisited by scientific experts commissioned by the Health secretary. The findings of an inquiry into the drug trial at Northwick Park found that there were administrative oversights, with incomplete medical records of some volunteers, and one doctor was found to be inexperienced in the field of drug trial research.

It appeared that while procedural safeguards were in place, the institutional framework within which the trial took place meant that certain procedures were apparently overlooked.

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[17] S. Shapin, 'Here and Everywhere: Sociology of Scientific Knowledge', *Annual Review of Sociology* (1995), vol. 21, p. 302.

[18] For example, see http://news.bbc.co.uk/1/hi/england/london/4820188.stm, last accessed 23 November 2007.

Issues of scientific authority and autonomy at Northwick Park allowed an inexperienced doctor to be involved in the drug trial despite formal regulations and safeguards in current practice. This demonstrates that the particular institutional frameworks within which experiments on human subjects take place continue to impact upon research practices whereby researchers can execute trials even when procedural formalities, such as the completion of medical records and background checks, may not have been completed adequately. The importance of the institutional framework to the 'volunteer' issue is where this study has some resonance with current practices of human experimentation. The contexts within which volunteers are used as human subjects are pertinent to how their roles are perceived and the particularity of practice within various institutional frameworks, despite regulations, needs to be acknowledged.

ii. Sources and Limitations of Research

The main primary sources for this study are documents housed at The National Archives (TNA), Kew, which relate to the Medical Research Council, the Common Cold Research Unit, Porton Down and the government departments responsible for Porton. None of these documents represent a complete historical record despite extensive archival research. The nature of Porton as a research facility engaged in many top secret programmes means that censure prevails. Although the Freedom of Information Act (2005) released a number of previously closed files into the public domain, many more remain hidden. The online publication in 2006 of the *Historical Survey of the Porton down Service Volunteer Programme 1939-1989*, commissioned by the MoD, was timely as the research conducted for the survey allowed their researchers access to classified sources that remain in the possession of Porton. Therefore, the *Historical Survey* helped to fill some gaps left by the lack of documentation, although a good deal of the material the survey used was the same documents I had accessed at TNA.

Documents relating to the CCRU were filed in series with many following numerically which made it fairly accessible. MRC headquarters files were more problematic because they were internally circulated between different sections and therefore some material was duplicated in files and others were missing some information relevant to the discussions it

contained. However, using TNA's online catalogue, I was able to perform a variety of searches using different phrases and words which turned up a number of files that might otherwise have been overlooked. The Science Museum has a collection of artefacts and memorabilia that were requisitioned when the CCRU closed. Much of the collection was from the 1980s but there was some relevant material and the collection as a whole gives a fascinating insight. The graffiti that adorns one desk that was brought from the CCRU was a humorous distraction from the intensity of researching and writing up this study that was most welcomed.

The social surveys conducted by Mass Observation were useful for understanding the public's regard for science, although I did not make extensive use of the archive material owing to the pressure of time and limit of space. Source material for the representation of science and volunteering in the press was obtained from the British Library's collection of newspapers at Colindale. *The Times* has been digitally archived and by searching the database I was able to cross-reference news articles that focused on volunteering and science with other newspapers and then search the relevant microfilm. Of course, this was not fool-proof and no doubt there are some articles I have missed but I endeavoured to scan as much material as time would permit in order to give a fair representation.

The subject of a balanced representation has been an ongoing concern. Experiments on Service personnel at the Chemical Defence Experimental Establishment, Porton Down, have incurred heightened publicity since the Coroner's Inquest in 2004 into the death of the RAF Serviceman Ronald Maddison in 1953. Maddison died after exposure to the nerve agent sarin (GB) and the original verdict given in the closed inquest into his death was overturned in 2004. The jury that presided over the 2004 Inquest returned the verdict of unlawful killing which effectively meant that the state was culpable. Originally, I intended to include interviews with former Servicemen who attended Porton. However, this aspect is being covered by Professor Ulf Schmidt's Porton Down project which has better resources at its disposal to conduct a full survey of volunteers' experiences.[19]

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[19] Additionally, I have not purposefully engaged with the issue of the payment of volunteers. However, I would draw attention to my lead article in the British Society for the History of Science's *newsletter*

Many of the scientists who worked at Porton during this period have passed away; others do not want to talk about their experiences because of the sensitive nature of human experimentation. Moreover, it is difficult to assess the reliability of either perspective when both former volunteers and scientists would be acutely aware of the media attention focused on Porton in recent years. The extent to which the recollections of volunteers would be influenced by the knowledge of other volunteers' accounts and experiences, and the impact of the negative attention towards Porton on the accounts scientists might give, means that the task of extrapolating such information would be an extremely problematic one. Nevertheless, the focus of this study on the construction of the volunteer and what it meant to be a volunteer in human experiments does not need to rely on personal accounts. Instead, the use of extensive archive material allows for a close examination of discussions, disagreements and decisions on the use of human subjects which give a greater insight into how 'the volunteer' became shaped by the institutions which used them.

iii. Literature review

Primary source material for this study has caused some problems as outlined, but there were additional difficulties with the published literature. This study cuts across many academic disciplines - sociology, history (of science, of medicine, of the military etc.), psychology, to name but a few - and the scope of the publications that underpin some of the chapters is broad. Chapter four draws on the work of Nikolas Rose and the construction of citizenship through the increased application of psychology during and after World War Two. It demonstrates how the ideology of citizenship and notions of active participation was adopted by the press and used to shape representations of volunteering. Some publications, notably on scientists and the institutional representation of science, were used as primary sources in chapter five as they were contemporary to the period under study. Yet, there were a number of voids in the secondary literature in some areas, particularly military culture in the post-World War Two period.

Viewpoint (February 2007), issue 82, which addressed some of the issues with paying volunteers for experiments.

While much has been written on wartime military history, little academic attention has been focussed on the subject of military culture and the relationships between officers and ordinary ranks especially during National Service. This is a significant area for this study because the impact of military culture on the construction of the volunteer is important to understanding the context of volunteering at Porton. The lack of academic discourse in this particular area meant that some more popular accounts, rather than academic scholarship, had to be referred to. It was not within the scope of this study to conduct a full study of military culture from an historical perspective, but in chapter six I have attempted to outline the impact of military authority and the relationships within and between the Armed Services to give a general sense of military life and its formal and informal organisation. This was significant to the recruitment of volunteers, addressed in chapter seven, because the construction of the military volunteer was very much shaped by military culture. In contrast, the Common Cold Research Unit's recruitment of volunteers depended on its public image perpetuated by the press.

In the main, this study focuses on three themes of research: medical ethics, the Chemical Defence Experimental Establishment, Porton Down, and the Common Cold Research Unit, which come under the general heading of human experimentation and have stirred much debate in the field. Chapter two tackles the subject of medical ethics as a subject of historical enquiry and chapter three sets out an overview of Porton and the CCRU as centres of human experimentation. The following literature review highlights the strengths and weaknesses in the existing literature pertaining to this study, and how this project engages with these issues.

Medical Ethics

The contributors to George Annas & Michael Grodin, (eds.), *The Nazi Doctors and the Nuremberg Code, Human Rights in Human Experimentation* (OUP 1992), as well as U. Tröhler, and S. Reiter-Theil, (eds.), *Ethics Codes in Medicine: foundations and achievements of codification since 1947* (Ashgate, Hants & Vermont, 1998), focus on the universality of the Nuremberg Code and its applicability both historically and in a present context. Much of the academic discourse in relation to the principle of informed consent

and its meaning has come from the United States, such as Ruth Faden & Tom Beauchamp, *A History and Theory of Informed Consent* (Oxford University Press, New York & London, 1986) which gives an in-depth analysis by American ethicists on the theory and the history of informed consent. Other sources such as journal articles like Jay Katz, 'Informed Consent – Must it Remain a Fairy Tale?', *Journal of Contemporary Health Law and Policy* (1994), 10, 69-91, give an insight into the response of the medical profession to informed consent and issues of patient autonomy versus the authority of the physician. These publications privilege consent over and above the specific contexts within which consent was a factor and therefore contribute little to understanding the processes through which consent became understood and its institutional meaning.

Scholarship for specific institutional settings in the United States is more numerous than in the UK. Alan Hornblum, *Acres of Skin: Human Experiments at Holmesburg Prison* (Routledge, New York, 1998), examines the use of prisoners as experimental subjects in a US prison, and Jonathan Moreno, *Undue Risk: Secret State Experiments on Humans* (Routledge, New York, 2001) looks at the US military experiments at Edgewood Arsenal.

When surveying the literature in the British context, Jenny Hazelgrove's article, 'Human Experimentation Ethics in Britain, 1946- 73', *Social History of Medicine* (2002), 15, 1, stands almost in solitude in its focus on the British context of the Nuremberg Code and its impact. Hazelgrove draws attention to the lack of research by academics in the history of medical ethics in Britain, and shows how the Nuremberg Code had little impact upon the scientific/ medical research community, who clung on to their age-old autonomy of paternalism. Hazelgrove, no doubt limited by the constraints of the article, did not offer suggestions as to why the Nuremberg Code failed to inform upon medical practice. Despite the attention given to the Nuremberg Code and its application in the broad field of medical research, academics have in general failed to attempt to understand why its impact has been so limited through dedicated research into specific contexts of scientific settings.

Chapter two sets out the arguments in relation to the Nuremberg Code and its place in the history of medical ethics. Through MRC headquarters discussions and their attempts to impose guidelines of practice on researchers engaging human subjects, it is demonstrated

how the profession resisted the imposition of firm 'rules' of research. This accords with the findings of Andrew Morrice who identified that the pervasiveness of eighteenth century concerns for medical etiquette and morals in the medical profession continued into the twentieth century. It appeared that the ideal of gentlemanly conduct superseded concern for medical ethics.[20] This highlights the autonomy and authority of medicine and science and suggests that, even in the twentieth century, it was greater than the influence of medical ethics codes in certain contexts. This aspect was particularly relevant to the MRC discussions in chapter two, while the extent to which the institutions of Porton Down and the CCRU rested upon their autonomy and authority is explored in chapters five and six. The nature of authority is important to understanding the dynamics of the relationships between scientists and subjects.

Dark Medicine: Rationalizing Unethical Medical Research (Indiana University Press, IN, 2007) offers an international perspective on the use of human subjects in experiments. Drawing together a collection of essays from scholars researching the history of human experiments in Germany, the US and China, they explore how research ethics can be 'relativized either by the atmospherics of war or by the blandishments of opportunity'.[21] This publication is an important contribution to the field because it considers how researchers justified their actions in conducting experiments that purposefully inflicted pain, suffering and even death on human subjects who were rarely consensual and often captive. It moves away from the argument that experiments conducted by, for example, the Nazi doctors and the researchers of the Japanese research facility Unit 731, were pseudo-scientific and, therefore, this disassociated them from the medical profession. As Böhme notes, the physicians and scientists involved in such experiments 'used their bioethical rationalizations to suppress and subdue their moral intuitions'.[22] *Dark Medicine* judges the cases of human experiments it presents as unethical but also recognises that scientific competition in the field of biotechnology contributed to the construction of rationalizations

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[20] A. Morrice, 'Honour and Interests': Medical Ethics and the British Medical Association', in A. Maehle, & J. Geyer-Kordesch, (eds.), *Historical and Philosophical Perspectives on Biomedical Ethics: From Paternalism to Autonomy?* (Ashgate, Hants., 2002), pp.11-35.
[21] W.R. Fleur, G. Böhme, S. Shimazono, (eds.), *Dark Medicine: Rationalizing Unethical Medical Research* (Indiana University Press, IN, 2007), p. 3.
[22] G. Böhme, 'Rationalizing Unethical Research: Taking Seriously the Case of Viktor von Weizsäcker', in Fleur et al, *Dark Medicine,* p. 25.

for government funded research projects. The rationalization for conducting research on military personnel at Porton Down is similarly explored in two case studies of LSD and nerve agent experiments in chapter five of this study.

The edited collection of contributions to *Useful Bodies: Humans in the Service of Medical Science in the Twentieth Century* brings together a number of case studies of non-therapeutic human experiments conducted in the United States, Australia and Britain, which attempt to historicize the role of the state in human experiments.[23] The editors note that while informed consent is an important part of the history of human experimentation, it can have the effect of focusing on 'ethical analysis rather than practice', and furthermore because the meaning(s) of informed consent is not fixed it causes additional problems.[24] Indeed, research by Barron Lerner on the role of informed consent in the context of cancer patients after the Second World War concluded that it amounted more to 'assent than consent' as the paternalistic role of the physician continued to pervade.[25] Lerner suggests that to understand the general failure by patients to question their doctors over their medical treatment, it would be necessary 'to look beyond the consent process' at how particular issues, such as how patients understood their roles within the hospital setting, and their relationship to the doctors, impacted upon their experiences. [26] This study aligns with the view that we need to look beyond the Nuremberg Code and consent to consider the role of volunteers and how this was shaped by other agencies.

Porton Down

Scholarship on Porton Down can roughly be divided into 'official' and 'unofficial', Gradon Carter representing the former and the publications of journalist Rob Evans and academic Brian Balmer, and the earlier work of journalists Jeremy Paxman and Robert Harris, falling

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[23] J. Goodman, A. McElligott & L. Marks, (eds.), 'Making Human Bodies Useful', in *Useful Bodies: Humans in the Service of Medical Science in the Twentieth Century* (The John Hopkins University Press, Baltimore & London, 2003), p. 1.
[24] Ibid, p. 4.
[25] Lerner, 'Beyond Informed Consent: Did Cancer Patients Challenge their Physicians in the Post-World War II Era?', *Journal of the History of Medicine and Allied Sciences* (2004), vol. 59, no. 4, p. 512.
[26] Ibid, pp. 520-521.

into the latter category.[27] First published in 1982, *A Higher Form of Killing- The Secret History of Chemical and Biological Warfare* by Paxman and Harris was published in its third edition in 2002, following the 9/11 attacks on America, incorporating an additional chapter on terrorism. This book gives a general introductory account of British chemical and biological warfare activities and provided Evans with a point of reference from which to extend his own research, although Carter described it as 'inaccurate'. Obviously Carter, as the official historian at Porton, has had access to a richer stock of material from which to refer to than Paxman and Harris working in a field that had received little previous attention; perhaps this accounts for what Carter identifies as inaccuracies. Nevertheless, Harris and Paxman's publication can be seen as a preliminary overview of Britain's chemical and biological warfare history aimed at a lay audience, from which scholars have been able to build upon and develop in light of their own research findings. Chapter three of this study gives an overview of the physical site and the organisational structure of Porton, which was an Official Secrets Act designated site.

As Carter himself acknowledges, there has been an increased transparency by the government of its chemical and biological warfare involvement in the last ten years or so, which means, potentially, there is more material available to scholars working in the field in this decade than there was when Paxman and Harris conducted their research in the late seventies/ early eighties. Carter has worked at Porton since 1948 and continues to act as the institution's historian. In 2000 he published *Chemical and Biological Defence at Porton Down: 1916-2000* (DERA), an account of the research of Porton Down in the fields of biological and chemical defence. Aimed at a general audience rather than an academic one, this book focused on the wider context and the demands for both offensive and defensive chemical and biological warfare research. This publication aimed to be an updated, more open version of his 1992 book, *Porton Down- 75 Years of chemical and biological defence* (HMSO), which was, by his own admission, a less transparent account owing to the perceived need for secrecy. However, in places, Carter's 2000 publication remains somewhat a restrained and guarded account owing to, as he states, 'national security'

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[27] Although it should be noted that Carter and Balmer have worked together, see 'Chemical and Biological Warfare and Defence, 1945-1990' in R. Bud and P. Gummett, (eds.), *Cold War, Hot Science: Applied Research in Britain's Defence Laboratories 1945-1990* (Amsterdam, 1999).

among other reasons, and there is a sense that Carter attempts to defend Porton in light of negative attention. It is understandable that Carter is defensive of the establishment he has been employed by for over fifty years and that certain aspects of Porton's research, for example the use of animals, attract interest from activist groups, often stirred by the media, that may have demanded a guarded response.

Rather than focusing on what Carter does write about, it is perhaps the areas to which he gives little attention that require further consideration. Carter openly acknowledges that Porton had a 'desperate preoccupation' with nerve agents and notes that the training of servicemen in the protection against nerve gas could not include exposure, as was commonly done with tear gases, because of its highly toxic nature. His last chapter entitled 'Opprobrium' expands somewhat on the use of servicemen as research subjects and while the chapter lacks extensive detail, Carter gives a general account of the payment of volunteers and the death of Maddison in 1953. The CCRU is mentioned more briefly in relation to allegations by some ex-servicemen that they were 'duped' into going for cold research rather than tests involving chemical agents. No mention is made of the relationship between Porton and the CCRU, and while Carter calls for Porton's actions to be judged by the standards of 'yesteryear'; he does not expand on what these standards were, or whose standards (i.e. Porton directives or international protocols). Carter's publication pays little attention to the specific role of the volunteers, other than the necessity to test protective clothing and respirators, and lacks the depth of historical analysis needed to explore the finer issues of what constituted consent and how the concept of the 'volunteer' was understood.

In conjunction with Peter Hammond, Carter's following publication, *From Biological Warfare to Healthcare: Porton Down 1940-2000* (Palgrave, Hants., 2002) focuses on Porton's microbiological research in which the authors gave a chapter to the 'misconception and misinformation' of the press in their reporting of events and the research conducted by Porton. The publication by Brian Balmer, *Britain and Biological Warfare: expert advice and science policy, 1930-65* (Palgrave, Hants., 2001) provides a well researched account of Britain's biological warfare policy and various biological

warfare trials conducted by Porton Down, which adds further depth to Porton's biological warfare research activities when read alongside Carter and Hammond. In particular, Balmer argues that the threat of attack with biological weapons as a 'fear of the possible' was deliberately sustained by scientists in order that they could continue their research. This suggests that the scientific community at Porton used their elite, expert knowledge to further their autonomy and status. Chapters five and six of this study, which examine aspects of scientific culture, give a clearer understanding of the ways in which authority and autonomy were negotiated at Porton. Likewise, authority and autonomy at the CCRU is examined and compared to Porton to demonstrate how scientists used their knowledge to support their research agendas.

Journalist Rob Evans' publication *Gassed* (House of Strauss, London, 2000) came out shortly after Carter's *Chemical and Biological Defence at Porton Down*. Evans gives a detailed chronological account, based on exhaustive archive research and oral testimonies, of the experiments conducted at Porton Down on human subjects. Evans explores Porton's research involving mustard gas, nerve gas, hallucinogenic drugs and tear gas, using emotive language such as the chapter heading 'Pioneers of Pain'. He gives accounts of some volunteers who attended Porton which gives the book a human dimension that is lacking in Carter's publications, but does not give the context in which responses by volunteers were given. Evans offers both positive and negative accounts by volunteers which offer some balance; however, the majority of oral testimonies do lend themselves to criticism of Porton. Evans readily accepts that the Nuremberg Code should be the 'yardstick' of the ethical standard of the day, but does not address the finer issues as to whether this is appropriate or applicable which is considered here in chapter two. Indeed, the recordings of anecdotal comments and retrospective reflections, such as how volunteers came to attend Porton, lack analysis as to the reliability of the accounts in light of the passage of time and media attention. So while Evans' publication is a fascinating and thought-provoking piece of investigative journalism, it fails to engage with the historical context of the institutional setting and what effect that may have had on the perception of volunteers. This study provides a detailed examination of the historical context and looks closely at institutional

definitions of the volunteer in chapter six and how these emerged in the processes of recruitment analysed in chapter seven.

The Common Cold Research Unit

The CCRU has produced a limited number of publications, the earliest being by the director of the institution, Christopher Andrewes, *The Common Cold* (Weldenfeld and Nicolson, London, 1965). This provided a general account of the research of the institution and some of the experiments conducted. In 1973 a second publication emerged, *In Pursuit of the Common Cold* (William Heinemann Medical Books Ltd, London), which was a more scientifically focused account of the CCRU, although much of what is contained in the second publication was included in the first. The most notable difference between Andrewes' two publications is that the second publication discussed medical ethics, both at the beginning and end, and demonstrated a consciousness of the issues of using human subjects in experiments that was lacking in the first publication. This was perhaps in light of the *exposé* in 1967 by Dr. Maurice Pappworth, *Human Guinea Pigs*, discussed in chapter two of this study, which caused widespread media attention and a great deal of discomfort among the medical profession. Pappworth's criticism of hospital practices as unethical had a seemingly greater impact on human experimentation in Britain than the Nazi 'medical' experiments. This suggests that the Nuremberg Code may have been seen as of little relevance to the medical profession at the time, whereas Pappworth's publication and the ensuing media attention it aroused hit closer to home and, therefore, had a direct affect upon medical standards of practice.

In 2002, the successor to Andrewes, David Tyrrell, followed in his predecessor's footsteps and published *Cold Wars: The Fight Against the Common Cold* (OUP). This provides an account of the work of the CCRU from a scientist's perspective and its collaboration with other agencies such as the Ministry of Health. Tyrrell expanded and extended upon the work of Andrewes, providing an account of the CCRU up until its closure in 1990. The only other publication regarding the CCRU is by Keith Thompson, *Harvard Hospital and its Volunteers* (Danny Howell Books, Warminster, 1990). Written by the former

administrative officer of the Common Cold Unit, Thompson gives a 'day-to-day' guide to the CCRU and includes accounts of some of the volunteers, as well as reflections on the scientists and the institution. Thompson captures the sentimental comments of scientists and volunteers, and this publication conveys his own affection for the institution which employed him for several decades. Much of what is written is anecdotal. It paints a nostalgic picture of the participants' time at the CCRU, rather than being a serious attempt to analyse the role of the unit and the volunteers as does this study.

None of the publications on the CCRU focus specifically on the role of the volunteers, or institutional constructions of their roles, and it is this aspect which my study attempts to define. As a Medical Research Council (MRC) funded institution, the CCRU was ultimately answerable to the MRC and yet little is mentioned as to the level of involvement of the funding council in the day-to-day procedures. Chapter three addresses the role of the MRC as the overseeing body of the CCRU and the arrangements of the physical site of the CCRU. The organisational structure and the negotiation of scientific authority and autonomy between the MRC and the CCRU are explored in chapter five. While the publications on the CCRU give an account of the unit's research, they fail to give any real sense of the nature of volunteering and the relationship between the public representation of science, society and scientists who made use of volunteers drawn from the general public which chapters four and five in particular address. Moreover, the conscious decision to engage the press to publicise the need for volunteers has not been examined, which was significant to how volunteering was represented by the press that is addressed in chapter four, and how the CCRU volunteer was recruited which is examined in chapter six.

The chapters that form this study aim to make a positive contribution to the existing literature by examining an area that has received scant attention – the role of the volunteer. The comparative aspects are micro-studies of the institutions but broader concerns of the government in the post-World War Two period are examined in chapter four to shed light on the representation of volunteering in society. In exploring both institutional concerns with volunteers, as well as the national regard for volunteering, I hope to have offered a

more nuanced perspective of how society was influenced to perceive volunteering and how this influenced practice, particularly at the CCRU.

Chapter II 'For the guidance of wise men and the obedience of fools': Contextualising Consent, Medical Ethics Codes and Guidelines for Research on Human Subjects[28]

The Nuremberg Code was constructed to serve as a 'yardstick' against which the experiments conducted on prisoners by Nazi doctors could be measured. Earlier research treated the Nuremberg Code as free-floating document with a timelessness that transcended its original purpose and context.[29] Defining a volunteer and consent in the context of the Nuremberg Code was narrow and short-sighted because it did not take into consideration the specific purpose that the definitions served. To understand the meaning(s) of volunteering and giving consent in any given society, it is to that society which the historian needs to look. Volunteering needs to be understood in its cultural context and the lack of rigorous historical research in relation to Porton highlights the gap. Publications relating to Porton have focused on either institutional histories or journalistic exposés, neither of which have attempted to address the problem of volunteering, beyond claiming that it was either a patriotic duty of Servicemen, or that they were 'duped' into volunteering.[30] Furthermore, no attempt has been made to compare volunteering in different establishments within the same timeframe.

This chapter flags up the shortfalls in scholarly work with regards to medical ethicists and historians who adhere to the view that the first principle of the Nuremberg Code - that consent is imperative to the participant's status as a volunteer - was the standard by which human experimentation was, or should have been, measured. In the context of British medical science, the Medical Research Council and Porton Down committee meetings and internal minutes show that the Nuremberg Code was not adopted as their medical ethics policy. Rather, what guided practice in the use of human subjects was the professional

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[28] FD9/873, letter from Prof. Angus M. Thomson, MRC Reproduction and Growth Research Unit, Princess Mary Maternity Hospital, Newcastle-upon-Tyne, to Dr Malcolm Godfrey, MRC HQ, 13 November 1969.
[29] Bolton, 'Films, Ethics and Politics at Porton Down' (Unpublished MA thesis, 2004).
[30] The publications by Gradon Carter on Porton Down represent the institutional approach, as Carter has worked at Porton since 1948; journalist-turned-presenter Jeremy Paxman and the journalist-turned- novelist Robert Harris published *A Higher Form of Killing* that focused on gas warfare programmes at Porton. More recently the journalist Rob Evans published *Gassed* in 2000 which explored the use of volunteers at Porton and its programme of human experiments.

autonomy, credibility, and acceptability of the scientists, in the sense that the perception of science as powerful and providing solutions to numerous social and political problems preserved the profession's self-regulation. Contextually, the Nuremberg Code was tainted by Nazism and, therefore, the British scientific community did not align itself with it for that reason: it was viewed by researchers as unnecessary and irrelevant.[31] British scientists maintained an idealised Hippocratic stance on medical ethics, that the ethos of 'do no harm' was effective as a safeguard in the use of human subjects. As practitioners their knowledge and experience was deemed to be adequate to regulate their own practices.[32] As this chapter demonstrates, conflict from within the profession following the exposé by Maurice Pappworth of unethical hospital experiments had greater impact upon research practices than those conducted by SS doctors because the former directly affected British researchers and was relevant to their own professional interests.

i. 'Empty Ethics': The Cultural Position of the Nuremberg Code

In 1947, a ten point code was produced against which the Nazi experiments conducted by SS doctors on trial at Nuremberg could be tried. The Nuremberg Code, as it was to become known, set down the principles which governed human experimentation according to what the judges, in consultation with medical experts, deemed were the standards of the day. The first principle was the most significant:

> The voluntary consent of the human subject is absolutely essential. This means that the person involved should have legal capacity to give consent; should be so situated to be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, overreaching, or other ulterior force of constraint or coercion; and they should have sufficient

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[31] This was the conclusion reached by Hazelgrove, 'The Old Faith and the New Science', pp. 109-135. See also J. Katz, 'The Consent Principle of the Nuremberg Code: Its Significance Then and Now' in Annas and Grodin, *The Nazi Doctors and the Nuremberg Code*, p. 228, where he describes the Nuremberg Code as being viewed as '... a good code for barbarians but an unnecessary code for ordinary physician-scientists.'

[32] This was particularly evident from a paper by D. Guthrie, 'The Hippocratic Oath' in M. Davidson, (ed.), *Medical Ethics: A Guide to Students and Practitioners* (Lloyd-Luke Ltd, London, 1957), in which he preached 'The oath of Hippocrates should ever be regarded as the ideal to follow.', p. 161. This was echoed in the same publication by Hugh Clegg in his contribution 'Professional Ethics' in which he stated, 'We should listen to the Father of Medicine [Hippocrates] as well as praise him.', p. 32. This is interesting given that Clegg, editor of the *British Medical Journal* in the 1950s, was heavily involved in the formulation of the Declaration of Helsinki in 1964 which maintained much of the profession's paternalistic outlook; see S. Lock, 'Research ethics- a brief historical review to 1965', *Journal of Internal Medicine* (1995), vol. 238, p. 519.

knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision. This latter element requires that before the acceptance of an affirmative decision by the experimental subject there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconvenience and hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment.

The duty and responsibility for ascertaining the quality of the consent rests upon each individual who initiates, directs or engages in the experiment. It is a personal duty and responsibility which may not be delegated to another with impunity.[33]

It has been stated that the code 'in lucid and unambiguous language' preserved the 'rights and integrity of the research subjects'.[34] However, Perley et al argued that the Nuremberg code was in fact 'ambiguous with respect to both the principles themselves and their practical applications'.[35] In particular they highlighted the difficulty with informed consent in the Nuremberg Code, which stated that 'sufficient' information should be imparted for the subject to make an 'enlightened decision', whereby the level of technical and medical comprehension required to truly understand the nature of an experiment may preclude obtaining consent which can be described as informed. While the protection of the subject appeared central to the code and was upheld as the overriding principle which governed the use of human subjects in experimentation, it appears that this was not necessarily a principle in practice. Indeed, shortly after the sentencing to death of the SS doctor and Hitler's personal physician, Karl Brandt, his solicitor, Robert Servatius, sent a questionnaire to a British researcher, Dr Robert McCance, regarding the use of severely

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[33] Dörner, K., & Ebbinghaus, A. (eds.), *The Nuremberg Medical Trial 1946/7* (English Edition), fiche 123, p. 11568. I am grateful to Ulf Schmidt for providing a copy of this document.

[34] U. Schmidt, *Justice at Nuremberg: Leo Alexander and the Nazi Doctors' Trial* (Palgrave, Hants., 2004), p. 4.

[35] S. Perley, S. Fluss, Z. Banowski & F. Simon, 'The Nuremberg Code: An International Overview', in G. Annas & M. Grodin, *The Nazi Doctors and the Nuremberg Code: Human Rights in Human Experimentation* (OUP, 1992), p. 160.

deformed children as experimental subjects in British occupied Germany.[36] In relation to the Nuremberg Code, it would appear that subjects without the 'legal capacity' to consent, who could not possibly have the ability to make an 'enlightened decision', were used. Consent for the experiments on the children used by McCance's research team was purportedly obtained not from the parents, but from the doctors within the hospitals and maternity wards.[37] Despite this, McCance continued with his career as a researcher without standing trial for medical ethics violations and staunchly defended the autonomy of the researcher against externally imposed medical ethics rules.[38] Therefore the consent principle of the Nuremberg Code appeared to apply to the Nazi doctors in both theory and practice but not to researchers on the Allies' 'side', therefore reinforcing the view that the Nuremberg Code was a contextually specific construction.

What this very brief consideration of consent in practice highlights is that a significant problem with the Nuremberg Code was that it was produced for a very specific purpose rather than a concerted effort to set out medical ethics of the mid-twentieth century for the benefit and protection of the subjects involved. Moreover, the argument that it represented the standards of the day falls apart when compared to the use of human subjects in other contexts in the same timeframe. Furthermore, the tendency to see the Nuremberg Code as a timeless document which set the standards of medical ethics for years ahead and defined the nature of 'voluntary consent' ignores the limited amount of historical research on human experiments that suggests that in practice the Code had no bearing on the use of human subjects.[39] Part of the problem with the debates centred on the Nuremberg Code is that not enough research has been directed to analyzing historically the applicability of 'informed consent' in practice, especially in the British context. The notion of 'voluntary consent' in the Nuremberg Code has been translated into the use of the word 'volunteer' as

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[36] TNA, FO1013/1961, Professor McCance: medical research on young children with meningoceles, 1942-1949.
[37] TNA, FO1013/1961, Response to Servatius' questionnaire by McCance, May 1947.
[38] In 1950 McCance delivered a lecture to the Royal Society of Medicine entitled 'The Practice of Experimental Medicine', published in the society's proceedings the following year, and again in Davidson's *Medical Ethics* in 1957. In his lecture, McCance asserted that consent was not always required, but rather researchers should obtain 'permission' if it was considered to be 'desirable'.
[39] See for example, Goodman et al, (eds.), *Useful Bodies: Humans in the Service of Science in the Twentieth Century.*

a human subject, with the assumption that 'volunteer' and 'voluntary' were interchangeable. Therefore, there is an expectation that as a prerequisite to being a volunteer a subject must have given informed consent. Yet there is a significant gap in the literature relating to the use of consent, informed or otherwise, in the history of human experiments in Britain, or to the meaning and significance of the word volunteer. Recent research in social science echoes this view, noting that the informed consent process continues to model the subject as an 'autonomous individual' while ignoring the social context within which experiments take place, leading to 'an "empty ethics" model' which denies the cultural context of the decision-making process to give consent.[40]

The Medical Research Council (MRC), as Britain's leading funding body for medical research, presents a useful case study in the application of informed consent in Britain. By looking at the MRC headquarters' responses to its researchers' dilemmas on the use of human subjects, and the production of medical ethics guidelines for MRC researchers since 1947, a clearer understanding of the position of consent both in theory and in practice can be reached.

ii. 'A special relationship of trust': Professional Conduct and the Development of Ethics Guidelines at the Medical Research Council

The MRC was founded in 1913 as the Medical Research Committee, being incorporated by charter as the MRC in 1920, and has provided financial support for numerous research projects involving human subjects since its inception. The role of those MRC officials appointed to office in the positions of secretary, treasurer and chairman was, among others, to provide guidance and support to MRC unit directors and independent MRC grant-holders.[41] This was done via the circulation of committee meeting minutes, correspondence to unit directors and between committee members, and the circulation of internal notes and memoranda.

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[40] O. Corrigan, 'Empty Ethics: the problem with informed consent', *Sociology of Health and Illness* (2003), vol. 25, no. 3, p. 770.
[41] A. Landsborough Thomson, *Half a Century of Medical Research: Origins and Policy of the Medical Research Council (UK)* (HMSO, London, 1973), vol. 1, pp. 49-52.

In December 1947 Erich Eiringer of the Usher Institute of Public Health, Edinburgh, wrote to the MRC regarding 'the legal aspects of work with human volunteers'. He asked whether there existed 'any definite opinion' on safeguarding the researcher in the event that a clinical trial resulted in complications, such as infection, but which would not 'deter prospective volunteers'.[42] Two years later, Professor Charles Stuart-Harris, working in The University Department of Medicine, The Royal Hospital, Sheffield, also wrote to the MRC for guidance on the legal position with regards to human volunteers. On both occasions the advice given was to refer to the legal opinion obtained from the Treasury solicitor, Maurice Gwyer, in 1933 when guidance was sought in relation to influenza experiments on human subjects. It was the considered legal opinion that provided consent was obtained, having explained 'the nature of the risk' to the subject, and 'all due care and [...] all precautions suggested by medical science' were taken, then criminal negligence would be avoided.[43]

The appearance of 'informed consent' in the guidance of the Treasury solicitor was from a purely legalistic position to safeguard the researcher. Therefore while informed consent was certainly considered to be a key principle in human experiments even before the Nuremberg Code in 1947, it was not based upon 'human rights' to protect the subject. The advice given by the MRC to enquiries from MRC researchers was consistent with the opinion given in 1933 up until 1954, when it was decided to canvass the opinions of some long-established MRC directors on the circulation of a formal statement regarding procedures in the use of human subjects. The decision to seek the opinions of MRC researchers appeared to be a reaction to the impending World Medical Association eighth General assembly of 1954, rather than internal pressure from MRC researchers in need of guidance on the ethical use of human subjects in experimentation. The MRC needed to be seen to be in step with current national and international guidelines as the leading funding provider for medical research in the UK.

The draft compiled in July 1954 followed the advice given by the Treasury solicitor in criminal proceedings. It also stated that 'if the investigations involve the use of procedures

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[42] FD1/ 428, Copy of letter from Eiringer to MRC, 5 December 1947.
[43] FD1/ 428, Letter from Maurice Gwyer, Treasury Solicitor, to Dr A. Landsborough Thomson, MRC, 21 June 1933.

which are new and risks which have not been fully assessed, or of procedures which are arduous, it is suggested that evidence [of consent] should be in writing' and went on to classify 'investigations' into three categories.[44] The first were considered to be 'routine' procedures that could be undertaken as out-patients, the second covered procedures which involved, for example, oral administration of substances, and the third category was 'those investigations not falling into any of the other two classes'. This was circulated to five MRC unit directors: Drs Pochin, Grant, Reid and Gilson, and Professor McCance, all of whom were involved in research which 'might require them to do investigations on human volunteers'.[45] Dr J.G. Gilson was director of the Pneumoconiosis Research Unit at Llandough Hospital, Glamorganshire; Dr James Reid director of the Clinical Chemotherapeutic Research Unit, Western Infirmary, Glasgow; Dr R. Grant from the Clinical Research Unit, Guys Hospital, London; Dr. E. Pochin, Department of Clinical Research, University College Hospital, London; Prof. Robert McCance and his colleague N. Mackworth from the Department of Experimental Medicine, University of Cambridge.

McCance, whose research during WWII was called into question by the Nazi defence, was the first to respond to the circular. A letter dated 22 July 1954 stated that while he had only 'briefly' read the circular, he felt it was 'a great mistake to try to get people to sign anything' and referred to his views on consent as expressed in a paper 'The Practice of Experimental Medicine'.[46] This paper was originally given as a lecture to the Royal Society of Medicine in 1950 (and later published in an edited volume *Medical Ethics: A Guide to Students and Practitioners*) in which McCance stated that consent forms were destructive to 'the whole atmosphere of trust' and that a patient/ experimenter relationship based upon trust meant that the experimenter could dispense with the 'formality' of 'asking "permission".[47] McCance's letter was promptly replied to by Duncan of the MRC who pointed out that McCance's views on consent only appeared to depart from the MRC's views on the subject of written rather than verbal consent. In this regard, Duncan reminded McCance, experience with written consent forms in use at the Common Cold Research

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[44] FD9/ 855, MRC draft circular 'Investigations in which volunteers participate', 16 July 1954.
[45] FD9/ 855, MRC copy letter to Pochin, Grant, Reid, Gilson and McCance, 16 July 1954.
[46] FD9/855, Letter to J.G. Duncan, MRC, from R. A. McCance, 22 July 1954.
[47] R. McCance, 'The Practice of Experimental Medicine', in Davidson, (ed.), *Medical Ethics*, p. 147-8.

Unit, Salisbury, (CCRU) demonstrated that there was 'no significant reluctance by volunteers to sign the form'.[48] Two days later McCance responded that he felt 'so strongly that written permission from patients is a mistake' and that while it might be 'quite all right' for common cold tests, it should not be used prior to surgical procedures.[49] It appears from this exchange of letters that McCance's reservations on obtaining written consent were based on his use of patients in procedures which were of an experimental nature, whereas the draft circular forwarded by the MRC specifically referred to 'volunteers'. For McCance, a patient who volunteered to undertake a surgical procedure that was at an experimental stage was different to a volunteer taking part in an experiment of no direct relevance to him or herself. The 'formality' of obtaining consent was judged as contravening the doctor-patient relationship in which the patient trusts the physician's judgment. From McCance's perspective, a patient volunteer was rather different from the type of volunteer highlighted by example at the CCRU, and therefore a different set of ethical 'rules' applied.

Dr Grant's response to the draft circular was to state that he saw 'no material difference between patient and volunteer' with regards to the subject of liability.[50] Grant also made the point that the circular was weighted towards the protection of the MRC and its workers and posed the question 'suppose something untoward happens to the volunteer ... has the injured volunteer no means of obtaining compensation and if so should he not have the means?' Grant considered that the MRC memorandum produced in 1953 by the secretary of the MRC satisfactorily dealt with the subject of human experimentation and, therefore, thought 'it would be better not to codify procedure'. The 1953 memorandum entitled 'Clinical Investigations' was circulated among MRC staff and grant holders, as well as various medical schools, scientific societies and journals, as 'an indication of their [the MRC] attitude towards the considerations involved in carrying out investigations on patients'.[51] It appears that it was produced ahead of the WMA's eighth General Assembly

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[48] FD9/ 855, Duncan to McCance, 26 July 1954.
[49] FD9/ 855, McCance to Duncan, 28 July 1954.
[50] FD9/ 855, Letter from Dr R.T. Grant to Duncan, MRC, 26 July 1954.
[51] This memorandum, reference 53/649, was reproduced in full in Davidson, (ed.), *Medical Ethics* (1957), pp. 151-153. It is not contained in the MRC file relating to the discussion of the draft produced in 1954.

as a precursor to the 1954 circular.[52] Grant's conviction that this 'excellent' memorandum was adequate in providing the necessary guidance on human investigations somewhat missed the point of the draft circular of 1954. Whereas the 1953 memorandum was solely concerned with the patient, and drew heavily on the responsibility of the investigator who had 'a special relationship of trust', the draft circulated in 1954 focused on 'the volunteer' as opposed to 'the patient'. As a clinician, Grant's attitude reflected his orientation within the profession dealing with patients as volunteers. His paternalistic concerns for the welfare of his patients contrasted somewhat with McCance's concerns. Whereas McCance appeared anxious that his authority as a physician be preserved and suggested that the use of consent forms would be detrimental to the principle of trust and his status, Grant seemed to be alarmed that the MRC was considering consent forms to serve to protect the MRC from liability. McCance distinguished between a patient who volunteered and a volunteer who elected to take part without first being a patient; Grant felt that such a distinction was unnecessary.

In conclusion, Grant asserted that the MRC should avoid codification of procedure and offered his 'own policy' in relation to how he conducted experiments on humans: 'not to submit a subject to a procedure I have not previously experienced or would not be willing to experience'. The MRC responded to Grant's opinions at length and in particular, the MRC was keen to comment on the issue of who consent forms served to protect. Duncan wrote to Grant that a consent form would not 'free council and their workers from all liability' but rather it would demonstrate that they had been 'meticulous' in their conduct to safeguard against risk. He went on to explain that the MRC wanted to:

> … preserve their good reputation, and that of their staff, by the high standard of responsibility shown by members of their staff in experiments on volunteers. The document, if it is ever decided to introduce it, might serve a useful purpose in curbing the impetuosity of some of our brethren who might be tempted through overkeeness to do something they really know they ought not to.

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[52] A similar reaction to the WMA's Declaration of Helsinki I (1964) caused the MRC to issue guidelines to its researchers ahead of the WMA Assembly, to be discussed below.

Eager to defend against the interpretation of the circular as a 'damage-limitation exercise', this response hints at both a lack of standardisation of practice by MRC workers conducting experiments on humans and a recognition that the morality conveyed by Grant's 'do unto others' policy was not necessarily upheld by all researchers.

Both Grant's and McCance's replies disclosed their adherence to their own judgment in the use of human volunteers, and this was echoed in the response from Dr Pochin who considered that written consent was 'inconsistent with the way any doctor should think of his responsibility to a patient, particularly if the latter was accepting investigation on his advice.'[53] Pochin expressed the view that obtaining written consent could potentially reduce the responsibility of the experimenter, who would feel that they had covered their position through the use of a consent form, which was 'wholly undesirable'. He considered that there was a need to avoid legal proceedings against experimenters in cases where there might be 'a remote risk' which 'do occur in any work on man', but that 'substantial risks' should not be taken and this should be pressed upon every investigators involved with human subjects. However, he did not feel that the MRC should instigate consent forms for the protection of the MRC and its researchers because it would impair the researchers' judgment and the doctor/ patient relationship. Grant, McCance and Pochin were all involved in clinical research on patients rather than self-elected volunteers. Adhering to paternalistic notions of care, they tended to concur that their own judgment should serve to mitigate liability rather than having such policies forced upon them by the MRC. However, the response from Dr James Reid was very different.

Contrary to the other directors' responses, Reid was very positive towards the circular. He wrote, 'I read your memorandum ... with interest and congratulate you on an excellent exposition of a very difficult subject'. His only criticism was that the MRC seemed keen to distance itself from responsibility according to the increase in the level of risk which might inhibit researchers and cause 'stalemate' in investigations.[54] Reid was concerned that by associating consent forms with experiments which involved a greater risk to the subject, it

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[53] FD9/ 855, Pochin to Duncan, MRC, 28 July 1954.
[54] FD9/855, Letter to Duncan, MRC, from Reid, 28 July 1954.

could have the effect of deterring researchers from conducting some kinds of experiments. As a solution, Reid forwarded some notes he had compiled from malarial infection experiments he had conducted on Service personnel and conscientious objectors 'which were based on this and later experience of investigations of this kind'. Reid offered a number of points concerning the use of human subjects which would not impede the 'progress in medical research' but which would assist in enabling all parties to be 'adequately covered'. Reid suggested that the use of an insurance policy (as was used for soldiers who volunteered to be infected with malaria) would ensure that should an 'unfortunate accident' occur, the person's dependents would be taken care of. He foretold that the autonomy of the investigator who took 'full responsibility' for experiments was 'passing quickly'. Therefore, he suggested that a MRC panel should be formed to receive proposals which would set out the nature, necessity and risk of investigations and for the MRC to advise on its feasibility. This was not, as Reid stated, a measure to remove the investigator's responsibility but rather to have it reinforced.

Just as Grant had offered his own personal view of his own practice, so did Reid. He wrote:

> My own practice when I have an experiment of this kind is to talk it over with the Secretary when he visits us. I do this not because I am unwilling to shoulder responsibility but because one realizes that when one lives too close to a particular problem an informed outside opinion is always welcome.

Rather than defending his autonomy to make decisions in relation to experiments on human subjects as Grant, McCance and Pochin did, Reid identified a danger inherent in the nature of human experiments. He outlined that experimenters who were 'too close' to their experiment did not have the objectivity that an outsider might have and that some kind of consulting body could help to mediate. Despite Reid's advice, it was not until late in the next decade that professional advisory bodies, in the shape of ethics committees, began to be formed.

It is quite striking how the responses of the clinicians, McCance, Grant and Pochin, differed from that of Reid. This can be accounted for on the basis of their experiences within the medical profession. All of the researchers whose opinions were sought by the MRC on

consent forms, and were considered to be clinicians, took the position that consent forms were destructive to a doctor/ patient relationship. This was because these researchers were engaged in the use of patients as experimental subjects in potentially therapeutic experiments. McCance in particular made the distinction between patient-volunteers and those involved in other types of experiments. Yet, his earlier research on children in British-occupied Germany was not therapeutic and the investigations conducted on them were of no potential benefit to the children involved. This suggests that McCance's response to the MRC circular was based on the nature of experiments he carried out at the time.

His response, and that of his colleagues with the exception of Reid, was situated in his current practice of using patients as volunteers and it was this practice which dictated his response. Reid had experience with the use of non-therapeutic experiments on volunteers drawn from outside of the clinical setting and he took a broader view of consent in human experiments. In a non-clinical setting, 'ownership' of the human subjects was not solely a doctor-patient relationship but viewed as more contractual in nature, hence the suggestion of an insurance policy. Despite McCance's experience of non-therapeutic experiments, he did not take a broad view but instead tended to view the circular as destructive to the research he was directly involved with at the time the circular was distributed. The majority reaction of the clinicians who opposed consent forms can, therefore, be seen as a reaction in light of their own practices. Their opposition came from the belief that consent forms would be detrimental to conduct of experimental procedures in which they were engaged. The majority opinion was accepted and the MRC abolished the proposal to introduce written consent.

In a note on file, it was recorded that the opinions of the clinicians, as opposed to Reid who was 'more a pharmacologist', were in the majority and 'solidly opposed to any change' for verbal consent to be replaced with written consent.[55] Subsequently a letter was circulated to the directors whose opinions were canvassed. This letter stated that the MRC conceded to the majority view that verbal consent should continue to suffice, but 'a simple form of

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[55] FD9/ 855, note on file from Duncan, 23 September 1954.

consent signed by the volunteer' should be used in experiments which had the potential to cause 'ill effects'.[56] The circulation of the draft concerning consent and liability raised a number of issues concerning the protection of subjects, the experimenters' responsibilities and the nature of human experiments in relation to risk. It highlighted the lack of policy within the MRC on the subject of human experiments and the divergent opinions which were largely influenced by the experimenters' experiences and requirements. For the MRC, the problematic nature of consent and the use of human subjects were highlighted and it triggered a conference to which all MRC directors who were given the circular were invited for the purpose of discussing these issues and defining policy. No doubt this conference was influenced also by the formulation of principles on research ethics following the eighth General Assembly of the World Medical Association in 1954.[57] It was in the discussions and exchanges leading up to the MRC conference that the Nuremberg Code first made its appearance.

In preparation for the MRC conference, Dr Grant sent to the MRC a list of seven points which he considered were important to the proceedings. The first point asked the question: 'Must consent always be obtained? If so, what about certain therapeutic trials?'[58] Given Grant's experience as a clinician, this question is highly revealing because rather than supporting the primacy of consent, as historians have tended to suggest, it implies that obtaining consent was not always standard procedure in medical research, or at least was not a deeply ingrained practice. Moreover, it highlights the problem with the lack of distinction between therapeutic and non-therapeutic trials and the applicability of consent in both of these circumstances. In relation to the instigation of legal proceedings by a volunteer against an experimenter, Grant asked whether it was the case that 'ordinary practitioners', as opposed to clinicians, were used to give medical evidence for the plaintiff and if so, 'How am I to know what the ordinary practitioner would think of the procedures I use?'. Rather than being a homogenous body, the medical profession appeared to be

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[56] FD9/ 855, MRC secretary Landsborough Thomson, 'Investigation in which volunteers participate', February 1955.
[57] P. M. McNeil, *The Ethics and Politics of Human Experimentation* (CUP, 1993), p. 44. It took ten years from the formulation of these principles in 1954 to the Declaration of Helsinki in 1964 which codified them as guidelines for researchers engaging human subjects.
[58] FD9/ 855, Letter from Grant to Duncan, 23 February 1955.

comprised of practitioners, clinicians and scientists who did not necessarily communicate with each other across their own particular area within the profession and therefore had differing views. As demonstrated above through the responses to the circular, even those working with volunteers appeared to have differing views when the experiments were on patients as opposed to volunteers used in non-therapeutic trials. Grant made further suggestions that the discussions at the conference tackled the issue of what the circumstances might be which would require written or verbal consent, from which 'certain general principles which, reduced to writing, could guide, particularly the young, investigator in making his decision about justifiability.' It is interesting that Grant's letter conveyed a certain amount of confusion on his part with the issue of consent, and yet concluded that clarifying the issue would be of particular use for the young researcher, rather than researchers in general.

It was Grant who brought to the attention of the MRC an article of 26 February 1955 in the *British Medical Journal* which, according to the internal note, made reference 'to rules regarding experiments on human volunteers prepared in connection with the trials at Nuremberg of the Nazi doctors who had performed experiments on persons in concentration camps.'[59] In response, a copy of 'the article by Shimkin in Science' had been requested instead, but that should this article not 'give us what we need' Grant's reference could be sourced. In 1953 *Science* published a series of papers on the subject of human experimentation which were based on a symposium titled 'The Problem of Experimentation on Human Beings', convened at the Medical Staff Conference, University of California School of Medicine, San Francisco, on 10 October 1951. The article by Michael Shimkin of the University of California School of Medicine dealt with 'The Research Worker's Point of View', as was the sub-heading of his paper, and included the reproduction of the Nuremberg Code which he stated was 'perhaps the clearest formulation' of 'proper rules of conduct'.[60]

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[59] FD9/ 855, Internal note, 3 March 1955.
[60] M. Shimkin, 'I. The Research Worker's Point of View', *Science* (27 February 1953), vol. 117, pp. 205-7.

Shimkin reproduced the Nuremberg Code in full and then went on to claim that they could be 'reduced to two primary principles': that the experimenter should be competent and able to comprehend 'the ethics involved' and that the subject 'must understand and voluntarily consent to the procedure' and not be selected on account of 'race, religion, level of education, or economic status' etc. Shimkin also explored the categorisation of subjects: dividing them into those of 'normal subject' 'the subject with reversible disease' and 'the subject with fatal disease'. He also divided the types of experiments as 'passive research' such as the use of tissue, 'late active research' in which prior human experimentation had been performed, and 'initial active research' whereby the human subject was used because the experiment 'can be pursued best, or only, directly on man'. It was this last category that Shimkin considered was 'most difficult and complex in its ethical and other ramifications and implications' because there was usually a lack of therapeutic benefit to the subject. However, despite Shimkin's efforts to outline the 'rules' of human experimentation, he adhered to the freedom of the researcher to make his own decisions. He stated that while 'the guiding principles that have been developed would have general acceptance within the framework of our culture', the ways in which these would be applied and adhered to in research with human subjects were 'still open to individual interpretations and differences'. Therefore, he acknowledged the problem with standardizing practice when humans cannot so readily be standardised.

Conceding that investigators could not be brought to follow a standard set of principles for human experiments, Shimkin ended his article with a warning:

> It is appropriate to indicate in this connection that science per se is neither moral nor immoral; it becomes moral or immoral only as moral or immoral human beings use its powerful techniques.

So despite Shimkin's attempt to clarify the position of researchers in their use of human subjects, he was unable to reconcile the general principles he formulated with the individuals' autonomy. Moreover, even though he reproduced the Nuremberg Code in full, he drastically reduced it to make it apply, as he saw it, to his own culture. While the principles of the Nuremberg Code were worthy ones, Shimkin did not consider that they were applicable in their entirety to contemporary practices in 1953.

The MRC adopted Shimkin's methodology by using the Nuremberg Code as a point from which to debate the issue of human experimentation at the conference, and reproduced the Nuremberg Code in full, citing Shimkin's article as reference, which was circulated to the conference participants ahead of the meeting.[61] The conference took place in September 1955 with Sir Harold Himsworth, secretary of the MRC, chairing.[62] In attendance were Drs Grant, Harington, McCance, Mackworth, Pochin, Reid, Herrald, Cohen; Sir Landsborough Thomson, and Messrs Cawthron and Duncan. The minutes of the meeting were circulated in November of the same year. Despite Shimkin's narrowing of the Nuremberg Code, the most significant outcome of the MRC conference was agreement that:

> It was axiomatic that full consent must always be obtained before an experiment was conducted on man, that the conditions drawn up by the Nuremberg Tribunal set out adequately the requirements which should be satisfied before the consent could be termed full and also the other conditions which should regulate the conduct of the experiment.

In this vein, a number of suggestions on how to obtain consent to 'serve as a guide for members of staff' were drawn up.

It was considered that 'volunteers from the general public' to test prophylactic agents recruited through 'written or printed request' would not need to give verbal or written consent, provided that the request included details of the experiment, its purpose and the nature and likelihood of any danger. The attendance of the volunteer was deemed to warrant consent for the experiment advertised. However, in respect of volunteers who were used for experiments other than the testing of preventative treatments, the conference participants were unable to formulate any 'precise guidance' on the type of consent which should be obtained 'except that the more intelligent and informed the volunteer the more readily could members of staff rely on oral consent'. Medical student volunteers were exempt from written consent on the basis that they were considered to have 'more than

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[61] FD9/ 855, circular 'Conditions on which experiments can be conducted on human beings as formulated by the Nuremberg Tribunal on 19th August 1947', 6 May 1955.
[62] FD9/ 855, minutes of meeting 'to consider conditions on which experiments can be conducted on man', drafted 18 November 1955.

average knowledge' of experimental investigations. In the case of 'patients as volunteers', the conference participants decided that 'Any procedure which would, in the opinion of members of staff, contribute to the welfare of the patient should not be regarded as an experiment.' However, 'in other cases' the procedures for obtaining consent would follow that of those for the general public.

It is interesting that these conclusions were drawn, given the diversity of opinion when the MRC requested the opinions of McCance et al in 1954. Grant had considered patients to be no different to volunteers, yet McCance had differentiated between them. The decision that experimental procedures undertaken on patients should not be classed as experiments if they would 'contribute to the welfare' of the patient meant that the dilemma of definition over whether a patient was a volunteer or not was removed. The decision over the nature of the procedure, regarding it being beneficial even if it were experimental, was left to the 'opinion' of the medical professionals. This accorded with McCance who deemed the superiority of medical opinion precluded the necessity for consent forms in a doctor/ patient context. Reid's support for some kind of indemnity to protect both the MRC and the volunteer did not appear to be borne out in the concluding recommendations of the conference which in any case failed to reach any firm guidance on non-therapeutic experiments.

The outcome of the MRC conference, held eight years after the Nuremberg Doctors' Trial, that the first principle of the Nuremberg Code sufficiently set out the issue of consent in human experiments demonstrated an agreement in reduced form. However, the frequent use of the word 'should' rather than 'must', suggests that the statement subsequently issued was merely for guidance. Interestingly, the MRC memorandum on 'Clinical Investigations' circulated in 1953 acknowledged that obtaining consent from patients prior to a clinical investigation was 'not in itself enough' because owing to the doctor/ patient relationship 'most patients will consent to any proposal that is made'.[63] It advised that because the procedures were 'nearly always so technical as to prevent their being adequately understood by one who is not himself an expert', the onus was on the clinician to decide on

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[63] MRC memorandum, 1953, reproduced in Davidson, (ed.), *Medical Ethics*, p. 151.

whether to carry out an investigation on not. Moreover, it stated that: 'In such a diverse and rapidly expanding subject as clinical research it is impossible to frame a code of general advice that would adequately cover the ever-changing circumstances which arise.' The 1955 conference of MRC unit directors and clinicians reached similar conclusions. However, it did not appear that researchers necessarily 'resisted the introduction of the [Nuremberg] Code' specifically, but rather were unable to 'frame a code of general advice' and therefore set out some guiding principles for reference.[64]

When set in the wider context of international medical ethics, it appears that the need to keep in step with other professional bodies was the driving force behind the discussions on medical ethics policy, rather than a humanitarian effort to protect research subjects. The World Medical Association (WMA) issued their 'Principles for those in research and experimentation' in 1954 which 'clarified' the Nuremberg Code and adapted it to the context of clinical research with a distinction between therapeutic and non-therapeutic research.[65] Subsequently in October 1962 the WMA's 'Draft Code of Ethics on Human Experimentation' was published in the *British Medical Journal* after the commencement of discussions on medical ethics which were to converge in June 1964 with the Declaration of Helsinki.[66] The 1962 draft coincided with the release of a statement by the MRC in its annual report for 1962-3: 'Responsibility in Investigations on Human Subjects' which was published in July 1964.[67]

Although these guidelines from the WMA and the MRC adhered to the principle of informed consent, they did not make any direct reference to the Nuremberg Code. While Schmidt has called this a process of 'watering down' by which such guidelines allowed for less stringent safeguards than the Nuremberg Code,[68] it can also be viewed as an attempt to adapt the general principles that were embodied in the Nuremberg Code but which were

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[64] U. Schmidt, 'Cold War at Porton Down: Informed Consent in Britain's Biological and Chemical Warfare Experiments', *Cambridge Quarterly of Healthcare Ethics* (2006), 15, pp. 360-380, p. 371.
[65] R. Baker, 'The History of Medical Ethics', in R. Porter & W. Bynum, (eds.), *Companion Encyclopaedia of the History of Medicine* (Routledge, London, 1993), p. 873.
[66]World Medical Association, http://www.wma.net/e/history/helsinki.htm, accessed 22 December 2006.
[67] FD9/ 865, MRC statement, 1962-63 (HMSO, 1964); also published in the *BMJ* (18 July 1964). An abridged version was also published in *The Lancet* on 18 July 1964, a month after the Declaration of Helsinki.
[68] Schmidt, *Justice at Nuremberg*, p. 267.

originally applied specifically to the context of experiments on prisoners and mentally ill persons. The MRC and WMA publications on medical ethics between 1962 and 1964 distinguished between therapeutic and non-therapeutic research, which the Nuremberg Code did not, and preserved the doctor/ patient relationship which was a central consideration within the medical profession. The Nuremberg Code made no reference to the doctor/ patient relationship because it was not produced in response to a situation whereby doctors had abused their position of trust with their own patients. Rather than a process of dilution, the issuing of such guidelines offered a more realistic and reassuring approach. They recognised 'the impossibility of formulating any detailed code of rules' but attempted to set out a means by which 'irreproachability of practice' could be sought, while at the same time preserving the researcher's autonomy to make decisions on the use of human subjects in research.[69] Michael Grodin's assertion that the medical profession adopted the Nuremberg Code as international guidelines should be re-phrased; it would be more appropriate to describe them as being *adapted,* or constructed, rather than adopted.[70]

The discussions and statements of the MRC demonstrated that medical ethics policy was not easy to define and that as such there were no 'hard and fast' rules which could be enforced in the use of human subjects. Moreover, it highlighted the resistance and opposition by individuals within the medical profession towards standardising their conduct through directives from an overseeing organisation. The MRC guidelines were not enforced and following their publication Professor Charles Dent of the Medical Unit of University College Hospital Medical School, London, wrote to Harold Himsworth at the MRC commending the MRC for the 'good stuff' on medical ethics, and asking for 'unofficial advice' on a drug trial.[71] Dent's dilemma was that he had available a patient whom he deemed to be 'a most splendid intelligent volunteer' who was willing to take part in the drug trial. However, Dent was concerned because he intended to make the drug industry pay the patient 'a good sum of money' to volunteer and wondered if there were any 'special problems' that might arise from this.

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[69] Quotes from MRC statement 'Investigations on Human Subjects'.
[70] M. Grodin, 'Historical Origins of the Nuremberg Code', in Annas & Grodin, (eds.), *The Nazi Doctors and the Nuremberg Code*, p. 139.
[71] FD9/ 863, Letter from Dent to Himsworth, 4 September 1964.

In response, Himsworth outlined the implications of paying volunteers. He pointed out that payment indicated no direct benefit to the subject and that legally it might be argued that payment was indicative of an element of risk. Himsworth contested the payment of Dent's volunteer on the grounds that it was an 'element of patient-care'. Therefore, Himsworth argued, no reason existed for paying the volunteer to take part. However, he proposed that a way to circumvent the problem would be to make the drug company pay the patient directly 'for any extra trouble she is put to'.[72] Dent accepted Himsworth's advice but confessed that he would probably be 'slightly dishonest' about the amount of expenses payable to the volunteer to ensure she would be given 'a somewhat larger sum'. He also noted: 'I cannot help feeling slightly amused that the moment I try and get proper payment for a therapeutic trial I find myself in trouble.' This highlights how the MRC guidance given on the use of human subjects and the special relationship between doctor and patient was just that: guidance. Ultimately researchers were able to manipulate circumstances to meet what they deemed were the propriety of the situation, regardless of the ethics. However, this position was set to change when in 1968 the MRC formed a Committee on Human Investigations 'to consider all investigations on human beings carried out at the Institute [National Institute of Medical Research (NIMR)], and to advise the Director on all matters relevant to the safety of their subjects'.[73]

The NIMR had been established in London in 1913, the same year as the Medical Research Committee (later Council) was founded, as the central research institute of the MRC. The Committee on Human Investigations was formed in 1968 at NIMR, officially in response to the Report of the Committee on the Supervision of the Ethics of Clinical Investigations in Institutions, July 1967.[74] This report was produced partly in response to the publication in 1967 by the physician and Harley Street medical lecturer, Maurice Pappworth, exposing unethical practices in a number of British hospitals that provoked enormous controversy and widespread publicity of the issue of medical ethics in practice. Pappworth published *Human Guinea Pigs: Experimentation on Man* which alleged that UK hospitals had

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[72] FD9/ 863, Reply from Himsworth to Dent, 16 September 1964.
[73] FD9/ 879, Committee on Human Investigations, draft circular, June 1968.
[74] This is the reason given in the circular 'Committee on Human Investigations', June 1968

conducted a number of unethical experiments on patients.[75] Pappworth made claims that non-therapeutic experiments had been conducted on patients who were either unable to consent or had not been asked for consent and drew comparisons between the Nazi doctors and the British medical profession. The allegations made sparked a flurry of media attention both in medical journals and the national press and caused concern within the medical profession. Such was the concern with Pappworth's allegations that the MRC collected a number of press cuttings from the national press.[76] In the *People*, a 'medical storm' was forecast with the publication of Pappworth's book amid his 'allegations that hospital patients have unwittingly been subjected to experiments.'[77] *The Observer* headline for the story was: 'Children used as hospital guinea pigs, says doctor', seizing on the use of children, pregnant women and 'mental defectives' as subjects 'without the knowledge or consent of the patients'; similar reports were made in the *Daily Mail, Evening Standard* and *The Times.*[78]

In response to Pappworth's exposé, the Patients' Association's reaction was to call upon the Minister of Health, Kenneth Robinson, to either confirm or deny Pappworth's allegations to 'allay public fear'.[79] The *Evening News* reported this and went on to quote Pappworth at his book launch reception who called for 'legislation which is both enforceable and enforced' to counter the 'ambition' of the medical profession which resulted in a disregard for ethics. Moreover, Pappworth dismissed the MRC guidelines of 1964 as 'not enough and unenforceable'. In the *Daily Sketch* it was reported that the MRC 'would not comment' on Pappworth's allegations, while *The Times* published a response from the Minister of Health that there was 'no specialist law relating to this question' but that 'guidance to doctors was given by the Medical Research Council in their report for 1962-3'.[80]

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[75] M. Pappworth, *Human Guinea Pigs: Experimentation on Man* (Routledge & Kegan Paul, London, 1967).
[76] FD9/ 862.
[77] FD9/ 862, *The People*, 14 May 1967.
[78] FD9/ 862, published 14-17 May 1967.
[79] FD9/ 862, *Evening News*, 17 May 1967.
[80] FD9/ 982, *Daily Sketch,* 18 May 1967; *The Times,* 20 May 1967.

The *Daily Express* adopted a less sensationalised approach and posed the question 'What are your chances of being a hospital guinea pig?' which it answered with 'little need to worry'. The writer of the piece, James Wilkinson, reported that 'many leading doctors' he had spoken to claimed Pappworth's allegations were 'exaggerated'. Wilkinson considered that editorial scrutiny of research papers submitted for publication and the involvement of others in the process of experimentation acted as 'two strong brakes which limit the human guinea-pig problem'. Furthermore, he asserted that: 'The public's trust in the medical profession, and the profession's recognition of that trust ... would never be lightly set aside'. This, he concluded, was a significant safeguard.

The medical press reported Pappworth's claims in a more defensive manner. The *International Medical Tribune* reported that Pappworth had given a 'distorted view of some clinical investigations' that lacked 'sufficient understanding, personal experience or knowledge'.[81] It countered Pappworth's allegations by arguing that as 'someone not a research worker', Pappworth could not understand the processes by which clinical research operated. Repetition of experimental procedures was not unnecessary, as Pappworth had claimed, but was conducted for the purposes of validating the method. On the subject of consent, 'the duty of doctors' to ensure that subjects were protected was adhered to but the article failed to outline any specific response other than that 'research committees' in America and the UK had been established to 'examine and approve all clinical research projects'. The *Lancet* described Pappworth's 'bitter analysis' and acidly wrote that Pappworth could 'barely restrain himself from condemning all those responsible (and the editors who publish their findings) as a bunch of inhuman rogues who need stern correction by Law.'[82] The influence of Pappworth's book, the *Lancet* argued, would have had more impact if it had been 'shorn of such excesses and haughtiness', although the questions it raised over the issue of consent were 'accepted'. The 'voluntary reappraisal' of human experimentation by the profession was considered to be 'more constructive and protective that Dr. Pappworth's minatory criticisms' and it was reported that the Royal College of Physicians had already been active in considering the subject.

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[81] *International Medical Tribune,* 25 May 1967.
[82] *Lancet,* 27 May 1967.

World Medicine set out Pappworth's main arguments and invited Dr Charles Fletcher of Hammersmith Hospital, one of the hospitals against which Pappworth's allegations was directed, to respond.[83] Fletcher's opening sentence, 'Triumphs over disease and injury have not been won for mankind by medical research without cost', conveyed a sense of necessity for experimentation justified by the needs of mankind. Fletcher asserted that experiments should be 'scientifically impeccable' and the 'golden rules' which guided experimentation were that the doctor should not carry out a procedure that he would not 'happily accept himself'. Furthermore, he advocated that 'complete honesty with patients' regarding the nature of the procedure be conveyed. Yet Fletcher maintained that it was the doctor's responsibility to judge the risk against the benefit. He referred to the MRC memoranda which protected the patients from 'rare transgressions' away from the 'golden rules', and added that the US Public Health Service insisted on an ethics committee before awarding research grants to clinicians which further served to demonstrate propriety in practice. In reaction to Pappworth's claims, Fletcher described Pappworth's publication as an 'attack on clinical investigators' which were 'couched in highly dramatic terms'. Fletcher suggested that Pappworth was sensationalising accounts of experimental procedures and had not considered the benefits to the patients that were gained through the use of some procedures which Pappworth considered to be 'shocking'. Fletcher concluded that the suggestions put forward by Pappworth for a legal code 'could not have been seriously proposed by anyone engaged in medical research.' In this concluding remark, Fletcher appears to be suggesting that as a lecturer of medicine and not a practising clinician, Pappworth was unqualified to make judgments on a field of medical research in which he did not practise.

Pappworth had hit the headlines five years previously when an article of his was published in *Twentieth Century* which made claims that British teaching hospitals were using patients as subjects, 'rarely having any interest in patients purely as patients'.[84] Many of the claims he made in 1962 were repeated in more detail in his publication of 1967. In response to an article in *The Guardian* on Pappworth's 1962 article, Dr John McMichael, University of

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[83] *World Medicine*, 6 June 1967.
[84] *The Guardian*, 18 October 1962.

London Professor of Medicine, wrote a statement to the newspaper defending clinical research. He asserted that what compelled medical research was 'compassion for the incurable and the dying' which 'inspires a wish to understand more fully'.[85] He went on to further defend the 'miracles' of modern surgery which were based on investigations and accused Pappworth of describing procedures with 'an air of brutality which is unjustified'. Sir Robert Platt, immediate past president of the Royal College of Physicians was also quoted: 'Ethically, it is imperative for the medical scientists to explain the nature of the procedure to be undertaken before obtaining full consent.' Platt went on to say that most of the examples given by Pappworth were 'investigational measures', invasive procedures undertaken to examine the patient more closely, rather than experiments.

The reaction of the MRC to Pappworth's allegations in 1962 was recorded in a letter from the secretary of the MRC, Harold Himsworth, to the Lord President of the Council and Minister for Science. Himsworth acknowledged that while 'a small minority of clinical investigators who do cause us to lift our eyebrows from time to time' did exist, Pappworth's portrayal of them as 'sadists' was unfair.[86] He recognised that investigators who were 'fanatically dedicated' to increasing knowledge had caused the 'exaggerated tendentious form' of writing by Pappworth. Himsworth referred to the 1953 memorandum 'Clinical Investigations' by the MRC issued to all medical faculties and its reproduction in various publications since, but asserted that there were no firm rules which could be set down to counter the 'rare fanaticism'. 'In my opinion', he went on, 'the medical profession will have to discipline itself, and I think that to this end the senior members will have to challenge anything that is obscure ...' Himsworth concluded that should 'this matter subside', talks with individuals as to their duties in upholding propriety in practice would suffice; however, if it became 'more serious' the Ministry of Health would be consulted. Clearly when 'this matter' once again arose with Pappworth's book in 1967 and with the Patients' Association's pressure on the Minister for Health, the MRC needed to be seen to be acting appropriately as the subject of human experimentation could no longer be kept within the profession.

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[85] *The Guardian,* 22 October 1962.
[86] FD9/ 862, letter from Himsworth, 23 October 1962.

However, it appears that Pappworth's 1967 publication was not the sole reason for establishing the NIMR committee. In a letter from the director of NIMR, Prof. Peter Medawar, to Brandon Lush of the MRC, Medawar suggested the formation of an 'ethical committee' as a solution to the problem of the National Institutes of Health (NIH) withholding a collaborative grant. The NIH, the US equivalent of the MRC, demanded that before one of its workers could engage in a research project with a NIMR researcher, 'detailed assurances about the existence of a "machinery of consultation" to provide all possible safeguards' was to be produced.[87] Therefore, the NIMR committee was formed in direct response to the request from the NIH. However, as Lush of the MRC remarked, the MRC was proposing to issue guidelines to its researchers 'on the desirability' of making use of ethics committees. Thus, the NIMR committee could also be seen as the first step towards the organization of such 'new advisory machinery'.[88]

The role of the NIMR committee was to give 'a more formal assumption of responsibility' through ensuring that 'all experimental hazards' were assessed by a separate committee, comprising of MRC members and NIMR workers.[89] The Committee on Human Investigations was an advisory one to support the decisions of the director of NIMR in the safety of human subjects. It required that proposals to use human subjects were submitted to the committee explaining the 'nature, purpose and duration of the experiment' in enough detail for the committee to evaluate any potential risks. Although it may appear that the formation of this committee represented a significant step in monitoring practices in the use of human subjects, the decisions taken were neither wholly unanimous, nor were the committee members independent of research using human subjects. One such example was a proposal submitted by Dr R. H. Fox to use Servicemen as subjects in an experiment on the physiological effects of climate change and temperature.[90]

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[87] FD9/ 879, Letter from Medawar to Lush, 17 April 1968.
[88] FD9/ 879, Letter from Lush to Prof. Weiner, Environmental Physiology Research Unit, London School of Hygiene and Tropical Medicine, 30 April 1968.
[89] FD9/ 879, Explanatory note on the circular 'Committee on Human Investigations', June 1968.
[90] FD9/ 879, Dr. R. H. Fox, Submission to the Ethical Committee of a proposal for an experiment on human subjects in the Division of Human Physiology, 9 September 1968.

Fox put forward a proposal to the committee explaining the experiment was to raise the subjects' body temperature and measure the physiological responses for the purpose of establishing a new method for assessing the body's heat regulatory response. The proposed subjects were eight soldiers from the 1st Welsh Regiment stationed at Gravesend in Kent, whom Fox had already briefed as to the 'nature and purpose' of the experiment and had informed both the subjects and officers that 'all subjects for these experiments must be volunteers'.[91] Upon receipt of Fox's proposal, John Humphrey, acting on behalf of Sir Peter Medawar (director of NIMR who was at that time absent), wrote to the other committee members that he considered Fox's proposal 'perfectly reasonable' and that if no objections were forthcoming by 16 September Fox would be given permission to proceed.[92] While this seems reasonable, it was hardly a fail-safe mode of operating when only six days were given in which to gather the responses of the other four committee members. Moreover, Fox was well-known to the committee, as he was in fact a NIMR medical officer and a member of the very committee through which his proposal passed. The importance of being seen to be monitoring human experiments amid the controversy exploded by Pappworth was seemingly of great urgency; less imperative was the actual machinery of the committee which made it conform to its supposed independent advisory role. As Perley et al have noted, any guidelines or policies on medical ethics are 'successful only if researchers choose to abide by them'.[93] This can be extended to the monitoring of ethical practice through ethics committees where the members were neither impartial nor neutral.

Following on from the implementation of ethics committees in hospitals headed by the Royal College of Physicians in 1968, the MRC released in October 1969 a circular to directors and research workers on the issue of 'Investigations on Volunteers'. This set out the procedures which MRC researchers should follow in their proposals for the use of human subjects.[94] In this circular, workers were informed that it was 'axiomatic' for them to adhere to the policy on the use of human subjects as set down in the statement issued in the MRC's Annual Report for 1962-3, 'Responsibility in Investigations in Human

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[91] FD9/ 879, Fox, Submission to the Ethical Committee, 9 September 1968.
[92] FD9/ 879, Letter from John Humphrey, NIMR, to Dr. M. Ashley-Miller, MRC, 10 September 1968.
[93] S. Perley et al, 'The Nuremberg Code: An International Overview', in Annas & Grodin, *The Nazi Doctors,* p. 157.
[94] FD9/ 873, MRC circular, Investigations on Volunteers, 9 October 1969.

Subjects'. Furthermore, all proposals for the use of human subjects 'must' be put to the directors of MRC research unit who would then submit them to the appropriate supervisory committee. Workers were informed that 'no investigation' should be conducted until approved by the appropriate committee. In the event that the MRC unit director disagreed with the committee it should be referred to the MRC whose decision would be final. The issuing of this MRC circular marked a watershed in the history of human experimentation in Britain, as for the first time researchers were being given directives on the use of human subjects as opposed to the 'softer' guidelines which had been previously circulated. While the MRC continued to adhere to the principles of practice contained in the statement 'Responsibility in Investigations in Human Subjects' (1962), the 'Investigations on Volunteers' statement of 1969 was more forceful in making researchers accountable to ethics committees prior to undertaking any kind of investigation on human subjects. Medical ethics and professional propriety was no longer self-regulated, at least by the leading research funding body in the UK, and rather than making the principal investigator solely responsible for all aspects of human subjects involved in experiments, the responsibility was divided between the researcher who proposed an experiment and the committee which sanctioned or approved it.

In response to the 1969 circular regarding the use of ethics committees, the director of the MRC Reproduction and Growth Unit at Princess Mary Hospital, Newcastle, Angus Thomson, wrote to the MRC stating that:

> The above directive has been received with resignation rather than enthusiasm. We shall try to keep our noses clean, but I hope Council [MRC] - having enunciated these formal rules of procedure- will devise means of finding out how they operate in practice.[95]

Thomson's concern was that his research would be hampered by such committees who would 'play for safety and [...] evade onerous responsibility'. He feared that 'unduly rigid procedures' could bring research 'to a standstill', allowing other countries 'where the outlook is less restrictive' to lead the way in 'progress' of the field. The informal

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[95] FD9/873, letter from Prof. Angus M. Thomson, MRC Reproduction and Growth Research Unit, Princess Mary Maternity Hospital, Newcastle-upon-Tyne, to Dr Malcolm Godfrey, MRC HQ, 13 November 1969.

procedures that his unit had in place - a verbal discussion minuted in writing by the local committee of the hospital - were, in his opinion, sufficient. In concluding, Thomson upheld the desire to protect patients but was not satisfied with the application of the circular to his particular circumstance. He therefore proposed that:

> ...the essential things are the lively concern within the unit for the interests of the patient; and a mechanism which prevents our judgment from being unduly swayed by our vested interest in research. That being taken for granted, I propose to assume that Council's rules are "for the guidance of wise men and the obedience of fools." I hope Council agrees.[96]

Council did not agree. The response received from Godfrey stated that while the MRC regarded its directors as 'wise men', the 'unusual steps of issuing firm rules' was taken because it was of paramount importance that the practices in human experimentation conducted by MRC workers was, quoting from the statement issued in 1962-3, 'unexceptionable and known to be so'.[97] Even at this stage, when medical ethics guidelines were being introduced internally as well as externally with the imminent Declaration of Helsinki, there was still a tendency to conflate medical ethics with medical morals- 'a professional custom' according to Clegg in 1957.[98]

It is unclear to what extent the principles endorsed in the 1962-3 statement would have been enforced in 1968/9 had it not been for the media flurry created by Pappworth's publication. Without going down the counter-factual route, it should be noted that the need for MRC workers to be 'known' to be carrying out appropriate and ethical research on human subjects was influenced by the media attention given to unethical practices by Pappworth. Whereas medical ethics had been the preserve of the medical profession and therefore human experimentation was largely governed by the morals of the researcher, the publicity surrounding medical ethics from 1967 brought the issue into the public domain. With the medical profession under attack, instigated from within by Pappworth, it needed to respond appropriately to safeguard its reputation. Necessarily the MRC, as the leading

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[96] Thomson was quoting the WWII fighter pilot Douglas Bader, known for his outspoken nature and defiance to authority, and later knighted for his work with disabled persons having had both legs amputated following a plane crash in 1931.
[97] FD9/ 873, Letter from Godfrey to Thomson, 28 November 1969.
[98] H. Clegg, 'Professional Ethics', in M. Davidson, (ed.), *Medical Ethics,* p. 45.

funding body for medical research in Britain, had to be seen to be beyond reproach. By making directors accountable to local ethics committees, or to the MRC directly in particular circumstances, prior to any experiment on human subjects, the MRC was protecting its reputation and ensuring that propriety in practice was at least given lip-service.

From the creation of the Nuremberg Code in 1947 to the MRC directive in 1969 which enforced principles of practice and the evaluation of human experiments, the history of informed consent and principles of medical ethics which were produced in the context of the MRC can be seen to be rather complex and influenced by a number of factors. Although this did not appear to be a decisive move on the part of the profession to deliberately prevent the implementation of medical ethics directives, the effect was the same. In particular, the profession itself can be seen as hindering the 'progress' of medical ethics through its desire to maintain the self-regulating practices it was accustomed to. As was highlighted in the MRC directors' responses to the 1954 draft circular 'Investigations in which volunteers participate', the subjects' trust was considered to be the most important issue and this was based on the relationship with the researcher, not a set of rules to be followed. It also demonstrated the sense of confusion, both among directors and the MRC itself, in defining volunteers, whereby in clinical research a volunteer could be both a patient and a subject and therefore researchers were employing a 'bedside' approach that was paternalistic rather than a more 'objective' outlook.

The statements issued by the MRC throughout this period were made in response to other changes occurring outside of the organization, and as such could be seen as reactive measures. However, the responses of various MRC workers throughout the period show how the profession was, on the whole, opposed to any measures which would restrict their autonomy to conduct their experiments in a manner which they saw fit. This was particularly so if it altered the doctor/ patient relationship which was bound up with notions of implicit and explicit trust. The directors' conference in 1955 which adhered to the principle of consent as set out in the Nuremberg Code was not something new. After all, as stated above, consent was upheld as the main principle of human experiments at least since

1933, but that did not mean that the medical profession was willing to be governed. The MRC statement issued in 1962/3 was not enforced, it did not tell researchers what they *must* do but simply what they *should* do. It was not until 1969 that the MRC put any weight behind the earlier statement with the introduction of a firm directive for human experiments to be passed through ethics committees.

iii. Summary

The MRC as an organisation was able to make recommendations to its workers and eventually took on the role of regulating practice by making directors and researchers accountable in the use of human subjects. The Common Cold Research Unit (CCRU) was a MRC funded unit and as such the statements issued by the MRC applied directly to the CCRU. It is on this unit which, in comparison with the Chemical Defence Experimental Establishment (CDEE), Porton Down, this study focuses, as both of these institutions were representative of establishments engaged with human volunteers in non-therapeutic research. While it has been shown that the MRC issued policies and guidelines on the use of human subjects, what remains unclear is how this was translated in practice. Furthermore, it needs to be understood how research centres that were not monitored by an external funding body operated.

Through an analysis of the CCRU and Porton, it is hoped that the issues raised within the discourse between the MRC and a number of its directors regarding the definition of a volunteer, the role of consent, and the authority of scientists working in fields which engaged human subjects, can be more fully explored to reach a better understanding of what it meant to be a volunteer in the post-war period. The polarisation between historians who claim that the Nuremberg Code was a decisive document, and those who consider that the Nuremberg Code did not have a place in a paternalistic medical profession still governed by their own judgment, does little to provide any depth of understanding about the use of human beings in experiments or what it meant to volunteer. As Corrigan notes, 'Arguments that focus on informed consent as an absolute moral principle result in a reductionist abstraction and an *empty ethics* that strips the principle of consent away from

its social context …'[99] This, I would argue, is equally applicable in the historical sense, whereby debates on the authority of the Nuremberg Code versus the paternalism of the medical profession are meaningless without attempting to comprehend the social and cultural context in which experiments took place.

The exchanges between the MRC and its directors detailed above highlighted that there were conflicting definitions of volunteers among MRC researchers, which suggests that each definition was specific to the particular environment and practices of the scientist. This is an aspect that has been overlooked in debates on medical ethics, perhaps because it appears to be so obvious, and yet it is highly significant to our understanding of the history of volunteering in medical science. Without attempting to ascertain the meanings behind the word 'volunteer', it remains difficult to understand how the use of human subjects in practice can be translated. Moreover, consideration for the context within which experiments were conducted needs attention to understand how this impacted upon the construction of the volunteer.

[99] Corrigan, 'Empty Ethics', p. 787.

Chapter III: Centres of Research on Human Subjects: The Chemical Defence Experimental Establishment, Porton Down, and the Common Cold Research Unit

This chapter outlines the history of the CCRU and Porton as centres of research on human subjects. It gives a brief overview of the nature of research and the organisational structures of the establishments. The background to these institutions provides the justification for using them in this study, because they both engaged human subjects in experiments over a number of decades in the post-war period and were considered in this sense to be rather unique. They also make for an interesting comparison owing to the sections of society from which they recruited volunteers: the CCRU advertised widely through the media whereas the top-secret nature of Porton's research meant that recruitment was limited to Service personnel.

The layouts of the physical sites and the accommodation of volunteers within the establishments have not been considered elsewhere in relation to the impressions they conveyed to volunteers. Yet, the spaces in which experiments were conducted were significant because they communicated certain messages about the place of volunteers within the establishments and their status. Freedom and restriction of movement within the sites mirrored the ethos of the institutions. The CCRU constructed its identity as similar to a holiday camp, reflected in the accommodation arrangements, whereas the nature of Porton's secret research was demonstrated by the enclosed restricted area of the site that was accessible only to pass holders. Descriptions of the physical sites and the organisational structure underpin the ensuing chapters and give an indication of the social relationships between scientists and subjects through the organisation of the physical space.

i. An Overview of the Common Cold Research Unit

The Common Cold Research Unit (CCRU) was housed at the Harvard Hospital, Coombe Road, Harnham Hill, Salisbury, receiving its first batch of experimental subjects in 1946.[100] Originally sponsored by the Red Cross and Harvard University, the 'American Red Cross-

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[100] Tyrrell and Fielder, *Cold Wars*, p. 54.

Harvard Field Hospital Unit' was shipped over from America, arriving in prefabricated sections in 1941 and constructed on land made available by the Ministry of Health. The role of the Harvard Hospital during World War Two was in research into public health and emergency medicine, as well as being used by the US army as a general medical laboratory. Following the end of the war, the Harvard Hospital was left as a 'gift to the Nation' (or perhaps a white elephant) and its maintenance became the responsibility of the Ministry of Health.[101] Part of the role of the Harvard Hospital was in research into infectious diseases amid fears that serious epidemics would break out in wartime conditions, and although it was not in an unpopulated rural location it was surrounded by fields and therefore provided an ideal setting for the isolation of patients.[102] When the virologist Christopher Andrewes approached his friend Dr 'Bill' Bradley at the Ministry of Health with his idea of a research unit into common cold transmission, Bradley put forward the Harvard Hospital as the most 'suitable building in the country'.[103] In fact, it appears that Bradley was instrumental in smoothing the way for Andrewes' proposal to set up the unit, sounding out the Ministry of Health's chief medical officer, Sir Wilson Jameson, and communicating with the Ministry of Works who were responsible for the upkeep of the buildings. With its former use as an isolation hospital, fully equipped with laboratory facilities and furniture, and sitting empty, the Harvard Hospital was well suited for the purpose of common cold transmission research.

Initially, the MRC financed the research staff, the expenses relating to scientific work, and the cost of travel for volunteers and personnel, while the Ministry of Health were financially responsible for the accommodation, maintenance of the buildings, wages of domestic staff and the cost of feeding the volunteers.[104] Responsibility for the site of the CCRU passed from the DHSS (formerly the Ministry of Health) to the MRC after April 1977, who previously had only funded the research.[105] It is not clear why the government decided that it would no longer invest in the unit; however, the MRC continued to support its research and took responsibility for all costs incurred. The CCRU was by this time

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[101] FD1/3300, Common Cold Research Unit, 10 January 1947.
[102] Tyrrell and Fielder, *Cold Wars,* p. 37.
[103] Letter from W.H. Bradley to C. Andrewes, quoted in Tyrrell and Fielder, *Cold Wars,* pp. 52-3.
[104] FD1/3301, Letter from MRC finance officer to Treasury Valuer, 13 March 1948.
[105] FD11/31, Letter from D. Cox, MRC, to Area Works Officer, Dept. of the Environment, 6 April 1976.

networking through the World Health Organisation (WHO) Collaborative Centres for Reference and Research and collaborating with other WHO laboratories on international matters of public health and viruses. In a meeting of the World Health Assembly in 1976, the WHO was directed to focus attention on respiratory infections affecting children below five years old.[106] The CCRU had by this time established itself internationally and the focus of its research contributed to the imperatives put forward by the Assembly. It would perhaps have been untimely for the MRC not to continue to support the unit, given its international contribution.

When the CCRU was first set up, Christopher Andrewes communicated the duties of the CCRU staff to the MRC, which was not very complicated given that there was only the director, Andrewes, and a medical officer-in-charge, Dr D.K. Chalmers, accompanied by one administrative staff and a matron.[107] The medical officer was directly responsible to the director for the general conduct of unit and to the director for 'scientific aspects,' as well as coordinating all staff duties and being responsible for all 'medical aspects' of the trials.[108] So while the director oversaw the research project, the day-to-day practice and application of science and the use of human subjects was conducted and supervised by the medical officer (later to become medical superintendent). Between 1946 and 1990 the CCRU appointed eight medical officers-in-charge, with short appointments of five medical officers serving between one and five years in the years 1947 to 1957, and longer serving positions from 1957 until 1978. During the latter period only three changes in medical officer took place. The position of matron, which was a resident one, was filled by various women, most of whom were unmarried. The length of time matrons served varied between a few months to a number of years; the longest serving matron was in post for twelve years.[109] The personnel structure of the unit resembled that of an ordinary hospital with a matron to oversee the well-being of the volunteers and a medical officer to carry out medical procedures. Throughout its entire existence it only had two unit directors, Christopher Andrewes from 1946 to 1968, and David Tyrrell up until the unit closed in 1990, and

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[106] Tyrrell and Fielder, *Cold Wars,* pp. 164-5.
[107] C. Andrewes, *In Pursuit of the Common Cold*, p. 109.
[108] FD1/3302, Common Cold Research Unit, 1946.
[109] Andrewes, *In Pursuit of the Common Cold*, p. 109.

administrative and nursing staff fluctuated over the years. Scientific staff varied in number and period of attachment, from short-term postings of a few months to longer appointments exceeding ten years, with both male and female researchers engaged in research relating to viruses.[110]

In 1980 a proposition was put forward to move the CCRU to the Centre for Applied Microbiological Research (CAMR) a year after the Microbiological Research Establishment, Porton, became the civilian CAMR. Despite Tyrrell's initial assessment that the Porton site would provide excellent facilities for volunteers, who could also be used by CAMR, following a consultation with 'a small sample of volunteers' by MRC representatives it was asserted that 'we on the MRC side are doubtful about whether volunteers would readily come to an isolation facility in this location.' [111] It appeared that the potential for collaboration and use of the facilities at Porton were extremely favourable but that the main issue was 'convincing the CCRU volunteers to "come to Porton".[112] The CCRU was dependent upon volunteers willingly coming forward to take part in trials. It was the consideration that the re-location of the CCRU to Porton would dissuade potential volunteers that shelved any further discussions on the subject. The consultation with CCRU volunteers demonstrated the active participation of the volunteers in determining the principles by which their continued goodwill could be relied upon and the location of the unit was acknowledged as being significant in attracting and retaining volunteers. The geographical site as an object of historical investigation is often over-looked, but the importance of the physical site to the research imperatives should not be underestimated.

Experiments by the CCRU were not always confined to Salisbury; collaborative research and experiments in other locations also occurred. In 1950 the island of Eilean nan Roan off the North coast of Sutherlandshire was acquired for use from the Duke of Sutherland in 1950.[113] Initially, the MRC were 'doubtful about the whole project' and were only convinced of its validity after Andrewes informed them that the experiment was of primary

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[110] Andrewes, *In Pursuit of the Common Cold,* 'Staff of the Common Cold Unit, Harvard Hospital', p. 109.
[111] FD11/116, written statement by Tyrrell on rebuilding the CCRU on the CAMR site, 1979; FD11/116, discussion of a visit to CAMR by N. Morris and B. Rashbass of the MRC, 16 January 1980.
[112] FD11/116, MRC Subcommittee, minutes of meeting, January 1980.
[113] TNA, FD1/3310, internal MRC note, 1950.

concern to the Air Hygiene Unit to investigate modes of cross-infection.[114] The experiment involved twelve subjects living in complete isolation on the island for a period of three months, following which an additional group who had been infected with a cold virus were introduced to study the transmission of colds; 'unexpectedly' none developed colds.[115] Other studies of the transmission of colds in communities included the 'Chalke Valley experiment' which surveyed a small community on the spread and acquisition of the common cold.[116] Another study involved introducing children with colds to experimental subjects to assess whether a 'contaminated environment' would increase the chance of infections.[117]

As stated above, the CCRU took an active role in research into influenza through the WHO, but even early on the unit collaborated on vaccine trials and continued to do so throughout the 1950s and 1960s. In 1951 a MRC Committee on Clinical Trials of Influenza Vaccines was formed to 'co-ordinate investigations into the antigenic and protective effects of vaccines against the influenza virus'.[118] The Committee members included Dr Christopher Andrewes of the CCRU, Professor C.H. Stuart-Harris of the Department of Medicine, University of Sheffield (formerly RAMC), Surgeon Captain R.A. Graff, director of medical research at the Royal Navy Medical School, Basingstoke, Dr. Bill Bradley, senior medical officer of the Ministry of Health, Brigadier A.E. Richmond the temporary medical officer of the Ministry of Health and Sir Alexander Fleming, Emeritus Professor of Bacteriology at the University of London.[119] The Working Party of the Influenza Committee who were involved in the clinical trials of vaccines comprised of Andrewes, Stuart-Harris, Richmond, Professor A. Bradford Hill from the London School of Hygiene and Tropical Medicine, F. Himmelweit of the Wright-Fleming Institute of Microbiology, London, and J.C. McDonald of the Public Health Laboratory Service, Central Public Health Laboratory, Colindale.

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[114] TNA, FD1/3310, internal MRC note.
[115] C. Andrewes, 'The Common Cold', *British Medical Bulletin,* (1953), vol. 9, no. 3, p. 207.
[116] Tyrrell & Fielder, *Cold Wars,* p. 184.
[117] Andrewes, 'The Common Cold', *Brit. Med. Bull.,* (1953), vol. 9, no. 3, p. 207.
[118] TNA, FD1/541, letter to Professor Wilson Smith from MRC, 20 November 1951.
[119] TNA, FD1/543, confidential committee circular, 26 November 1951.

In the winter of 1951/52, small scale vaccine trials were conducted using hospital nursing staff and university students.[120] Influenza vaccine trials continued to be conducted into the 1960s, using students, factory workers and Servicemen, with vaccines developed from strains of influenza that were cultivated at the CCRU.[121] For example, in 1960 an influenza vaccine prepared by Tyrrell was tested on RAF volunteers, following preliminary tests on subjects at the CCRU, and repeated again in 1961, in the midst of a flu epidemic.[122] The experimental subjects for the MRC funded 1961 trial were recruited through their Stations, where 'the nature of the trial would be fully explained to those eligible, and volunteers sought'.[123] While the CCRU did not actively recruit Service personnel, the extension of research into influenza vaccines meant that indirectly the Armed Forces provided a source for experimental subjects, and allowed greater collaboration between military officials and the scientists working at the CCRU. Indeed, it is likely that some volunteers who attended the CCRU would have also undergone National Service.

To deny that Porton and the CCRU had links would be to ignore the scientific exchange of personnel and research which clearly took place. However, it would be a leap too far to suggest that the presence of a research centre for common colds near to Porton was part of an elaborate plan to dupe volunteers to attend chemical warfare experiments.[124] Confusion over the two institutions seems, more reasonably, to be linked to the images of these establishments. As will be demonstrated in the next chapter, the widespread publicity campaigns of the CCRU ensured that the unit at Salisbury was well-instilled in the public mind, while the secrecy surrounding Porton meant that media attention was not widespread until the late 1950s. Given that geographically they were in the same place, Porton and the CCRU were both in Salisbury, and that the high profile image of the CCRU ensured that a greater section of society would be aware of its presence, it would not be unfeasible to

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[120] TNA, FD1/540, press statement on influenza trials, undated.
[121] TNA, FD7/191, minutes of 11th meeting of the MRC Committee on Clinical Trials of Influenza Vaccine, 19 March 1953; FD1/540, internal minute, 27 November 1952; FD23/1300, minutes of meeting of the MRC Committee on Clinical Trials of Influenza Vaccine, 8 July 1960; FD23/1300, 'clinical trials of live attenuated influenza virus in RAF', 1961.
[122] FD23/1300, Clinical trials of live attenuated influenza virus nasal vaccine in the Royal Air Force, 1961.
[123] FD23/1300, ibid.
[124] There are numerous conspiracy theories attached to Porton which are posted on various internet websites, including theories on supposed links between Porton and the CCRU.

suggest that the confusion with the identities of these institutions arose because of their proximity and profile. The arrangements of the buildings of Porton and the CCRU and their locations were very different, despite them both being referred to as 'camps' at various times, and having seen that the organisational framework of the CCRU was fairly simplistic, the arrangements of the physical site was similarly uncomplicated.

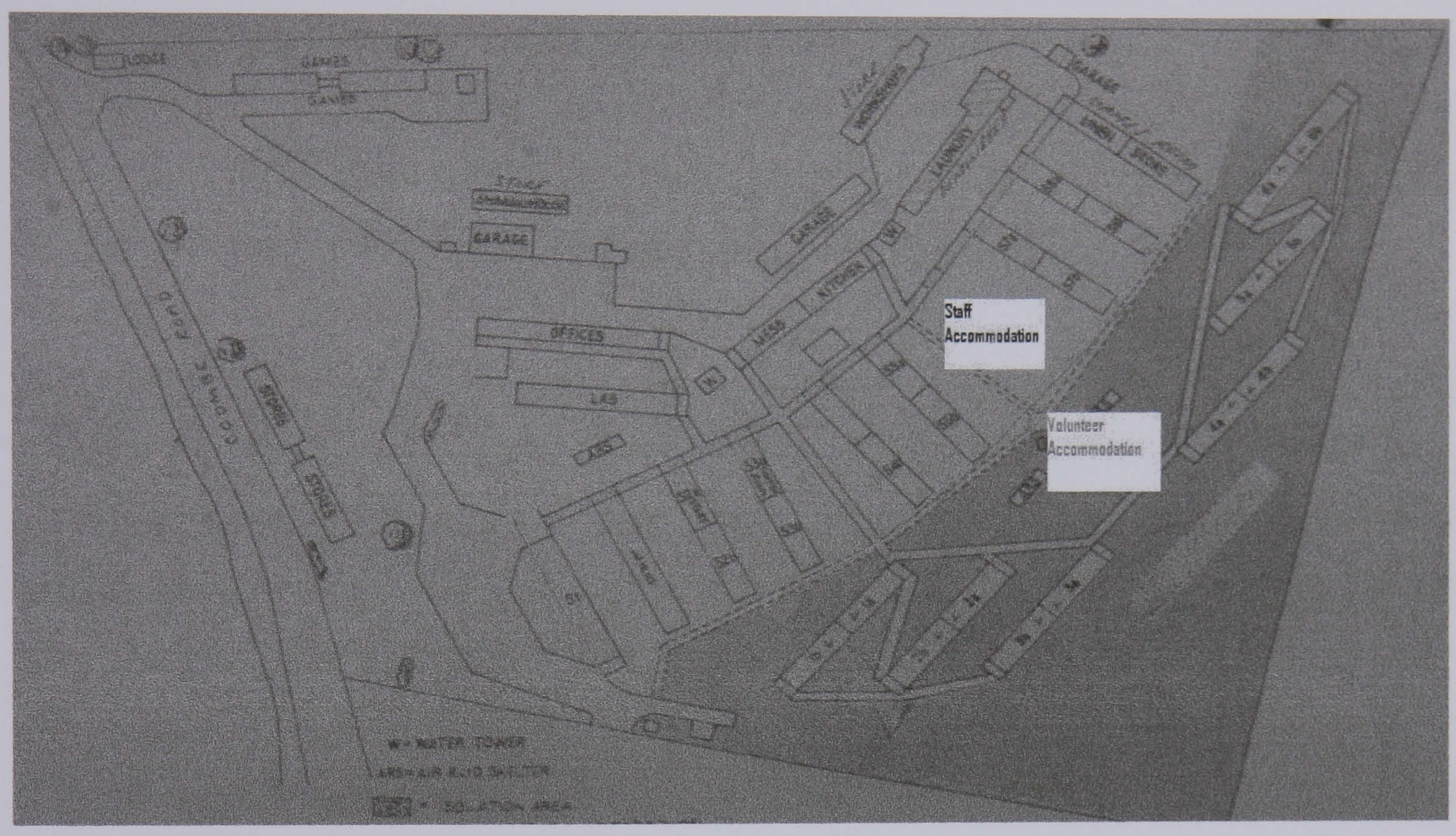

Figure 1 Plan of the Common Cold Research Unit, c. 1946, (FD1/ 3300, unscaled site plan)

When the Common Cold Research Unit took occupation of the Harvard Hospital in 1946, it consisted of twenty-two, 140 ft long by over twenty foot wide, pre-fabricated buildings with six semi-circular, corrugated iron Nissen huts and further outbuildings (see fig.1).[125] The six buildings which became the volunteers' accommodation were linked by a series of covered walkways and each building was divided in half to make two flats in each, totalling twelve to accommodate a maximum of 24 volunteers.[126] The housing of the volunteers, although in isolation, remained connected by covered walkways and was therefore not isolated in terms of proximity, either to the other flats or the facilities the site encompassed. Scientific and nursing staff were accommodated in another seven buildings. One building functioned as a laboratory and the remaining buildings were used as stores, offices, games

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[125] Metric measurements of approximately 42 metres long by 6 metres wide.
[126] FD1/3300, Site plan of CCRU, undated, c. 1946.

rooms, garages, laundry and dining facilities. The distance between scientific staff resident at the unit, the research facilities and the subjects was limited by the spaces available and the pre-ordained layout of the former hospital. Despite the lack of segregation of the 'insider' scientists from the 'outsider' volunteers, the functionality of the spaces served both the practical needs for isolation and the image the unit wanted to portray. Rather than boundaries being used to 'classify and control places and relationships', other than those dictated by the nature of research and propriety of the period (i.e. single sex sharing and married couples), the CCRU was not fenced into different domains. However, the conceptual divide between the researchers and the volunteers may have been greater than that between the medical officer and matron and the volunteers.[127]

It is unclear from the photographs and site plans whether the CCRU was completely enclosed by fencing, but given that it was surrounded on three sides by fields and volunteers were given a key to the 'Golden Gate' which gave them access to the neighbouring countryside, it is likely that it was.[128] Despite the requirement that volunteers housed in pairs or singly should not come within 30 feet of another person throughout their stay at the unit, to avoid acquiring a cold from another source, they enjoyed the freedom to come and go as they pleased. The act of giving a key to the volunteers symbolically conveyed both trust and ownership. In an environment comprising collectively of volunteers, the use of trust was important to the creation of solidarity and by conveying trust, trust would be returned on the basis that 'each trusts on the assumption that others trust'.[129] In addition, the authority of science and the public regard for science in this period, to be discussed below, fits in with the model of the 'professional complex' of trust, whereby the scientists and the subjects could be seen to have common values and goals in their participation in tests on the common cold but with the former constructing these

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[127] M. Parker Pearson and C. Richards, 'Ordering the World: Perceptions of Architecture, Space and Time' in Pearson and Richards (eds.), *Architecture and Order,* p. 24.
[128] FD1/3300, Information on the volunteers' routine during trials submitted by Andrewes to the MRC, undated, c. 1946.
[129] J. David Lewis and A. Weigert, 'Trust as a Social Reality', *Social Forces* (June 1985), vol. 63, no. 4, p. 970.

shared goals and values for the latter through the media.[130] The giving of trust to the volunteers, represented as a key, was a gift of reciprocity for which in return the volunteers gave themselves to the tests required and complied with the exigencies of the trials.

Early details on the common cold trials described the CCRU as 'the camp', and from the arrangement of the buildings on site plans the military aspect of the unit cannot be mistaken.[131] Indeed, when Dr David Tyrrell first came to the unit in 1957, before later taking over as the unit's second director from Sir Christopher Andrewes in 1968, he recalled his feeling of 'dismay' and described the unit as 'more typical of some military establishments' than a medical research facility.[132] Pathé news footage from 1950 corroborated Tyrrell's perspective on the appearance of the unit, with a view through the gates of the CCRU of a Nissen hut in the foreground.[133] The close up shot of a large sign which read 'Medical Research Council and Ministry of Health, Harvard Hospital, National Institute for Medical Research, Common Cold Research Unit', was perhaps the one referred to by Andrewes as the 'large notice to tell you what it is',[134] which clearly distinguished it from being a military establishment even if the architectural design of the unit was in keeping with military camps. However, architectural similarities can be drawn between military camps and holiday camps. Indeed during the Second World War all of Butlins holiday camps were commandeered as military training camps because they were so organised to accommodate large groups of people in chalet blocks and communal spaces for the provision of meals and recreation.

The popularity of holiday camps, with their regimented routines of organised leisure through on-site facilities and entertainment, grew with the increase in living standards from the 1950s and the introduction of holiday pay (which was implemented in 1938 but was

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[130] Lewis and Weigert, 'Trust as a Social Reality, p. 981, paraphrasing Talcott Parson, 'Research with Human Subjects and the 'Professional Complex' in P. Freud, (ed.), *Experimentation with Human Subjects* (Braziller, 1970).
[131] FD1/3300, Information on the 'routine during the trial' supplied to the MoH, 1946.
[132] Tyrrell & Fielder, *Cold Wars,* p. 83.
[133] British Pathé Archive, 2288.15, *Common Cold Research,* 1950, www.britishpathe.com, accessed 30 January 2006.
[134] C. Andrewes, *In Pursuit of the Common Cold,* p. 12.

interrupted by the war).[135] Both Butlins and Pontins experienced growth; Pontins purchased its first nine camps between 1946 and 1958, with nine further camps in the following six years and Butlins continued to extend and improve its holiday camps throughout the 1950s and 1960s, as well as build new ones making it the largest in capacity even if not in terms of the number of camps.[136] As will be explored in greater depth in following chapters, the CCRU capitalised on the popularity of holiday camps and used similar rhetoric in its advertising and recruitment. By casting the CCRU in the image of holiday camps, with emphasis on leisure facilities and a 'free' holiday, it served to familiarise the unit not as a centre of medical experimentation but as a place of rest and relaxation, with the cold tests as a minor inconvenience. So while the physical aspects of the CCRU may have resembled an army camp, this could also be said for many holiday camps in the same period and this did not deter holidaymakers.

The internal spaces of the volunteers' accommodation was shown in film footage from 1947 entitled *Colds to Order,* which followed a group of volunteers as they arrived at the CCRU and settled in to their flats.[137] Produced by Pathé as a newsreel, the short film recorded the internal layout as well as the furnishings provided, including a table and chairs for meals, armchairs, lamps and a desk. The presence of central heating, evident from the radiator on the wall, and a wireless radio made the volunteers' accommodation quite modern. The footage on both the 1947 and 1950 newsreels demonstrated that the flats were typically furnished in a similar fashion and that the accommodation, while not luxurious, appeared to meet basic requirements with the provision of a living area, a bedroom, dining area and examination room in each flat. Constructed to resemble 'home' rather than a sterile research environment, the volunteers' accommodation was furnished according to the perception of what a home typically contained which worked on the volunteers both symbolically and cognitively. The volunteers would have recognised the attempt to recreate a homely environment and accepting that 'home is a concept of order and identity' the volunteers' accommodation reflected the unit's desire to make the volunteers part of the

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[135] See for example, J. Walton, *The British Seaside: Holidays and Resorts in the Twentieth Century* (Manchester University Press, 2001).

[136]For a general chronology of Butlins and Pontins, as well as copies of pamphlets advertising the holiday camps from the 1950s onwards see: http://www.butlinsmemories.com/, accessed 17 December 2005.

[137] British Pathé Archive, 1231.06, *Colds to Order,* 1947, www.britishpathe.com, accessed 30 January 2006.

'fight against the common cold' rather than be passively subjected to it.[138] Archaeologists Michael Parker Pearson and Colin Richards make the point that the house 'not only embodies personal meanings but also expresses and maintains the ideology of prevailing social orders.'[139] The modelling of the volunteers' accommodation on notions of 'the home' with armchairs for relaxing, desks for writing letters or studying, and dining suites for serving meals, created a familiar space, while the addition of central heating especially in the early post-war years would have been a touch of luxury for some. Given that the accommodation was uniform with all accommodation and research facilities for the CCRU staff and researchers being housed in identically constructed buildings as those used for the volunteers, the CCRU did not replicate social hierarchy through the fabric of the buildings. However, as will be explored later, the media's representation of the CCRU volunteer appeared to adopt a middle-class model. Nevertheless, volunteers were viewed as intrinsic to the success of the unit and the arrangement of the buildings and the furnishing of the flats reflected this attitude.

From its inception, the unit had to produce accounts of expenditure and maintenance costs to both the MRC and the Ministry of Health (later to become the DHSS) which demonstrated an ever increasing amount. For example, a report of expenditure was produced by 1961 which detailed the estimated annual cost for the period 1961 to 1962 was £13,440 to keep the unit maintained, including necessary repairs and decoration, rising to £18,310 for the period 1962/3.[140] In May 1962 it was agreed that the maintenance work was necessary and the Ministry of Health directed the Ministry of Works to proceed, except for wiring work which was not 'immediately necessary from a fire risk or personal safety point of view'.[141] The state of the unit and need for improvement was compounded by 'adverse comments' from members of the press and TV regarding the 'unattractive accommodation' and '"institutional" decoration schemes' during a press open day held at the CCRU in

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[138] M. Parker Pearson and C. Richards, 'Ordering the World: Perceptions of Architecture, Space and Time' in Pearson and Richards, (eds.), *Architecture and Order,* p. 6.
[139] Pearson and Richards, 'Ordering the World', p. 6.
[140] MH55/2256, CCRU expenditure 1961.
[141] MH55/2256, Internal minute, 25 May 1962; internal minute sanctioned expenditure of £22,760 to update CCRU, 24 October 1962.

January 1962.[142] Attracting volunteers was vital to the existence of the unit and thus adverse reports would have been extremely detrimental. On this occasion, it was recorded that the reporters had decided to keep their comments to themselves rather than making such views known in their media reports, but clearly the CCRU required considerable improvements to satisfy the critics and maintain their goodwill as important mediators between the unit and the public as potential volunteers.

In 1972 it was proposed that the CCRU be moved to London, to be incorporated within the development of Northwick Park for the Clinical Research Centre (CRC): Division of Communicable Diseases, and a subcommittee met at the CCRU in July.[143] Recorded in the private discussions of the members of the subcommittee, the rationale for the subcommittee was to review the usefulness of the CCRU which was under tenure to the MRC up until 1974. Despite the concerns over the £100,000 annual running costs, split equally between the MRC and the Ministry of Environment, the subcommittee considered that the unit 'represented good value for money' and after due discussions, the subcommittee decided that the CRC could not equal or better the facilities at Salisbury in terms of arrangements and recruitment of volunteers. The dependency of the unit on the recruitment of volunteers for its research dictated the location of the unit; it needed to be in a desirable location to attract volunteers and the integration of the CCRU into a large-scale clinical research centre would have removed its 'holiday camp' aspect.

In 1978 the MRC commissioned a feasibility study to be conducted into completely rebuilding the unit at its site in Salisbury.[144] The feasibility report produced in January 1979 provided an estimate of the cost to rebuild the unit, to which the MRC responded, 'Unless we can see an adequate return, we cannot possibly justify an investment of £1.3m.'[145] A month later the figure was revised, with an overall projected cost of £882,254 for the rebuilding of two storey volunteer accommodation and an administration block which

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[142] MH55/2256, Internal minute to Mr Morrison from Mr Cattran, 14 May 1962.
[143] FD9/1053, Report of the visiting subcommittee.
[144] FD11/115, file containing invoices for feasibility study into redevelopment of CCRU, 1978-1981.
[145] FD11/32, MRC Internal note from D.F. Green to Mrs N. Morris, undated.

incorporated offices and laboratory facilities.[146] The proposed designs of the volunteer accommodation met with some opposition from the unit's administrative officer, Keith Thompson, who aired his views in response to a meeting held in May 1979. He was concerned that the design did not afford suitable means of 'segregation' and that the proposal to reduce the number of resident staff, to save costs on building staff accommodation, would mean that it would be more difficult to monitor the volunteers to 'curtail fraternization'.[147] Clearly there were some conflicting interests between the desire to keep costs to minimum and the need to have suitable facilities, which were not easy to resolve. The significance of these discussions over the future of the unit which took place throughout its existence rest in the continual acknowledgement that the location was central to the unit's ability to secure volunteers.

As has been shown, the continuation of the CCRU over the four decades of its existence was decidedly piecemeal, based upon a series of reviews by the responsible funding bodies. From its beginning in the pre-fabricated huts to its end, in largely the same pre-fabricated huts, the endurance of the unit was bound up with the unique facilities it contained. The recurrent theme throughout the discussions over the future of the unit, whether in the 1960s or the 1980s, was the importance of the volunteer programme and it appears that it was this which was the unit's 'saving grace'. Recognition that the volunteers' participation in trials at the unit was not replicated in any other research facility, and the opportunities this afforded to the scientists, made the unit 'unique'. At the same time, the dependency of the unit's success on the recruitment of volunteers shifted the weight of autonomy away from the scientist and towards the volunteer. Rather than being a captive population to experiment upon, the CCRU volunteers were part of a public campaign to 'fight the common cold'.[148]

ii. An Overview of the Chemical Defence Experimental Establishment, Porton Down

In contrast to the transparency of the CCRU, the site of Porton Down was hidden within around 6,000 acres of countryside, reflecting its nature as a top secret research institution.

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[146] FD11/32, Second revised approximate estimate for redevelopment, February 1979.
[147] FD11/32, Letter from K. Thompson to N. Morris, 18 July 1979.
[148] This was a popular newspaper header.

Operating in a secret installation, the scientific research climate at Porton was clearly different to other research facilities owing to the nature of the research into chemical warfare for (primarily) military purposes. The research undertaken by Porton scientists was influenced by the political climate in relation to knowledge of chemical warfare. However, the nature of Porton's work meant ultimately that not everyone was privy to the same knowledge, which affected both the 'coherence of any policies' and the planning of research programmes.[149] Unlike the CCRU, the organisational structure of Porton was complex as it involved mediation with the government but also because it was internally structured with a mix of military and civilian staff. From 1946 to 1959, Porton was an establishment under the general control of the Ministry of Supply, reverting to the War Office upon the abolition of the Ministry of Supply in 1959.[150] Subsequently Porton fell under the Ministry of Defence in 1964 when the separate ministries of Admiralty, Air Ministry and the War Office amalgamated with the Ministry of Defence (MoD) and from 1971 all defence related departments were consolidated under the MoD.[151] The direction which the work at Porton took on chemical warfare was guided by the creation of a number of committees, who were informed by intelligence reports on the activities of the USSR, communicated via the Chiefs of Staff.[152]

The Chemical Defence Advisory Board (CDAB) was set up in 1946 comprising of Porton staff as well as industrial and academic scientists. Its role was to 'review and advise on chemical warfare research', driven by directives and recommendations passed from the Scientific Advisory Council (SAC), which was the top ranking scientific defence committee. Five subsections of the CDAB, the Chemistry Committee, the Physics and Physical Chemistry Committee, the Defensive Equipment Committee, the Offensive Equipment Committee and the Biology Committee each had six independent members who reviewed and directed chemical warfare research in these specific areas. It was the Biology

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[149] Balmer, *Britain and Biological Warfare,* p. 186.
[150] Trotman, *A Brief History of Porton,* p. 38.
[151] History of the MoD, http://www.mod.uk/DefenceInternet/AboutDefence/History/HistoryOfTheMOD/, accessed 7 February 2006.
[152] http://www.mod.uk/Defence, *Historical survey of the Porton Down Service Volunteer Programme 1939-1989,* ch. 4, p. 13, accessed 2 September 2006.

Committee which was the branch concerned with physiological aspect of research at Porton, including tests on human subjects.

The *Historical Survey of the Porton Down Service Volunteer Programme* (2006), a report commissioned by the Ministry of Defence in response to claims of ill-health among former volunteers (and perhaps also because of the increased media attention to the lack of transparency in relation to the research conducted at Porton), noted that neither the CDAB nor the Biology Committee were responsible for approving the nature of human experimentation at Porton. Up to 1953 the War Office and then the Ministry of Supply would be consulted for approval of any proposed series of tests. After the death of Leading Aircraftsman Ronald Maddison at Porton in May 1953, following exposure to nerve agent, Service ministers were consulted for approval. It was not until 1963 that the Committee for the Safety of Human Experiments (COSHE) was established at Porton.[153] This was an internal body comprising solely of Porton staff, while two years later another committee, the Applied Biology Committee, was created with external members as well as Porton staff members to give advice on safety and ethical practice in human studies.[154]

The involvement of external advisors in discussing chemical warfare research appeared to be widespread, sitting on the relevant committees and making up around half of its membership. However, in relation to tests on human subjects it seems that external advisors were not consulted before 1965 and therefore the scientific as well as ethical and safety aspects of human trials remained an internal matter. The *Historical Survey* stated that service ministers were consulted after the death of Maddison on new trials proposed, and this was particularly with reference to nerve gas tests on human subjects. However, approval for trials did not amount to taking responsibility for the nature of the trial in practice. With only internal means of moderation, it seems that the scientists working with human subjects had a greater degree of autonomy in experimentation without any overseeing or regulatory body. The committees reviewed and directed the chemical warfare research and produced reports for distribution among government bodies and 'allies' in

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[153] Evans, *Gassed,* p. 178.
[154] WO195/ 16161, First meeting of the Applied biology Committee, November 1965.

chemical warfare research under the Tripartite Agreement.[155] Porton's task was to conduct research in response to the committee's directives which involved numerous departments within the establishment.

The hierarchy within Porton itself was similarly complex, with the most senior position of 'chief superintendent' in use from 1942 to 1956, changing to 'Director' from 1956 up until 1984.[156] The chief superintendent was a non-scientist, military position up until 1948, but from then on it was a role filled by civilian scientists. In September 1949, for the purpose of a tripartite conference held at Porton with delegates from the States and Canada, details of the staff within Porton's sections were distributed which provided details of the structure of Porton and an indication of the military/ civilian balance of personnel.[157] Below the chief superintendent there were three superintendents, one of the 'Research Division', another for the 'Development Division' and a third for the 'Field & Service Division'.

Within the first two divisions there were a number of sections, and each section had a 'head' and a number of deputies. Among the responsible personnel listed, those within the Chemistry, Physics and Meteorology Sections of the Research Division were all civilian, as were all three sections within the Development Division, except for a retired Lieutenant Commander. However, among the Field and Service Division the military officers outweighed the civilian, with only one civilian experimental officer. Likewise in the Physiology Section, which was responsible for conducting human experimentation, the heads of Toxicology and Physiology were military ranks and only Biochemistry within this section was civilian. It is interesting to note that the sections of Porton which in 1949 were most likely to come into close contact with service volunteers were, in the majority, headed by military officers. Clearly their expertise in military aspects and science made them qualified for the task of overseeing military human subjects, but the strong military presence would have also acted upon the human subjects authoritatively.[158]

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[155] LHC, Gassed L2, WO 188/667, Division of responsibilities, 3 November 1947; TNA, WO 32/20126, General policy on chemical warfare, 1962-5.
[156] Carter, *Chemical and Biological Defence,* p. 70.
[157] WO188/702, US-UK-Canada 4th Coordination Meetings, Establishments at Porton, 5 August 1949.
[158] This will be discussed fully later in this study.

Various Porton reports and notes demonstrate that the hierarchy of Head of Sections and Deputies or Assistants remained largely as standard throughout the period but there does not seem to be one source that outlines the structure of the divisions over the years. However, by the 1950s documents produced which involved human volunteers and experiments were frequently signed by 'Superintendent, Medical Division'.[159] Organisational structures appeared to have been in 'total flux' and records of internal organisation do not appear to have been archived.[160] It is therefore a difficult, perhaps impossible, task to piece together the various departments and divisions that were set up, remodelled and sub-divided over the years. Yet consistently the departments which were involved with using human subjects were the Medical Division and Physiology Section. These were located within the restricted area of the site, a fenced off section of the six acres which contained the CDEE, Porton.

The actual site of Porton Down occupied only six acres within the sprawling countryside of around 6,000 acres where it was located. Since 1916 Porton 'Camp', as it was then known, has developed as a research facility, and by the end of World War Two it was functioning in two distinct areas- chemical and biological warfare research. The Biological Department, Porton, (BDP) was established within the Chemical Defence Experimental Station (CDES) during the war and its presence continued as a separate department and building. From 1946 its title was the Microbiological Research Department (MRD), changing to the Microbiological Research Establishment (MRE) from 1957 up until 1979, when it was integrated within the chemical research establishment. The chemical warfare establishment at Porton similarly underwent various name changes, from the Chemical Defence Experimental Establishment (CDEE) in 1948 to the Chemical Defence Establishment (CDE) in 1970.[161] Both the chemical and biological establishments underwent various name changes over the years since World War Two. For the purpose of this study, which focuses on the post-WWII years, the title Chemical Defence Experimental Establishment

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[159] For example, TNA WO 195/14846, History of the Service Volunteer Observer Scheme at CDEE, 1959.
[160] Letter from Carter, 17 November 2005.
[161] Carter provides details of the name changes of both departments since they were created, see Carter, *Chemical and Biological Defence,* pp. x-xi.

(CDEE) is the relevant one, being in use between 1948 and 1970.[162] However, known generically as 'Porton', it is this term of reference which will be used within this study to mean the CDEE, as it was only this department of the institution which had a volunteer programme.[163]

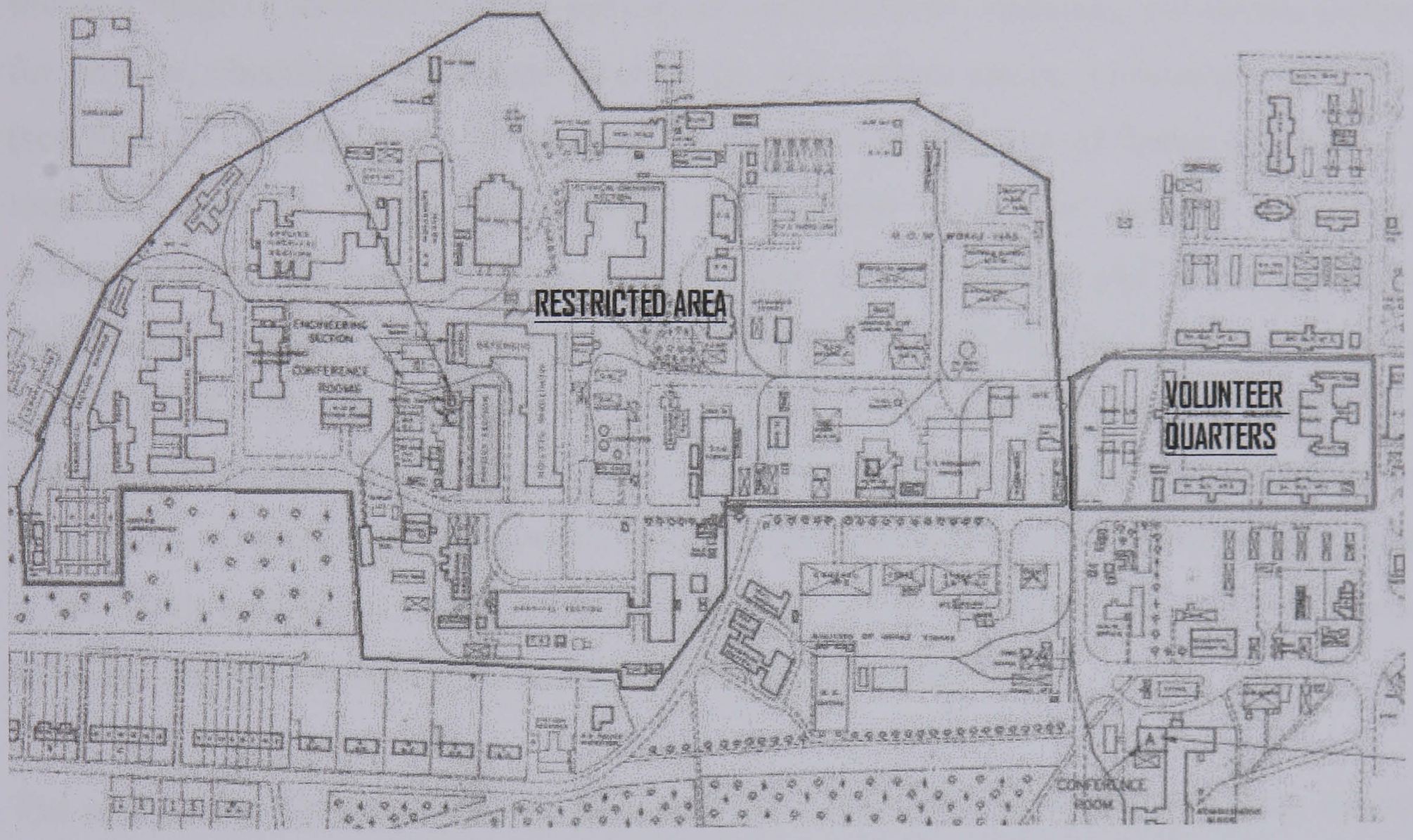

Figure 2 Plan of the Porton site, c. 1946 (WO188/ 702, map provided for Tripartite Co-ordination Meeting at Porton in 1949)

The land upon which Porton now stands was acquired in three separate transactions between 1916 and 1918, to meet the growing requirements for testing long-range mortars and the dispersal of war gases.[164] Initially the only buildings on the site were two 30 by 15 foot 'army huts' which were delivered in March 1916 to function as an office and a store, with a following sum of £4,000 to develop roads, erect fences and build workshops.[165] Huts were erected to house a number of departments- physiology, laboratories and gas chambers

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[162] Carter, *Chemical and Biological Defence,* pp. x-xi, gives details of the names changes since 1916.
[163] The use of Servicemen as experimental subjects took place under what was called 'The Service Volunteer Observer Scheme'. No records have been located which contradict the claim by Porton that the biological research department did not used servicemen as subjects.
[164] A. Crossley, The R.E. Experimental Station, Porton (unpublished), c. 1918. With thanks to Gradon Carter for a copy of this document.
[165] Crossley, Porton.

for experimental work, the housing of animals for experimentation, numerous stores and billets. The billets consisted of eight huts in rows of eight providing accommodation for fifteen men in each with a 'floor space' of 15ft by 40ft, without segregation of officers from ordinary ranks.[166] In 1918 the administrative block, that still stands today as a listed building, was constructed which contained the offices and a museum. No detailed records appear to exist for the development of the site after 1918, although a map from around 1946 shows a range of permanent, semi-permanent and temporary buildings and details sections for physics, chemistry, munitions, physiology, and various stores, workshops and offices (see fig. 2).[167] Clearly with the imperatives of both wars, the site of Porton had grown in response and the space was defined with central areas for research work, and accommodation for married officers, 'living huts' for servicemen, and messing facilities around the periphery. Accommodation for servicemen post-World War Two was provided in the WWI huts surrounding 'Barrack Square' and situated towards the outer East perimeter of the site. Facilities included a cook house and dining room, a living hut, and quiet room, with recreational pursuits such as tennis and billiards.[168] Further building work in the 1960s replaced a number of workshops and stores with new chemistry and physics buildings and the site looked far more organised by this time.[169]

The area of the site that contained the research facilities was enclosed by a fence running around the perimeter, like some kind of compound, evident from plans and photos dating back to as early as 1940, with a secondary fence enclosing the remainder of the site visible from the 1950s.[170] Bound up with the physical aspects of situation, fencing, and positioning of buildings in relation to one another are underlying issues of control, discipline and authority.[171] The fences marked out who could go where and allowed freedom of

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[166] Crossley, Porton.
[167] WO188/702, Ministry of Works plan, no. p.110, undated but contained in file from 1943-1950. The map shows the MRD which was so-called from 1946.
[168] WO188/702, Ministry of Works plan, no. p.110.
[169] Carter, *Chemical and Biological Defence,* aerial photo taken in the 1960s, p. 86.
[170] Carter, *Chemical and Biological Defence,* aerial photo taken in 1940 shows fencing, p. 46; aerial photo from early 1950s, p. 69.
[171] These themes have been explored by a number of contributors to C. Smith & J. Agar, (eds.), *Making Space for Science* (Macmillan, Hants. & London, 1998). The earlier work of E. Goffman, *Asylums: Essay on the Social Situation of Mental Patients and Other Inmates* (Pelican Books, London, 1961), similarly addresses the spatial arrangement of institutions, as does L. Prior, *The Social Organization of Illness* (Sage, London, 1993).

movement only to those permitted to be in the restricted area. Therefore, those allowed into the 'inner sanctum' were furnished with greater authority than those kept on the periphery, such as Service volunteers who were billeted away from the main research area and remained so until needed for experimental purposes. The spatial arrangements at Porton reinforced its military authority and its nature as an institution conducting top-secret research with control of movement and thus a method of discipline which dictated where people could or could not enter.

It is impossible to make out any signs on the photographs available and therefore it is unclear how the site 'advertised' itself on approach. Film footage of a demonstration by the Committee of 100 Against Germ Warfare in June 1963 showed signs such as 'Danger. Keep Out.' and 'Official Secrets Act. Prohibited Place.' around the perimeter of Porton.[172] It is unclear from which points around the boundary of the site these shots were taken or whether the road featured running into the site with a barrier carrying the additional warning 'Guard Dogs in Use' was the main access road. Clearly Porton was defined as a secret installation by the presence of such signs which indicated the high level of security surrounding it, but the footage was without a central sign which gave the title of the establishments concealed within.

Some film of the site produced by Porton no earlier than 1974 shows that there were signs identifying the actual buildings.[173] White text on a green background, the signs for the 'Photographic Section', 'Biology Division', 'Medical Division', 'Engineering and Respirator Division', 'Chemistry Division' and 'Physics Division' were all filmed as close up shots, panning out to film the buildings which were indicated by the signs.[174] There is nothing on this film which indicated the purpose of its production although it specifically recorded these buildings and their titles. In the absence of any other footage it appears that it may have been for the purpose of documenting them that the film was produced. The positioning of the buildings, rebuilding and modification of the site can be traced from

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[172] British Pathé Archive, 2669.20, Committee of 100 Against Germ Warfare, 29 June 1963, www.britishpathe.com, accessed 30 January 2006.
[173] This is surmised from a study of number plates on vehicles parked within the restricted area filmed, the latest being 'N' which dates the vehicle 1974/5. The IWM records the date of 1975 for this film.
[174] Imperial War Museum Film & Video Archive (IWM), DED 98/04, CDE and its facilities, 1975.

various site maps, photographs and film footage, and the changes in the spatial arrangements of the buildings can be mapped. However the internal spaces within these buildings, the places where science was conducted, become harder to trace from the historical record.

Little attention has been directed to the examination of the internal spaces at Porton; both Carter and Evans have focused mainly on the role of Porton and its research interests. Therefore while it is possible to use film footage to describe some of the laboratories and areas used for experimental purposes, it is not always possible to identify exactly which laboratory or room within the site such film depicted. However it is important to attempt to examine the internal spaces to understand the environment in which experiments were conducted, the presence of scientists during tests on volunteers, and how these spaces of science, which were unfamiliar territory to the volunteers, were organised.

In 1975 colour footage was recorded of scientists and technicians in action, operating equipment, analysing matter under microscopes and preparing slides for analysis. The large, unwieldy computers and equipment utilised meant that the physical space appeared crowded by these 'giants' of technology.[175] These brick-built laboratories which housed numerous pieces of apparatus, 'hi-tech' machinery, and rows of shelves crammed full with scientific glassware added to the impression that the private space of the scientists' laboratories was cluttered, complex and, to the uninitiated, quite awesome.[176] This image contrasts with the spaces of science at Porton where tests were conducted on Service personnel, which by comparison appeared to be organised, tidy and spacious. In footage of Servicemen from the Royal West Kent Regiment performing sorting tests while being exposed to an 'incapacitating agent', the space appeared to be sparse.[177] Except for the necessary furniture, such as tables and chairs, a sorting desk with a number of pigeon holes similar to that used in post office sorting offices, and the equipment used in the tests (decks of cards, screws and pattern matching books used for psychological testing), the room used

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[175] IWM, DED 98/01, CDE and its facilities, 1975.
[176] IWM, DED 98/02, CDE and its facilities, 1975.
[177] IWM, DED 29, 'Human Evaluation of Incapacitating Agents', c. 1965. The date of this film is unconfirmed.

for these tests contained nothing else. As noted by Pearson and Richards, cleanliness can be use 'as an instrument of power, coercion and even oppression' especially in an authoritarian environment where cleanliness becomes part of the disciplined order and 'authoritarian ideology'.[178] The use of kit inspection, military drill and the inspection of barracks in military life served to instil discipline in Service personnel, likewise the sparse and sterile environment of the test areas which volunteers entered conveyed similar messages of order and obedience.

The spaces where experiments were performed and where they were subsequently analysed were therefore very different. The presence of scientists is shown within the films, leading volunteers into the room (the gas chamber) and then leaving them to be exposed to chemical agents, or closely monitoring respiration during treadmill and bicycle tests. The operation of the equipment was dependent upon the knowledge of the scientist and therefore the close presence of scientists in tests which required the operation of equipment was logical. Perceptually this space was the territory of the scientists, imbued with authority and specialised, privileged knowledge. Porton also had its own hospital and during its experiments with mind-altering substances such as LSD, the hospital became the site of experimentation.

Arranged as one would expect a hospital ward to be, with metal framed beds and a bedside cabinet with a curtain to pull around to screen off the patient, sorting tests were performed by volunteers who had been exposed to such substances while sat at a table in the centre of the ward.[179] Human subjects taken to the hospital for tests would recognise the familiarity of it and make the conceptual link between treatment and care, rather than experimentation and after-care which would be alien to the expectation of purpose. Finally the ranges at Porton and the Plains of Salisbury provided another environment for human experimentation. Field trials were conducted on the ranges, such as testing the effects of LSD on the ability of units to function in military operations in the 1960s, and the

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[178] Pearson and Richards, 'Ordering the World', p. 26.
[179] IWM, DED 46, *Volunteers for Porton* recruitment film, 1965; DED 77/1, hospital ward scene from Moneybags trial, December 1964.

effectiveness of tear gas on crowd dispersal likewise made use of the outside spaces.[180] The ranges would have been the site most familiar to Service personnel who were accustomed to military exercises.

The physical sites of experimentation at Porton mirrored the nature of the establishment as an Official Secrets Act designated area. Access and movement around the site was restricted and scientists were segregated from the 'uninitiated', while military hierarchy in the billeting of the volunteers and their supervision while at Porton served to ensure that military authority was adhered to. Rather than conveying symbolic trust through the organisation of spaces, Porton's spatial arrangements conversely conveyed distrust. There was no need for 'harmonious social relationships' for which trust is 'functionally necessary' when the presence of authority of both science and the military controlled relationships at Porton.[181]

Today the site of Porton is well marked with bold signs announcing its title as the 'Defence Science and Technology Laboratory, Porton Down', and the fencing evident on earlier maps has altered little over the years. Many of the older buildings still survive alongside the newer ones, including the buildings of the old Physiology Section, and the Photographic Section remains today where it was by the 1940s.[182] Having surveyed old maps and photographs of the site, crowded with buildings in some and dominated by new builds in others, Porton today appears to be smaller than one's imagination of it. The buildings which remain from the Great War period appear to be out of step with the modern conception of a facility on the cutting-edge of chemical and biological research. Except for the newest building opened in 1999 with its shining metal roof and bright blue paintwork, named The Henderson Building after David Henderson, director of the MRE between 1956

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[180] IWM, MGH 4464-4467, Moneybags, Recount and Small Change LSD trials, 1964-1968; DED 27, Anti-riot CS trials, Imber village, Salisbury, 1958. It should also be noted that tests were conducted by the MRE and CDEE involving spraying substances over extensive areas of the UK during biological warfare trials. Although these trials did not directly use human subjects, they were subjected to the experiments by the very fact that they were sprayed. See Balmer, 'Using the Population Body to Protect the National Body: Germ Warfare Tests in the United Kindgom after World War II', in Goodman et al (eds.), *Useful Bodies*, pp. 27-52.
[181] David Lewis, 'Trust as a Social Reality', p. 969.
[182] Visit to Porton, 15 November 2005 by kind invitation from Gradon Carter.

and 1964, the site of Porton appears to be less of a 'giant' than had been envisaged.[183] Yet it remains a tightly monitored and controlled environment, albeit civilian rather than military, and understandably so given the nature of some of its research.

iii. Summary

The use of human subjects in research at Porton and the CCRU make them comparable establishments. However, the starkest difference between the two sites rests in the nature of the research, as the analysis of the organisational structure and spatial arrangements have shown, with emphasis on secrecy at Porton and transparency at the CCRU. The need for secrecy at Porton was paramount given the political situation and national insecurities in the field of chemical warfare. Porton's future was secured on the perception of threat from chemical (and biological) warfare which was relatively cheap to produce and easy to deliver. In contrast, the research at the CCRU was constructed as public-spirited in which citizens participated for the good of the nation and as such the organisation lacked any sense of authoritarianism, either in the layout of the site or the divisions between subjects and scientists. When comparing Porton and the CCRU, the former appears to have been rather fragmented with its various sections containing scientists pursuing their own research areas within their division, whereas the latter was focused particularly on viruses, initially common cold and later respiratory viruses. Therefore, the research at the CCRU was in the hands of a small number of scientists and research workers but made available to a global audience.

This chapter has touched upon social relationships between scientists and subjects in relation to organisational structures and the arrangement of the spaces. The CCRU was volunteer-orientated, with particular attention given to the needs of its volunteers while resident at the unit. In contrast, Porton provided basic accommodation for service volunteers with some recreational amenities but in proportion to the research facilities, the facilities for volunteers represented a small section. The scientific culture within these establishments was therefore quite different, yet as organisations they were able to 'define

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[183] Carter, *Chemical and Biological Defence,* p. 77-8. Upon visiting, I found that many of the buildings in use during the period of this study remain occupied.

the situation in which interactions take place'.[184] As later chapters argue, the CCRU negotiated with the volunteers and served their interests so that the interests of the institution would be served. On the other hand, Porton dictated the volunteers' role rather than negotiated it, and yet both made use of what the sociologist Tim Hallett calls 'impression management'. The work of an organisation depends upon its workers, directors and managers and as such the success of the organisation depends on its credibility.[185] To make the research conducted on human subjects credible in the field of human experiments, 'dispositions' of faith in science, trust in the media who reported on the CCRU, and the military in the case of the Porton volunteers, were needed. Through the use of the media, the production of film, and recruitment literature, the practices of the institutions in relation to human experiments became modes of impression management, where the institutions themselves recognised that their practices in human experiments could be a source of legitimacy and credibility for the organisational culture which could be 'valued by others'.[186]

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[184] T. Hallett, 'Symbolic Power and Organizational Culture', *Sociological Theory* (June 2003), vol. 21, no. 2, p. 130.
[185] Hallett, 'Symbolic Power and Organizational Culture', p. 132.
[186] Hallett states that symbolic power negotiated within an organisation can be both conscious and subconscious and yet organisational interaction creates power through legitimacy, p. 134.

Chapter IV. Building Britain and Constructing Citizens: Government, Science and Citizenship

This chapter examines the ideology of citizenship that emerged after World War Two and its relationship with science as part of the socio-political agenda to boost Britain's flagging economy. World War Two had provided the State with experience of mass mobilisation; the totalising nature of the war involved the state in the lives of the British public and experiences of controlling the 'masses' gave rise to the application of psychology. This contributed to an altered conception of the national character of the British public. The ideology of citizenship was cast in notions of collectivism and science was part of this programme; the relationship between citizenship and science was reified through the government's ideology of collectivism.

It will be shown how the use of science for destruction in World War Two initially damaged the public image of science. However, this was countered by the government's use of science as a political and economic resource to bolster the image of Britain and its prosperity. Collective engagement in science was conveyed through the British press who presented science enthusiastically and the success of this collectivist agenda through science was evident in the creation of the NHS. However, there were notable shifts in the public's understanding and regard for science in this period. From awe of science up to the mid-1950s to a more critical outlook by the 1960s, the public regard for science waned as the collectivist agenda lost its grip. Despite this, it appears that the NHS succeeded in maintaining a collectivist approach which was achieved by recasting the NHS as medical science of collective benefit. This circumvented the growing negativity associated with the 'big science' programmes of space exploration, military and nuclear science that came to dominate the press, which contrasted with the image of science in the first decade or so after the war as a collective public enterprise. The dominant themes of big science became incomprehensible to the general public and rather than accepting the promise of science, suspicion replaced enthusiasm and increasingly science became challenged.

Through an examination of the British press' representation of volunteering in a general capacity and more specifically in relation to military and civilian contexts, this chapter demonstrates that initially the press upheld the government consensus. The press portrayed volunteering as part of the government's agenda that required the citizen to be an active participant. This is important for understanding how volunteering was perceived and offers a contrast to the conception that a volunteer was simply a person acting in a voluntary capacity. It is argued that the government's socio-political agenda contributed to shaping the construction of the identity of the volunteer. Therefore, this challenges the definition of a volunteer solely in terms of a medico-scientific description. However, science as part of the collectivist agenda appeared to become less newsworthy and the 'volunteer' as an active participatory citizen disappeared from print around the late 1950s. This was replaced with a growing criticism of science and, in particular, increased suspicion of science that was surrounded by secrecy. The collectivist consensus appeared to give way to distrust of government science.

i. The Ideology of Citizenship in Society after World War Two

The Second World War was a lesson in government, with a small 'g', which taught that British citizens could be conditioned to act as a group. As Nikolas Rose has noted, the use of psychology including propaganda and mass mobilization produced 'a remodelled psychological conception of national character'.[187] Rather than being passive subjects of the British Empire, the need to motivate and mobilise the British nation to the war effort changed the concept of the national character to that of a 'responsible active citizen with both duties to the state and rights deriving from those duties.'[188] Mass mobilisation therefore was used to construct social and political solidarity which situated the state as the 'guarantor of progress' while allowing the British public to feel that they were responsible for social intervention 'rather than it being state [unwanted] meddling'.[189] The construction of the social and political role of the active citizen was presented to British society through,

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[187] N. Rose, *Governing the Soul: The Shaping of the Private Self* (Routledge, London; NY, 1989), p. 38.
[188] S. Nicholas, 'From John Bull to John Citizen: images of national identity and citizenship on the wartime BBC', in R. Weight and A. Beach, (eds.), *The Right to Belong: Citizenship and National Identity in Britain, 1930-1960* (I.B.Taurus, London: NY, 1998), p. 45. See also R. Weight, *Patriots: national identity in Britain, 1940-2000* (Macmillan, London, 2004), ch. 5.
[189] J. Donzelot, 'The Mobilization of Society' in G. Burchell, C. Gordon & P. Miller, (eds.), *The Foucault Effect: Studies in Governmentality* (Harvester Wheatsheaf, Herts, 1991), p. 173.

among other media, audio-visual resources which articulated collective action in the public sphere; in 1945 films were being used to rouse mass participation in politics which in turn would stimulate post-war reconstruction through mass democracy.[190] As Abigail Beach has noted, war 'increased the range of opportunities for citizens to take an active part in the affairs of the nation' while voluntary work provided such 'opportunities for citizenship'.[191]

It was not just on the Home Front that changes in the conception of society, from the focus on the individual to the collective, took place. The medicalisation of the Front Line, through health education campaigns and the more central roles played by medical officers in preventative medicine and hygiene, addressed units as a whole.[192] The health of British service personnel engaged in active service during WWII was treated as a collective issue. Whole units were targeted through posters and media campaigns which reminded them of their duty to their country and to each other to stay fit and healthy, drawing upon the military ethos of patriotism and camaraderie to underscore the imperative. The management of the physical health of the Armed Services removed the individual in favour of the collective and mirrored similar interventionist strategies on the home front; this collective approach was also developed in the field of military psychology.

The use of military psychiatry since the Great War in the treatment of conditions such as 'shell shock' continued to be used in the Second World War.[193] However, military psychiatry was not confined to the treatment of psychiatric disorders; it was also used to determine the characteristics of new recruits. From 1942, the Directorate for Selection of Personnel and the War Office Selection Boards for officer recruitment introduced numerous intelligence and aptitude tests for new recruits. These were conducted in order to allocate men to various military branches and up to ten hours were spent by new recruits

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[190] See for example, T. Haggith, 'Citizenship, nationhood and empire in British official film propaganda, 1939-45', in Weight and Beach, (eds.), *The Right to Belong*, ch. 3.
[191] A. Beach, 'Forging a Nation of Active Participants': Political and Economic Planning in Labour's Britain, in Weight & Beach, *The Right to Belong*, p. 91.
[192] M. Harrison, *Medicine and Victory* (OUP, 2004); J.A. Crang, *The British Army and the People's War 1939-1945* (Manchester University Press, 2000), p. 141.
[193] For a rich account of military psychiatry see B. Shephard, *A War of Nerves* (Jonathan Cape, London, 2000).

completing the tests.[194] Group therapy in Base Psychiatric Centres, set up to deal with psychiatric problems throughout the theatre of conflict, centred around fostering group identity 'in order to engender a feeling of equality of sacrifice'.[195] As Mark Harrison notes, there was a deliberate construction of ideas of 'social citizenship' bound up with the methods of group therapy in the Armed Services. Clearly it was important that the Armed Forces were 'fighting fit' both physically and mentally. Whereas neurosis had been the focus of Great War psychiatry, one psychologist's research during WWII focused on soldiers who were not mentally ill but rather were unable to 'adapt to army routine and discipline'.[196]

Hans Eysenck's study of the personalities and behaviour of these 'maladjusted' soldiers at the Mill Hill Emergency Hospital involved the use of questionnaires which enabled the subject to be rated according to the personality traits he exhibited. It was from Eysenck's research on these 2,000 soldiers that he developed the categories of 'neurotic' and the spectrum of 'introversion' to 'extroversion', and later in 1952 'psychoticism'.[197] Eysenck's work on personalities helped to establish psychology as a distinct discipline from psychiatry but also provided a method for making personalities quantifiable and calculable, and therefore predictable. The use of Eysenck's personality inventory was taken forward in the post-war period in both military and civilian psychology. In situations where it was deemed necessary to test the personalities of groups of people to establish, for example, typical traits accorded to a particular group, or those within groups who could be considered better predisposed to certain employment positions, Eysenck's inventory was considered to be a useful device.

The application of psychology in education, employment and industry, derived from its military use, was widespread immediately after WWII.[198] Psychology offered society, and more specifically the government, a tool by which citizens could be measured, quantified

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[194] Harrison, *Medicine and Victory,* p. 125; Rose, *Governing the Soul,* p. 42-45.
[195] Harrison, *Medicine and Victory,* p. 181.
[196] Rose, *Governing the Soul,* p. 231.
[197] Rose, *Governing the Soul,* p. 231.
[198] See for example, H. Eysenck, *Uses and Abuses of Psychology* (Penguin Books, Middlesex, 1953) in which numerous examples are given where psychology was applied to industry, civil service and understanding the political and national character; also Harrison, *Medicine and Victory,* p. 280.

and predicted and given the emphasis on efficiency, productivity and order, its appeal to the post-war world seemed irresistible. Psychiatry for the masses, it appeared, 'captured the mood of Beveridgian Britain' and experiments in group therapy of service personnel gave new hope to the treatment of the collective mind in post-war society, and as a social medicine for the treatment of social ills such as crime and disorder.[199] The British public, including Service personnel, had allowed the state to intervene in their private lives for the common good and the Allies' victory made the sacrifice worthwhile. The 'success' of this social intervention culminated in the landslide Labour victory which heralded the foundation of the National Health Service (NHS).

In constructing the citizen in post-WWII society, welfarism as a collective policy had to be implemented alongside the notion of a liberal democracy in which the freedom of the individual was still upheld. Opinion polls and social surveys demonstrated how these 'psychological knowledges and techniques' shaped consumerism and consumption.[200] While the individual maintained autonomy through making choices, the use of opinion polls meant that products, whether consumer items or government policies, could be targeted to the audience based on the finding from surveys. Therefore mass consumption was concerned with targeting the individual as part of a collective- a mass- and yet this supposed freedom of choice was still subjected to a number of factors such as availability and affordability. Individual freedom, as Rose points out, was (is) inextricably linked to collectivity. Being a subject meant a duality of identity and it has been through the 'vocabulary of citizenship' that certain messages of individual responsibility and rights of both the citizen and the state have been conveyed.[201]

Thus the organisation of the welfare state can be seen as a 'collectivizing process' in which society was structured, for example, according to age, marital status, and health. In turn such collectives of the welfare state conveyed certain expectations of standardised social

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[199] Harrison, *Medicine and Victory,* p. 182.
[200] N. Rose, *Powers of Freedom: Reframing Political Thought* (CUP, 4th Imp. 2004), p. 85; The Wartime Social Survey commenced in 1941 within the government's Ministry of Information, see: www.statistics.gov.uk/downloads/theme_compendia/SSD_Anniversary/SSD60AnniRD_v2.pdf, last accessed 17 July 2007; Mass Observation commenced in 1937 to record 'everyday life' in Britain, see www.massobs.org.uk/index.htm, last accessed 17 July 2007.
[201] Rose, *Powers of Freedom,* p. 46; p. 51.

behaviour.[202] British society adopted a collective identity in support of national health and welfare services, which was echoed through mass consumption and mass production that followed WWII. The notion of 'organized modernity', in which the individual was not denied autonomy but rather was directed and organized through government intervention towards contributing to the British economy and increasing productivity, created a society which legitimated the regulation of daily lives.[203] The mass mobilization of people during the war was therefore extended post-war through a process of state support and manipulation of the mechanisms which ensured the active participation of British citizens during the war. The nationalisation of British industries gave the public a sense that they were working for their collective benefit, while at the same time contributing to rebuilding the economy which would secure their futures.

Organization, efficiency, and productivity were characteristic of the post-war world. The organization of efficient and productive industries; the foundation of healthcare and welfare embodied in the NHS; and the attempts to tackle social issues such as poor housing and unemployment all aimed to give order to the chaos left by WWII.[204] National identity therefore was constructed as a collective effort in which society as a whole was engaged. Just as military psychology had identified the importance of the group rather than just the individual, so civic psychology increasingly focused on the group. The rhetoric of democracy in the post-WWII period utilised social psychology to legitimate political power, bounding up the 'health, intelligence, and virtues' of citizens as crucial to 'national success'.[205] The psychology of the group, notably in industry, became a 'microcosm of democratic society'. The views of individuals were sought, relationships between employer and employee were analysed, and communication up and down the chain of hierarchy was endorsed in order to fulfil the need to increase productivity. Yet the individual was not lost in the establishment of British collectivism in the politics of democracy; indeed the concern

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[202] R. Wagner, *A Sociology of Modernity: Liberty and Discipline* (Routledge, London, 1994) p. 98.
[203] Wagner, pp. 104-7.
[204] For an account of the 'social consensus' of the late 1940s and 1950s, see A. Marwick, *British Society since 1945* (Penguin Books Ltd, London, 3rd Edition, 1996). Marwick's account does not explicitly acknowledge what I call the 'characteristics of post-war society' but through his analysis these features are evident.
[205] Rose, *Inventing Ourselves: Psychology, Power and Personhood* (CUP, paperback edition, 1998), pp. 117-121.

to distinguish socialism from communism meant that the individual was placed alongside the community as central to it.[206]

Citizenship was put forward by the government as an expression of public goodwill; rather than a reality it was an ideological construct that utilised the language of democracy and the experiences of WWII to attempt to work (psychologically) on the psyche of the British public. Likewise, the public representation of science in the period 1945-1970 was shaped by the government and industry. The press helped to convey the idea that science was a symbol of 'progress' and the future of Britain was by 'salvation through science and technology'.[207] Shortly after the end of WWII, the government focused the public's attention on awe-inspiring displays of science at the Festival of Britain in 1951, which helped to convey the notion of British scientific achievements as a source of national pride, and continued to impress the benefits of science through consumerism. Furthermore, the foundation of the National Health Service, enacted in 1946 and launched in July 1948, gave the British public a sense of ownership in a great social, scientific enterprise and recast science as medical and of collective good. This helped to address the declining image of science during WWII.

ii. 'Science with gaiety': Public Representations of Science and Scientists in Society

In 1941, a Mass Observation survey 'Everyday feelings about science' found that 66 percent of respondents viewed science as a positive contribution to society.[208] By the end of the war, however, public attitudes had shifted somewhat. A lengthy report 'Puzzled People' was produced in May 1945 and the effects of war were evident from the changes in attitude to science by some panellists. Under the chapter heading 'Progress and Science', it was reported that 40 percent of men surveyed believed in progress in terms of science, while only eighteen percent of women considered progress in terms of science, preferring to

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[206] See M. Taylor, 'Patriotism, History and the Left in Twentieth-Century Britain', *The Historical Journal* (Dec 1990), vol. 33, no. 4, pp. 971-987 for a historiography of patriotism. Taylor describes a 'fusion between patriotism and democracy' through which 'a more positive model of democracy' developed into citizenship based on the participation of the people, rather than a more negative image of 'the masses' associated with fascism and communism, pp. 982-3.

[207] J. Taylor, *The Scientific Community* (OUP, 1973), pp.60-1.

[208] University of Sussex, Mass Observation Online (MOO), File Report 951 on panel replies, July 1941.

equate progress with 'social improvements, standards of living, medicine'.[209] This suggests that not only was there a gender difference in the reception of science, but also the separation of medicine from science indicates that some interpretational differences were discernable. The report focused on interpretations of 'progress' which were varied, but did not engage with interpretations of what was considered to be 'science'. The categories into which the panellists were divided were constructed by the composer of the questionnaire, which suggests that science and medicine were treated as separate fields. The opinions of those who believed that mankind was not progressing because of 'war, abuses of science etc' were significant to the Mass Observers because, while they were in the minority, it demonstrated a shift in attitude. The report writer discerned from the panel replies that, 'Science has a lot of ground to make up after this war if it is to regain the respect it once had. And, in part at least, the process will be dependent on the scientists themselves'.[210] The image of science, according to the views collated by Mass Observation, had deteriorated in the course of WWII.

Another article written in 1947 by Mass Observer Tom Harrisson for *World Review* entitled 'Scientists- Magicians or Monsters?', based on the collected views of panellists, claimed that science and scientists had become viewed by the public as 'a form of magic that should be adopted almost without question'.[211] He went on to assert that the public had a 'mystical approach' to the scientist who was believed to be 'the possessor of strange powers' and the public continued to stereotype the scientist according to the image 'first fully popularised ... by Jules Verne'. This image of the scientist was expounded in another report in May 1947. 'Where is science taking us? Public view of science and the impact of the atom bomb' blamed the press for perpetuating the image of the scientist as a mysterious figure with 'no warmth, but possessing an enormous potential for good' who lived 'an unreal life in a laboratory completely out of touch with reality'.[212] It also claimed that the public's diminishing trust in science was 'a direct result of the public's immaturity in scientific knowledge and understanding.'

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[209] MOO, File Report 2245, 'Puzzled People', May 1945, p. 3.
[210] MOO, File Report 2245, pp. 12-13.
[211] MOO, File Report 2474B, April 1947.
[212] MOO, File Report 2489, May 1945.

However, the (albeit minority) pessimistic attitudes detected were countered to some extent by the exuberance of the British press, who delivered science in 'morale-boosting, optimistic rhetoric' making the late 1940s and 1950s 'celebratory times for science' in Britain.[213] When the Festival of Britain opened to a royal fanfare in May 1951, the press turned their attention to this 'new voyage of discovery', to quote from King George VI's opening address, and reported enthusiastically on the centenary celebrations of the Great Exhibition.[214] But the Festival of Britain was more than just an event to mark a hundred years since the Great Exhibition. It was an opportunity for Britain to display its achievements to the world and the role of science played a large part in this.

The Dome of Discovery was part of the South Bank Exhibition along the River Thames which celebrated science and engineering with numerous areas displaying exhibits (see fig. 3).[215] Divided into 'The Land', 'The Sea', 'The Living World', 'The Physical World' and 'Outer Space', the Dome of Discovery covered scientific aspects of each of these sections and common to all was the emphasis placed on British discoveries, innovations and inventions, both past and present.[216] Its popularity was demonstrated by the number of people who visited, and on occasions it had to be closed due to overcrowding.[217] *The Telegraph* reported that science had 'a privileged prominence in the exhibition' which was apt 'in a world that would today be nowhere without it and in a country that has made a greater contribution to knowledge in that sphere than any other in the world.'[218]

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[213] J. Gregory & S. Miller, *Science in Public: Communication, Culture & Credibility* (Plenum Press, NY, 1998), p. 38.
[214] King George VI quoted in *News Chronicle,* 3 May 1951, front page.
[215] For a photograph of the inside of the Dome, see the Museum of London's online resource dedicated to the festival of London, photo reference IN16675, http://www.museumoflondon.org.uk/archive, last accessed 18 March 2007.
[216] I. Cox, *The South Bank Exhibition: A Guide to the Story it Tells* (HMSO, 1951), pp. 41-62.
[217] For example, the *Daily Herald* reported on the Whitsun Bank Holiday that the Dome was closed twice in one day due to the sheer number of people who flocked to enter it.
[218] British Newspaper Library, Colindale (BLC), *The Telegraph,* 'Science with gaiety at the Festival', 7 May 1951, p. 5. All newspapers references in this chapter, with the exception of *The Times,* were obtained from BLC.

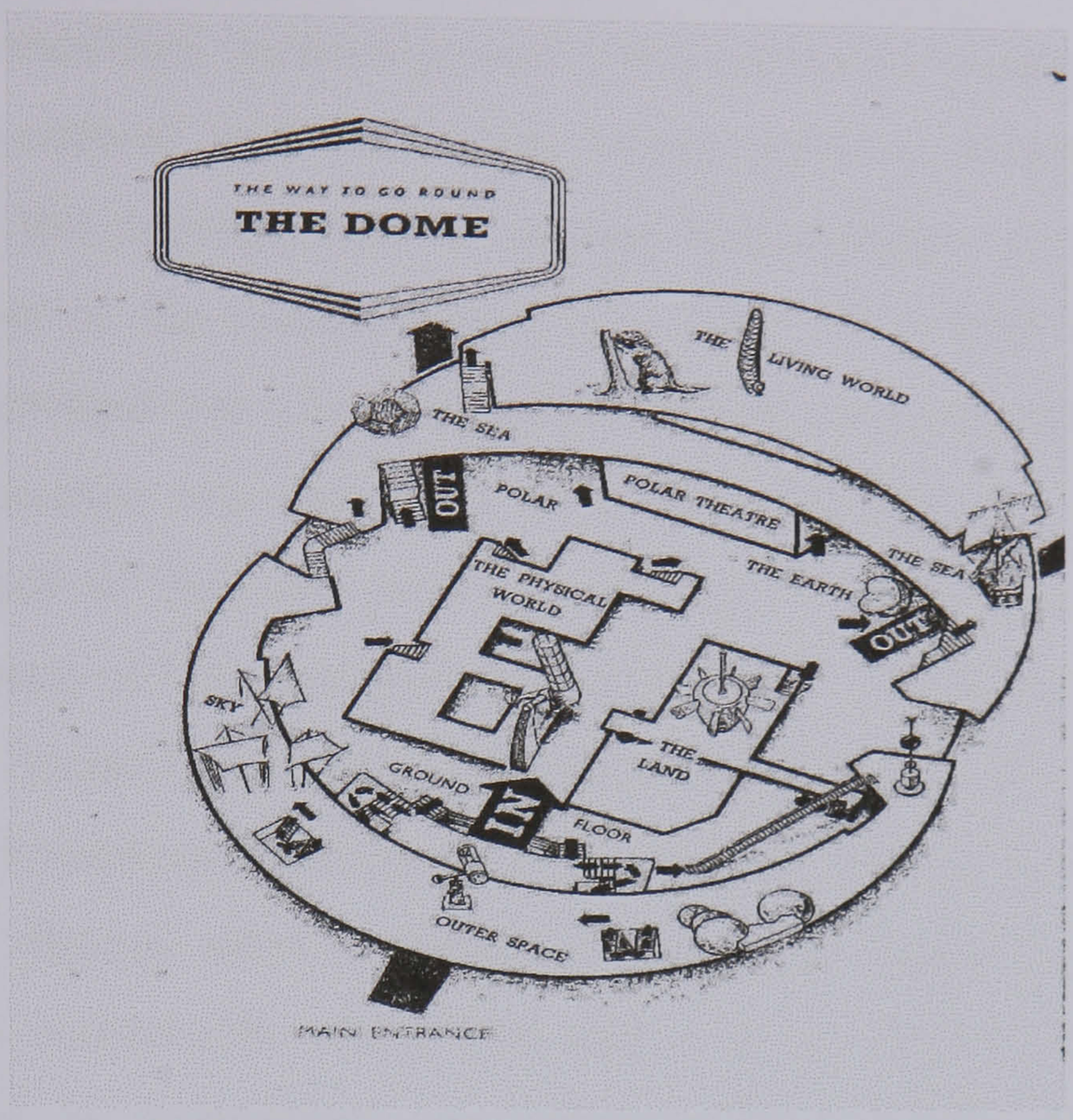

Figure 3 The Dome of Discovery, 1951, reproduced from Festival of Britain Guide Book (Author's possession)

From the destruction and austerity of World War Two, the Festival of Britain reflected the 'new world' and new optimism of Britain and while it was not directly politically driven, the rhetoric of collectivism was discernable in the ethos of the Festival. Herbert Morrison was quoted in *The Times Festival Supplement* that the Festival had given 'a direct challenge to every community to make the best of itself' with the hope that the 'public-spirited citizens' who took up the challenge would continue to do so.[219] Therefore the Festival of Britain, did much to demonstrate to the British people and overseas visitors that the country was pulling together and its 'progress' was heavily built upon its scientific achievements. Moreover, the agenda of citizenship that shaped the national character through participation and collective identity was extended to the public representation of science. The press contributed to this image and while the Mass Observers had concerns that science immediately after World War Two had lost respect from the British public, the Festival of Britain did much to counter any such doubts.

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[219] Quoted by Museum of London's website:
www.museumoflondon.org.uk/archive/exhibits/festival/improve.htm, accessed 18 March 2007.

The innovations in medicine, technology and communications developed during the war became sources of national pride and in the uneasy political climate where secrecy in science had stifled the popularisation of science communicated to the public, science journalists 'took over as the communicators of science'.[220] A British Broadcasting Poll conducted in 1956 showed that 65 percent of the British public thought that the UK were 'world leaders in science and technology' and that for much of society, science was maintaining the focus of 'patriotic pride'.[221] The British press extolled the benefits of science in many aspects of life; even gardening articles like 'Science on the Scent' reported the indebtedness to 'scientific research' for successful gardens.[222] By 1961 it was reported that two out of five homes had washing machines and eight out of ten had televisions, with a doubling of the figures when compared to five years previously.[223] Science was transformed into a consumable entity that had a purposeful or leisure-based utility. However, advances in technology and labour-saving devices did not amount to participation in science. Instead, it contributed to the public image of science as a positive intervention which assisted in bolstering public support for the government's investment in science as a source of prosperity and status. While such technological innovations may have gone some way to shift the focus away from the morality of science in light of the destruction witnessed in World War Two, it was the creation of the NHS that constructed a positive image of science.

The MO report 'Puzzled People' (1945) indicated that for science to be better received by the British public, it needed a social purpose. One comment was that while progress was 'certainly in a scientific manner', the direction of progress needed to be re-targeted: 'They can't even cure the common cold. If they studied to do that instead of all these fancy explosions, well we'd all be better off'.[224] Two years later, another MO report 'Where is science taking us?' demonstrated that the British public still had a destructive image of science. One panellist, a 'housewife', responded with a persistent view detected in a number of respondents, 'If only science could be used for constructive ends instead of

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[220] Gregory & Miller, *Science in Public,* p. 38.
[221] Weight, *Patriots,* p. 237.
[222] *Daily Herald,* 17 December 1949, p. 4. There are numerous examples of science being used in advertising.
[223] *Daily Herald,* 20 July 1961, p. 7.
[224] MOO, file report 2245, May 1945.

destructive, the world would be a marvellous place in no time. I have colossal faith in science properly applied.'[225] The need for science to be seen as constructive rather than destructive was embodied in the creation of the NHS in 1948, formed on the tenet of providing health care for all. In 1949, Charles Hill, then secretary of the British Medical Association (BMA), and John Woodcock published *The National Health Service,* a text that set out to explain the role of the NHS 'to the professions upon whose co-operation the provision of this Service depends'.[226] Hill was a doctor who took a lively interest in administrative matters concerning the medical profession. Having been deputy medical officer of health for Oxford in 1930 and the voice of BBC's wartime programme *The Kitchen Front,* Hill was concerned to ensure that the NHS gave choice of GPs to families and that GPs did not become mere wage-slaves to the NHS.[227]

The preface of the book opened with the sentence 'To the public the words "National Health Service" imply a complete service available to everyone without payment at the time'. The NHS was established out of a 'collectivist approach' to health care rather than an individualistic focus on medical provision. It built upon pre-WWII local government provision of hospitals and welfare institutions and combined it with the political consensus of providing an inclusive service for national health.[228] Klein argues that the NHS was not as a result of the collective experiences of World War Two, neither was it 'the child of Labour ideology' nor 'a Socialist triumph', but rather was a product of a 'convergence of views' that national health provision was necessary.[229] Nevertheless, the context of political consensus, mass mobilisation and collectivism was fertile ground for the NHS to be planted. Despite this, Klein highlights that the general consensus for free health care provision was the most striking aspect of the creation of the NHS, which 'reflected a shared assumption about the past achievements and future potentials of medical science'.[230] This came from both politicians and physicians, who considered that the advances made in

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[225] MOO, file report 2489, May 1947.
[226] C. Hill & J. Woodcock, *The National Health Service* (Christopher Johnson Publishers, London, 1949), Preface, p. vii.
[227] A. Briggs, 'Hill, Charles, Baron Hill of Luton, (1904-1989)', ODNB (OUP, 2004), www.oxforddnb.com/view/article/40158, accessed 19 September 2007.
[228] R. Klein, *The Politics of the National Health Service* (Longman, Esssex, 2nd edition, 1989), p. 6.
[229] Klein, *The Politics of the National Health Service,* p. 6.
[230] Klein, *The Politics of the National Health Service,* p. 27.

medical science in terms of curative and preventative medicines and treatments lent optimism to future advancements and was testament to the faith in science that was gaining strength in the post-war period. Moreover, the emphasis on medical science distinguished it from notions of science related to destruction. In shaping the public's regard for science, the NHS embodied both the collective approach and the image of progress through science that the government was advocating. Through the NHS, the positive image of science was recast as 'medical' which ensured its success.

The public's reception of the NHS was subjected to questioning by Mass Observers who sent out two questionnaires on the subject in 1949. 'Some comments on the National Health Service' in April 1949 found that of 110 men and women surveyed, the majority had 'a very considerable and general enthusiasm for the scheme' and in comparison to pre-NHS provision, doctors were 'overwhelmingly regarded as giving the same amount of attention as before'.[231] Surveying the 'non-medical aspects' of the NHS, a Mass Observation report from August 1949 found that most people 'had nothing but praise for the National Health Service, not merely for the doctors but also for the rest of those concerned with the treatment of the sick'.[232] While the NHS appeared to be positively received, the cost of health care provision on the already stretched economy was an enormous burden. Labour's 1945 manifesto on cradle-to-grave healthcare provision was ill-conceived when Britain emerged from the war heavily in debt to the tune of £7,000m.[233] NHS estimates between 1949 and 1952 soared year upon year from £228m in 1949 to £387m in 1952, while actual expenditure in 1952 exceeded the estimate.[234] Furthermore, the payment of sickness benefit from 1948 added to the mounting costs of welfare provision at a time when increasing the nation's productivity was also high on the agenda.

Yet the 'success' of the NHS can be measured against the nation's favourable attitude, which in turn gave the government an additional tool in the mobilization of society in the immediate post-war period. Writing in 1951, Ross claimed that the NHS was 'a national

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[231] MOO, File Report 3140, 'Some Comments on the National Health Service, April 1949, pp. 5-7.
[232] MOO, File Report 3152, 'A Report on Non-Medical Aspects of the National Health Service', August 1949, pp. 3-4.
[233] K. O. Morgan, *Labour in Power, 1945-1951* (OUP, 1985), p. 144.
[234] Morgan, *Labour in Power,* p. 161.

service, serving the general health of the people and their individual needs and calling upon them in response for a co-operative pride in it and a right use of it.'[235] Health improvements in 'the factory, the foundry and the farm', it was claimed in 1958, made the NHS the envy of the world.[236] The popular reception of the NHS was because it was 'favourable' compared to what had gone before and therefore 'public satisfaction was guaranteed'.[237] Moreover, the NHS helped to bring about an ideological shift by making science medical, and therefore beneficial, and by giving everyone the right to use it. As such, it was a social, collective scientific enterprise that moved away from the negative image of science. As a social institution it functioned as a symbol of collectivism, whereby all patients were seen to be treated equally, while in terms of scientific progress, the NHS embodied political and scientific outlooks that held future advances in science, recast as medical, as key to Britain's economy, prestige and image as a world power.

The use of science to bolster a war-ravaged country's image helped to foster 'the unquestionable authority' of science in the post-war period.[238] In 1952 Bertrand Russell, radical socialist and political activist, claimed that science was replacing religion as a source of power and authority.[239] The following year, the newly inaugurated president of the British Association for the Advancement of Science, Sir Edward Appleton, stated that the 'implicit faith in the power of the scientist' by the public was 'embarrassing'; he countered that it was science, and not scientists, that was 'wonderful'.[240] The mistrust of scientists detected in the Mass Observation surveys conducted shortly after WWII appeared to have changed somewhat by the 1950s, according to Appleton's opinion, yet the popular image of the scientist in the period under study here suggests that the figure of the scientist remained ambivalent. Rosalynn Haynes' study of the portrayal of scientists in literature found that the mid-twentieth century scientist was represented as either 'the helpless

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[235] J. Ross, *The National Health Service in Great Britain: An Historical and Descriptive Study* (OUP, 1952), p. 4.
[236] Quote from Derek Walker-Smith, Conservative Minister of Health, tenth anniversary debate on the NHS, House of Commons, *Hansard* 5th Series, vol. 529, 30 July 1958, cited in Klein, *The Politics of the NHS,* p. 31.
[237] C. Webster, *The Health Service Since the War Vol. I* (HMSO, London, 1988), p. 389.
[238] C. Coker, *Humane Warfare* (Routledge, 2001).
[239] B. Russell, *The Impact of Science on Society* (Allen & Unwin, London, 1952), p. 26.
[240] *The Times,* 3 January 1953. All references to *The Times* were sourced from *The Times* On line Archive, 1785-1985.

scientist', governed by the goals of industry or government, or 'the social idealist', who strove for humanity.[241]

Frequently, cinema in the 1950s drew attention to corporate science programmes and the military application of science. It portrayed the scientist as the creator of the means for mass destruction, driven by the political agenda, but not the aggressor, thus corresponding with Haynes' imagery. An example of this was *Dam Busters* (1955), the story of Barnes Wallis' development of the 'bouncing bomb'. This film showed tension between Wallis, the scientist, and Whitehall officials. This was highlighted by one of Wallis' key lines: 'If I'd known [the raid] was going to be like that, I'd never have started it.'[242] As Christopher Frayling observed, 'science fiction films in the 1950s allegorize the tension between the scientists who made the bomb and the generals who dropped it'.[243] The dramatisation of corporate and military science in film, the so-called 'big science' programmes, often portrayed scientists as being powerless within the machinery of the state and industry. Personal responsibility appeared to be negated by these images and there is the suggestion that scientists were less accountable for their actions than the corporate body within which they worked. In contrast to this, it appears that NHS workers were not cast in the same light and even though the state controlled the NHS, the doctor-patient relationship was not lost within it.[244] The public image of science reflected in film, 'from awe [after WWII] to suspicion [from late-1950s] to outright disdain [from 1960s]', mirrored the representation of scientists in the same periods.[245] The public faith in science and the optimism that science 'had the answers' appeared therefore to correspond equally to scientists, although it was the application of science in society and its effects that was dramatised on the big screen, increasingly portraying themes of 'big science' from the late 1950s.

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[241] R. Haynes, *From Faust to Strangelove,* paraphrased in C. Frayling, *Mad, Bad and Dangerous? The Scientist and the Cinema* (Reaktion Books Ltd, London, 2005), pp.35-6.
[242] Frayling, *Mad, Bad and Dangerous?*, p. 186.
[243] Frayling, *Mad, Bad and Dangerous?*, p. 204.
[244] MO report 3152, 'A report on the non-medical aspects of the National Health Service', August 1949, found that 'affection and gratitude' towards NHS workers by patients was still evident through their treatment as 'intelligent human beings'.
[245] Frayling, *Mad, Bad and Dangerous?*, p. 224.

The perceived domination of government funded research projects was central to the image of science. By the 1960s science was being divided into 'little science' which was conducted in small-scale laboratories, and the 'big science' of large-scale organisations. Derek Solla Price, a physicist and historian, described big science in his 1965 publication as being perceived as 'new and shining and all-powerful'. While he challenged the 'exponential' growth of science, he acknowledged that there were changes in the organisation of science since World War Two which had created the need for research programmes to be redefined and new projects to be initiated.[246] Price refuted that there was any significant increase in the number of scientists, arguing that the growth was proportionate with population increase. He was describing a scientific phenomenon but attempted to quantify it as a 'measurable entity'.[247] Therefore, he was not seeking to identify the factors that created the image of big science. Rather, he was focused on unpacking the statistics to deny that there was any major growth in science which was merely a 'rhetorical construction'.[248] Capshew and Rader's analysis of big science since Price published his book demonstrates that the term 'big science' has been used as a label to describe science in relation to politics, culture and in contrast with 'little science', which moved away from Price's original intention to counter the popular image of big science when he first published. However, Price's imagery of science as impressive and new corresponded with the popular view of large-scale science programmes in this period and suggests the awe and reverie that they inspired in the general public.

From surveying *The Times* between 1950 and 1970, it is evident that science reporting often focused on themes of big science. Industrial science, space programs and nuclear science were dominant topics which were commonly linked to developments in Russia and 'breakthroughs' in British research. Comparisons with Russia demonstrated the perceived technological threat posed by the Russians who, in 1957 launched Sputnik and claimed first place in outer space, whereas the US remained a political ally that Britain was not in open

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[246] D. Solla Price, *Little Science, Big Science* (Columbia University Press, 1965), p. 2.
[247] J. Capshew & K. Rader, 'Big Science: Price to the Present', *Osiris,* 2nd Series (1992), vol. 7, p. 22.
[248] Capshew & Rader, 'Big Science: Price to the Present', p. 23.

competition with.[249] The media perpetuated the awe-inspiring image of science as a powerful force, and increasingly presented it as quite incomprehensible to the general public. The emergence of science journalists, who were trained specifically in this area of reporting, resulted in the use of scientific terminology in the press that made it less accessible to the general population.[250] Therefore, it failed to counter the mysticism and almost religious devotion to science that was being observed, until the 1960s when science appeared to be losing its popular support. (By the early 1970s it was commented that 'as if almost overnight the public lost faith in science and technology'.[251])

Volunteers in human experiments were drawn from this 'remodelled' post-WWII society which constructed the British citizen as an active participant in a mass democracy, a society that was exposed to the need for economic recovery and a commitment to the ideal of greatness through science. However, the public's understanding and regard for science in this period declined significantly. An exception to this trend was the NHS, which successfully recast science as 'medical science', by and large a collectivist enterprise. One of the arguments regarding the use of human subjects in experiments is that they were 'different', because of their nature, to other acts of voluntarism. Therefore it is important to look at volunteering in a range of contexts through which they can be compared. Moreover, the representation of science in society in the period under study here, discerned through its portrayal in British newspapers, suggests that it was a significant factor in the regeneration of Britain after the war. The extent to which science was used to bolster the image of volunteering is important in understanding how the perception of 'the volunteer' was shaped.

iii. 'The nation's helping hands': Representations of Volunteering in the Press

The public regard for science in the period 1945 to 1970, as has been shown, was shaped by the socio-political outlook of the British government and the ideology of citizenship that constructed the citizen as an active participant contributing to the economic revival of the country. Therefore, volunteering was part of the government's programme of citizenship

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[249] Gregory & Miller, *Science in the Public*, p. 13
[250] Gregory & Miller, *Science in the Public*, p. 38.
[251] Taylor, *The Scientific Community*, p. 61.

and science. Through an examination of the representation of volunteering in the press it will be demonstrated how volunteering corresponded with the collectivist agenda which the press initially supported. More specifically, by comparing articles about civilian volunteering for experiments with military-related experiments, it will be shown how they reflected the public regard for science during this period. The shift away from the collectivist consensus in the 1960s turned from the positive image of science that the government had attempted to construct to a more negative, suspicious regard for science. By this time, the collective agenda had broken down and was no longer newsworthy.

What makes a story 'newsworthy' depends on a number of factors, but includes its novelty, originality and public appeal. The construction of news depends on the acquisition of information which can come from a variety of sources - such as eye witness accounts; press releases; press conferences; scholarly journals and 'tip offs' - and the degree to which a news story is 'sensationalised' depends firmly on the nature of the story, its audience and the 'facticity' of the report.[252] The term 'facticity' refers to the 'facts' of a news story which are amassed by journalists and then processed through to the end product as an article. The newsworthiness of stories involving volunteering in this period was tied to the socio-political agenda but there is also the suggestion that the press took responsibility for shaping the identity of volunteers. Through comparing various newspapers and considering their readership and audience it appears that the upper middle-classes were being targeted to volunteer. This suggests that that there is a class-based interpretation to be made regarding which section of the British public were considered to be suitable to act as volunteers.

Newspaper readership and political allegiance of the national dailies varied and therefore had a bearing on the tone and stance which each newspaper took. In 1947, Viscount Camrose published *British Newspapers and their Controllers* which set out the ownership and editorial control of the national papers in circulation at that time; Camrose was himself a 'controller' of the *Daily Telegraph and Evening Post.*[253] Similarly, many of the

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[252] A. Bell, *The Language of News Media* (Blackwell, Oxford & Cambridge, MA, 1991), p. 216.
[253] W.E.B. Camrose, *British Newspapers and their Controllers* (Cassell and Co. Ltd, London, 1947).

newspapers at this time were controlled by titled, self-made individuals.[254] John Astor, later Baron Astor of Hever, bought into *The Times* in 1922 as a 90 percent shareholder, and reappointed its previously sacked editor, Geoffrey Dawson, who was then, apparently, left to run the newspaper without 'proprietorial directives'.[255] However, the claim that British newspapers 'effectively abandoned' political party allegiance after WWII has been contested. James Curran and Jean Seaton point out that a large proportion of the British press continued to be run by 'aggressively interventionist proprietors'.[256] Editorial independence of *The Times* meant that it was not openly the voice piece of the proprietors; however, it appears that the centre-right leanings of *The Times* corresponded with the political outlook of the co-proprietors and therefore editorial conflict was not an issue. Indeed, *The Times* was very much representative of the Establishment's views and appealed to an upper-middle class audience.

Control of the *Daily Telegraph* after WWII was in the hands of William Berry, Viscount Camrose, who was raised to peerage in 1929 on the recommendation of Stanley Baldwin.[257] Camrose remained closely associated with the successive British Conservative prime ministers and maintained the Tory outlook of his newspaper until his death in 1954, when his son, William Michael Berry succeeded him and continued to run the newspaper along similar lines. The *Daily Herald* was 'the official organ of the [Labour] Government', having been controlled by 49 percent shareholding by the Labour Party and an agreement that the newspaper would remain representative of Labour policies.[258] While only the *Herald* was directly controlled by a political party, the political leanings of the other papers were to some extent reflected or influenced by their 'controllers', and sometimes the financial benefits of expressing a particular political view were also influential.[259] Throughout the period 1947 to1970, the *Express,* the *Mail,* and the *Daily Telegraph*

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[254] Camrose, *British Newspapers*.
[255] D. Wilson, 'Astor, John Jacob, first Baron Astor of Hever (1886-1971)', *Oxford Dictionary of National Biography* (OUP, 2004), www.oxforddnb.com/view/article/30773, accessed 25 July 2007.
[256] J. Curran & J. Seaton, *Power without Responsibility: The Press and Broadcasting in Britain* (Fourth Edition, Routledge, London, 1988), p. 85.
[257] A. Smith, 'Berry, William Ewert, first Viscount Camrose (1879-1954)', *Oxford Dictionary of National Biography* (OUP, 2004), www.oxforddnb.com/view/article/30733, accessed 25 July 2007.
[258] Camrose, *British Newspapers*, pp. 43-44.
[259] R. Negrine, *Politics and the Mass Media in Britain* (Routledge, London, 1989), p. 59.

remained conservative-orientated newspapers, while the *News Chronicle* attached itself to a liberal viewpoint (up until its take-over by the *Mail* in 1960) and only *The Times* swayed from conservative to liberal in the late 1960s.[260] Despite the involvement of many of the newspaper owners in politics during the post-war period, the political leanings of the newspapers in the sense of 'left-centre-right' are not relevant to the question of citizenship and volunteering.

Whatever their political sensitivities, the press served to 'organize public understanding' by mediating to the public a sense that what they reported was autonomous and therefore not misleading or biased, and at the same time the press's interpretation of 'news' tended to conform to some extent with the views of those with 'economic power'.[261] Economic power came from two sources, the government and the ownership of the press. As a result, editorial bias towards a particular viewpoint had to be carefully mediated to ensure that the reputation of the newspaper as being autonomous and therefore credible was maintained. Nevertheless, the consensus politics of welfarism and collectivism that emerged from the coalition government during the war reflected a shared interest in economic regeneration and an acceptance of the collectivist agenda.

In August 1947, Herbert Morrison, the deputy prime minister, delivered a speech that called upon volunteers to make a 'contribution to the national need' by changing jobs that were not essential and turning to assist the 'industries and services' which were vital to Britain's efficiency and productivity.[262] Invoking the war effort of the nation who 'mobilized for freedom', Morrison asserted that this effort needed to continue through the participation of 'everyone', including housewives economizing and women's continued entry into industry, 'for the prosperity of Britain and the well-being of the world.' Morrison's speech was demonstrably an example of Rose's definition of 'government', which was the intentional way of acting upon individuals of a given population to 'reach social and political ends'

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[260] C. Seymour-Ure, *The British Press and Broadcasting since 1945* (Blackwell Publishers, Oxford, 2nd Edition, 1996), 'Table 8.2 Newpaper partisanship at general elections, 1942-92', pp. 218-9.
[261] Curran & Seaton, *Power without Responsibility,* p. 270.
[262] Morrison's speech was reprinted in full in *The Times,* 25 August 1947. Excerpts were printed in most of the dailies including the *Daily Herald, The Daily Telegraph* and the *News Chronicle.*

through the dissemination of 'truths that incarnate what it is to be governed'.[263] The speech was the dissemination of 'truths' of the efforts of WWII which sought to rally the nation into volunteering their time and effort towards increasing the nation's production and efficiency, the social and political ends. Volunteering was therefore constructed as an action which was utilitarian, for the good of the majority, and patriotic, for the good of the nation, and was authorised by the government as a practice of collectivism through a 'planned society' which offered social security and health services. It was part of the government's agenda for active citizens who were needed to boost the war-ravaged economy through efficiency and productivity in industry and commerce. The language of democracy employed in Morrison's speech similarly fed into the construction of volunteering as a voluntary action for the purpose of assisting others in a specific task, which was a public-spirited duty in the interest of the nation.

Shortly after the end of the Second World War, *The Times* featured an advert endorsed by the government's Ministry of Information, headlined 'This battle is not over!'[264] The advert was for the recruitment of volunteers for Agricultural Camp to assist farmers with harvesting - 'a great battle for food' - in return for a 'healthy holiday with pay'. Using the vocabulary of citizenship, it claimed 'the nation needs helping hands' and a cut-out section was included to send away for information to the Ministry of Agriculture. These adverts continued to feature for the next four months with reports of prisoners of war also being used to help bring in the potato and beet crop, as well as a report by *The Times*. In response to this, a letter was written to the Editor of *The Times* from George Kerslake addressed to 'public-spirited citizens' like himself who were considering attending an agricultural camp.[265] Kerslake's description of his stay fell short of the adverts that described the camps as healthy and happy places to take a holiday. Over-crowding, poor organisation and a lack of adequate facilities were his main complaints, but this was not all. He finished his letter: 'For this accommodation we were charged 28s a week'.

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[263] Rose, *Governing the Soul,* pp. 4-6.
[264] *The Times,* 24 May 1945, p. 6.
[265] *The Times,* 5 August 1946, p. 7, letter to the Editor from Kerslake.

The following month, to redress the balance, Alan Moray Williams who, he stated, had 'attended no fewer than five of these camps' wrote to the Editor regarding his experiences.[266] Williams poured out his enthusiasm for the agricultural camps, which in his opinion provided both the opportunity 'to do a job of vital importance to the community' and was also 'a wonderful holiday from any form of brain-work'. He described 'a fine spirit of *camaraderie*' within the 'melting pot' of social backgrounds who shared tents at the camp. Appeals for volunteers extended into 1947 when *The Times* ran an editorial piece on 'Volunteers for the Farms', describing the camps as being of 'practical value for agriculture' but also 'socially useful in bringing together men and women from all walks of life'.[267] It acknowledged that less favourable comment had been received in the past and that facilities at the camps were basic and at some management was poor. However, the Editorial warned that 'care should be taken not to impair the voluntary spirit' and that willing volunteers who assisted would be rewarded with 'the satisfaction of helping to secure crops essential to the people's rations next winter'.

Volunteering in the context of agricultural camps was put forward in *The Times* as public-spirited and of national importance, a continuation of the WWII rhetoric that called for citizens to make a contribution to the nation. The presentation of volunteers for the agriculture camps made use of the language of democracy, invoking a collective identity for pursuits beneficial to 'community', 'nation' and 'the people'. However, there was less attention in other newspapers with the *Daily Mail, Daily Herald* and the *Daily Telegraph and Evening Post* highlighting the use of 'prisoners of war for harvest work' in July 1945 but without the encouragement of volunteers to assist the harvest.[268] *The Daily Express* and the *News Chronicle* did not print any news items on the agricultural camps or the use of prisoners of war to work the land. It appears that volunteering for agricultural camps reported in *The Times* was a news story that was given momentum by its readership who wrote to the editor in response to the Ministry of Information's advert. The editorial that focused on the social melting pot of the camps suggested that the newspaper was not

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[266] *The Times,* 11 September 1946, p. 5, letter to the Editor from Alan Moray Williams.
[267] *The Times,* 26 April 1947, p. 5, Editorial.
[268] *Daily Mail,* 21 July 1945; p. 3, *Daily Herald,* 21 July 1945, p. 3; *Daily Telegraph and Evening Post,* 21 July 1945, p. 3.

merely reflecting the government's agenda for productivity and efficiency, but that it was also publicising the upper middle classes 'mucking in' for the good of the nation. The decision to advertise in *The Times* was no doubt influenced by it being representative of the Establishment's opinion, as well as its largely upper middle class audience who appeared to need greater persuasion to take up the collective agenda. The lack of advertising in the *Daily Herald* seems to support this, suggesting that there was an assumption that the working classes more readily accepted collectivism and so there was no need to appeal to them. Furthermore, on a practical level the middle classes had more leisure time and so were in a better position to contribute than the working classes.

In contrast to the lack of response by the press to the agricultural 'volunteers', the first call for volunteers announced by the Common Cold Research Unit (CCRU) in January 1947 was well received. The *News Chronicle* ran an article headlined: 'Cold Comfort Colony' after its science commentator, Ritchie Calder, visited the unit during the first press conference.[269] The *News Chronicle* had a liberal outlook and was set up in 1930 as a merger of the *Daily Chronicle* and the *Daily News*, controlled by the Inveresk chain (a paper manufacturing company).[270] Ritchie Calder's career as a science journalist began in the 1930s when he was one of only three specialist science reporters in the UK, a number which was to increase substantially in the 1940s.[271] Describing the CCRU as the 'most extraordinary holiday camp in Britain' with the opportunity to have a free holiday, the article went to great lengths to depict the benefits of attending. Regarding the batch of volunteers he saw when he visited the CCRU, Calder quipped 'If they are examples of "human guinea pigs", I am all for volunteering.' He went on to highlight the 'attractive bungalows' with all the modern conveniences of central heating, radio, telephone, and electric toasters and kettles. In return, the volunteers would have 'the satisfaction of having helped to advance the search for the elusive virus which steals 40,000,000 man days of work a year in this country.' The sub-heading 'Volunteers Wanted' outlined the need for 'any normal person' aged 18 to 40 to come forward as volunteers by writing to the unit's medical director. *The Daily Telegraph* ran a much shorter piece which made use of the

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[269] *News Chronicle,* 11 January 1947, p. 3.
[270] Curran & Seaton, *Power without Responsibility,* p. 58.
[271] Gregory & Miller, *Science in Public*, p. 38.

language of science rather than the social opportunities that a stay at the CCRU afforded potential volunteers.[272] It stated that 'a national appeal' had been made from the CCRU 'for "human guinea pigs" ... to be infected with the common cold and then kept in isolation for 10 days for scientific study of the results.' Unlike the *Chronicle,* it did not offer details of how to become a volunteer or who to contact.

The Daily Mail asked 'Nice Lazy Holiday?' in their headline of the CCRU's call for volunteers, and described the benefits of 'no cooking, no queues, breakfast in bed, and three shillings a day pocket money thrown in'.[273] The 'only catch', it reported, was that of catching a cold. Similarly, the *Daily Herald* picked up on the holiday aspect of a stay at the CCRU and asked its readers 'Do you want a free 10-day holiday on Salisbury Plain?'[274] The *Herald* reported that the CCRU offered the home comforts described in other reports, but also 'three hot meals daily with an issue of milk and beer, and 3s a day pocket-money'. 'In return', it went on, 'a doctor will try to give you a cold'. Typical of *The Times,* the appeal they ran used the authority of the government by quoting Dr William (Bill) Bradley, senior medical officer of the Ministry of Health, who described the 'yearly cost to the nation' of the common cold.[275] It went on to call for volunteers who were 'sufficiently public spirited' to take part. This article was far more detailed than other newspapers and it was invested with the authority of a government official. Rather than the more jocular attention of the *Chronicle, The Times* portrayed the plight of the CCRU's need for volunteers as a serious contribution to the health of the nation. The research was described in militaristic language as 'a combined operation' between the MRC and the Ministry of Health, while the CCRU itself was reported to be 'a well-equipped and extensive institution'. This contrasted somewhat with the 'attractive bungalows' of the *Chronicle*'s 'extraordinary holiday camp'. Reiterated on 25 January 1947, *The Times* ran another article 'Embracing the Cold' which described the volunteers of the CCRU as 'guests' and used similar descriptions as the *Daily Mail* with the benefits of not having to cook and such

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[272] *Daily Telegraph,* 11 January 1947, p. 5.
[273] *Daily Mail,* 11 January 1947, p. 3.
[274] *Daily Herald,* 11 January 1947, front page.
[275] *The Times,* 11 January, 1947, p. 2.

like.[276] The CCRU was presented as a holiday camp with a twist in most of the dailies, with the exception of *The Times* in which volunteering was entrenched with the authority of science and bound up with notions of good citizenship whereby volunteering was an act of contribution to the nation.

The use of the Press as a forum through which to attract volunteers was played out by the CCRU's annual press releases which became 'routine' to the press. When in January 1950 the CCRU released its annual press notice, the newspaper press responded with a number of articles. The *Daily Express* focused on dispelling some of the myths surrounding the contraction of a cold in response to Dr. Bill Bradley's review of the work of the CCRU. Using some of the different experiments that were undertaken by the unit, it printed a series of questions and answers which asked, among others:

> Q. What happened to a group of people at Harvard Hospital, Salisbury, who had a nice hot bath, stood around in a draughty passage with no clothes, and then put on wet socks?
>
> A. They caught colds. No, they didn't.[277]

This was to demonstrate that the CCRU had found no link between being cold and contracting a cold virus. However, no call for volunteers was pressed in the *Express,* unlike *The Times* which devoted considerable attention to the use of volunteers by the CCRU in its piece in the same month.

Headed 'The Common Cold', 'Research Unit's Progress', *The Times* provided a background to the work of the CCRU before focusing on the use of volunteers.[278] 'Two girls from Oxford and two from Cambridge', who acted as 'hostesses' for the visitors' open day at the CCRU, were selected as examples of the types of student volunteers the unit attracted. They were reported to have 'spoken with some astonishment' at the amount of studying they were able to get through while at the unit for ten days. Clearly the press had been invited to attend the unit on the last day of isolation of a group of volunteers and had spoken with them. The volunteers were mostly undergraduates who would be returning to

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[276] *The Times* online, 25 January 1947, p. 5.
[277] *Daily Express,* 14 January 1950, p. 3.
[278] *The Times,* 14 January 1950, p. 3.

university for the start of term and *The Times* publicised the need for more volunteers 'ready to go into a retreat comfortable unto luxury, with *The Times,* beer or cider, 3s pocket money provided each day, in exchange for the risk of catching a cold that they would probably catch in any event.' The main focus of the *Express* on wet socks, hot baths and draughty corridors was secondary in *The Times,* which only gave it a single sentence in its report despite the 'Wet Socks' sub-heading. Rather, it was more focused on detailing the work of the unit in cultivating the cold virus. *The Times* portrayed the work of the CCRU as scientific progress, whereas in the *Express* it appeared that the interest lay with the news that assumptions on the relationship between being cold and having a cold were being challenged.

The *Daily Herald* similarly reported what the CCRU had 'proved' in relation to the transmission of colds and being cold with the headline 'Wet feet won't cause colds'.[279] Like *The Times* and the *Express,* details of experiments involving wet socks, draughty corridors and deprivation of central heating after volunteers undertook a cross-country run in the rain were given attention. Unlike the *Express* and in common with *The Times,* the *Herald* included the need for 'more human guinea-pigs' and quoted Dr. Christopher Andrewes, director of the CCRU: 'We are shorter of volunteers than of money'. Surprisingly, it did not mention the 'benefits' of attending the CCRU as *The Times* did. However, it did report that 'Since 1946, 1,500 volunteers, half of them women, have helped scientists fight the common cold'. To a working class audience, the collectivist agenda was the focus of the article in the *Herald,* compared to *The Times* which outlined the individual gains rather than the collective contribution. This sentence was repeated in the report by the *News Chronicle,* who called the volunteers 'martyrs' under the sub-heading 'Martyrs forward':

> These acts of heroism- to help the Common Cold Research Unit at Harvard Hospital, Salisbury- have not been in vain. In three and a half years research workers have learned much- but more martyrs are required to tempt the virus.[280]

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[279] *Daily Herald,* 14 January 1950, p. 3.
[280] *News Chronicle,* 14 January 1950, p. 3.

The use of the words 'heroism' and 'martyr' were unparalleled in other reports at the same time, or even previously, and undoubtedly these were 'tongue-in-cheek' comments especially in view of the quote from one female volunteer: 'I did catch a cold - the nicest I ever had'. The CCRU appeared to catch the imagination of the press. For *The Times* it represented a symbol of scientific progress that could be used to persuade the upper middle classes to 'buy in' to collectivism. For other newspapers it was less the science which interested them but more of the novelty of the long-term use of members of the general public in the collective interest of the nation to help find answers to the problem of the common cold.

The Telegraph did not react to the CCRU Press Conference in January 1950; however, it did mention the experiment carried out on the island of Eilean nan Roan, Scotland, in the following year.[281] It was reported that twelve people which were 'mostly Aberdeen University students' were used to test the transmission of colds from an outside source through the introduction of a person with a cold to a group living in isolation on the island. An appeal for volunteers was issued by quoting Andrewes who stated:

> We are now entering our fifth year of experiments at Salisbury, but we are running short of volunteers. Those between 18 and 40 are urgently needed. Here is the chance of a 10 days' holiday with free travel warrant and pocket money.

It was the CCRU itself, specifically its director, which described a stay at the CCRU as a holiday and the continued engagement with the press through open days and press releases ensured both their goodwill and their publicity, in varying degrees.

The deliberate use of the press by the CCRU and the desire to court their favour demonstrated the dependence on them as a method of advertising. Experiments which were 'one offs', such as drink-driving experiments on students who were given excessive free alcohol, were novel and newsworthy for the irony. *The Times* appeared to have a greater interest in this area than other newspapers, highlighting experiments on the effects of alcohol in driving using students from Bristol University in 1952 and anti-malaria drug

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[281] *Daily Telegraph,* 5 January 1951, p. 7.

trials on prisoners in the United States in 1955.[282] Reports of these experiments cannot be found in the other national dailies and the way in which they were reported in *The Times* avoided any judgement as to the propriety of the tests or ethical dilemmas of using either students or prisoners in experiments. However, *The Times* did print an Editorial in response to the article on the effects of alcohol a few days after, in which it was commented that while the appeal of free alcohol as a 'professional hospitality' was comparable to the 'volunteer guinea pigs' of the CCRU, instinctively people were 'shy' of taking up such offers.[283]

Calling the CCRU volunteers who featured in *The Times* article of 1950 'public-spirited citizens', the Editorial commented that those who were 'no longer undergraduates' were more inhibited and therefore 'less than enthusiastic' to share a room with a stranger and make 'fools of ourselves for the public benefit'. The lack of enthusiasm at the prospect of sharing a room conveyed in the Editorial contrasted with the 'public spirited citizens' who did. This suggests once again that there was a class distinction involved in which sections of society were conceived to be more suited to volunteering than others. Having a room to oneself was a middle class aspiration and the Editorial suggests that the upper middle classes were not buying in to collectivism through their rejection of participating in experiments. Perhaps the author of this piece missed the point- that these experiments served a valid purpose- but it did demonstrate that volunteering for these experiments tended to attract students who were short of money and were accepting of the fact that they shared accommodation. While *The Times* upheld the government's socio-political outlook for regeneration through collectivism and citizenship in theory, there is a sense that the upper middle classes were rejecting the government's agenda in practice. The offer of free alcohol for the Bristol experiment and free board, lodgings and pocket money at the CCRU were perhaps even less appealing to the older or more affluent and the location of a university-based experiment meant that the student body was an available source from which to recruit. Additionally, the article suggests that students were more participatory

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[282] *The Times,* 'Effect of alcohol on car drivers', 11 November 1952, p. 3; *The Times,* '$50 for mosquito bite', 3 January 1955, p. 4.
[283] *The Times,* Editorial, 'Fiat Experimentum', 20 November 1952, p. 9.

than the public at large, a view that Heather Munro Scott's research supports.[284] The decision to use student subjects was not just because they were available; it was also based on researchers' beliefs that they were 'ideal research material' because they were intelligent, interested and cooperative.

Influenza vaccine trials were reported on in *The Times* and the *Daily Mail* following the publication in the *British Medical Journal* of a series of tests conducted. The *Daily Mail* headline ran 'Doctors may have found 'flu vaccine' and described how trials of a vaccine in 1952 'involving 12,710 volunteer guinea pigs' had significantly reduced the incidences of influenza and were to be repeated 'this year'.[285] The report in *The Times* gave much more detail, revealing that the '128 volunteer centres' set up were located within 'industrial communities of various kinds, as well as in universities, hospitals and the services.'[286] Both reports presented the findings of the trial as optimistic in the production of an effective vaccine against flu and the facts and figures produced within the news items reflected their source. Science in the news can be problematic for journalists reliant on scientific journals for information, as was the case for reports on flu vaccines. This is because the 'methods, timeframes and values' of science and journalism differ widely and misunderstandings and misrepresentations can occur.[287] *The Times* was less reserved in its report, producing a more detailed piece which highlighted the results far more comprehensively than the *Mail.* On the other hand, the *Mail*'s reference to 'volunteer guinea pigs' drew on common terminology for subjects in experiments whereas *The Times* referred simply to 'volunteers' and took the language of science rather than more informal references.

In January 1957 *The Times* ran an article on 'what has now become the annual appeal of the Common Cold Research Unit for volunteers' following the CCRU's Press Release.[288] Describing the work of the CCRU as 'of outstanding interest', the article outlined the work

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[284] H. Munro Scott, 'Using the Student Body: College and University Students as Research Subjects in the United States during the Twentieth Century', *Journal of the History of Medicine* (January 2002), vol. 57, pp.3-38. While the focus of Munro Scott's article was on US research with student subjects, the use of students in UK universities in similar ways would suggest the same core beliefs among British researchers.
[285] *Daily Mail,* 27 November 1953, front page.
[286] *The Times*, 27 November 1953, p. 3.
[287] Bell, *The Language of News Media*, p. 216.
[288] *The Times,* 18 January 1957, p. 11.

of the unit over the previous ten years whereby 'much has been learnt' but still more needed to be done. Characteristically of *The Times* in their reports of scientific stories, the article detailed the work on related symptoms such as coughs and sore throats and the development of vaccines against 'acute respiratory disease'. The article ended hopeful that 'it should not be too long before this bugbear of the long-suffering British citizen is brought to heel' and accredited such results to the volunteers who 'will have played an important part'. Unlike earlier news items on the CCRU, *The Times* did not directly address the need for volunteers or publicise the contact details for the CCRU, other than mentioning that the CCRU had issued an annual appeal.

Subsequent news items on the CCRU both in *The Times* and the other dailies failed to act as a means of recruitment after 1957. In July 1961 the *Daily Telegraph* and *The Times* drew upon the Annual Report of the MRC to publish short pieces about the isolation of six viruses, responsible for 25 to 50 percent of colds, at the CCRU.[289] Neither *The Times* nor the *Telegraph* mentioned the continued requirement for volunteers and only *The Times* referred to the 'public-spirited volunteers' who had assisted with the research. *The Guardian* focused on the £4 million 'of public funds' spent on medical research and the use of cell tissues from aborted human embryos in the development of vaccines; there was not a single reference to the use or requirement of volunteers in *The Guardian*'s article.[290] It was not until 1966 that the research of the CCRU appeared again in *The Times,* echoed only in *The Guardian,* when it was reported that in the region of 100 viruses relating to the common cold had been identified.[291] The focus of these two news items was on the reporting of scientific developments of the research unit in identifying cold-producing viruses and the volunteer was completely absent. After 1966 and up to the end of the period of this study, 1970, the British press did not report on the work of the CCRU or the use of volunteers.

Of the experiments, other than the CCRU, that were featured in *The Times,* few were echoed in the other dailies, which suggest that the interests of the readership of *The Times*

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[289] *Telegraph,* 26 July 1961, p. 17; *The Times,* 26 July 1961, p. 13.
[290] *The Guardian,* 26 July 1961, p. 3.
[291] *The Times*, 21 January 1966, p. 8; BLC, *The Guardian,* 21 January 1966, p. 2.

were different to those of other newspapers. Of the three 'quality' newspapers, *The Times* appeared to have the strongest readership from those of professional, administrative and managerial backgrounds which would include those within the scientific profession.[292] The lack of press attention on experiments involving human subjects after the late 1950s is interesting because it suggests that either there was little to report on or that it was not a subject that aroused attention; it lacked 'newsworthiness'. Experiments that were reported on largely originated from press releases or conferences, notably in the case of the CCRU, or from publications in medical and scientific journals. The latter were not 'news' in the sense that the research conducted prior to the publication of the findings would have been carried out over a long period, perhaps a number of years, and therefore rather than being 'news' it was better described as being of public interest. The sources of information to the press, in the form of press releases and journal articles, meant that it was the scientists who controlled the transmission of science news while the journalists decided whether it was of public interest. What was common to all the news articles on experiments involving human subjects was the representation of them as positive. Whether reporting on common cold tests or drink driving experiments, the press did not focus on speculating whether the subjects were being exploited or if they had given consent or not. Instead, the experiments were cast as being positive contributions to society. Furthermore, in particular with the CCRU, the quirkiness of volunteers attending to catch a cold caught the popular imagination.

This was demonstrated by the comedy film *Doctor in Love* (1960) which parodied the CCRU as the 'Foulness Anti-Cold Research Unit'.[293] After finding out that his nurse girlfriend has run off with someone else, Dr Burke (played by Leslie Phillips) suggests to Dr Hare (played by Michael Craig, and both being named after the infamous Victorian body snatchers) that he knows just the place to take his mind off it where they can 'get away and relax'. The film then cuts to the two doctors driving up an approach road and a shot of two Nissen huts to the left, with a sign on the right that reads 'Foulness Anti-Cold Research Unit, volunteers please report to the office'. The doctors are then shown being

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[292] Negrine, *Politics and the Mass Media,* Table 6.2, Readership of National Daily Newspapers: Class Profiles, pp. 144-5.
[293] *Doctor in Love* (1960), produced by Rank Organisation Films Ltd.

briefed with other volunteers by the 'professor', a stout, stern, and rather butch woman in a tweed jacket, and the tall, somewhat effeminate, white coated Dr Flower, medical superintendent. They are told that the aim of the research is 'through various experiments to pin point the causes of the common cold' and that as volunteers they will be 'subjected to the various cold viruses by means of inoculation and of course by other means'. The focus then turns to the doctors' potential love interests, two strippers (played by Joan Sims and Liz Fraser), one of whom comments to the other, 'Common, being asked to appear as common guinea pigs', to which the other responds, 'Well, at least it's free and we don't have to tramp around for a job for a fortnight'.

The doctors are shown undergoing experiments - alternate hot and cold showers, being shut in a 'cold room', and having cold virus put up their noses. When the doctors are examined in their flat, the tweed coat clad, female professor exclaims, 'One must say one takes one's hat off to you two, we've never had guinea pigs like you. You must be terribly resistant, there's not a sign of cold in you.' When she leaves with Dr Flower, Hare and Burke take a handful of pills labelled 'Quinine and Cinnamon Tablets for Colds'. Ironically, it is not until the doctors break the isolation rule, ply the strippers with gin and flirt with them that Burke starts to sneeze, which results in them being caught jumping from the strippers' flat window. The similarities to the practices of the CCRU are clear, from the segregation of volunteers in pairs by sex to the experiments involving reducing the body temperature, although in the film this is taken to an extreme for comic effect. What this film demonstrates is that the CCRU had a somewhat surreal appeal and it was this element that popularised it in the public imagination, captured and perpetuated by the press. It also parodied the class aspect of the CCRU which could be discerned from the various newspaper reports regarding the unit's need for volunteers.

The Foulness Anti-cold Research Unit allowed Hare and Burke, upper middle class professionals, to consort with working class strippers, just as the CCRU allowed for mixed classes. The frequency with which *The Times* publicised the CCRU's need for volunteers suggests that the unit aspired to attract volunteers from the upper middle classes. However, the practicalities of sharing accommodation and the inducements of free beer, lodgings and

pocket money were more appealing to the working classes than the middle classes. From the late 1950s, the newspapers were showing less interest in the CCRU. Those with working class readership failed to endeavour to push the benefits of participation and the newspapers with middle class readership merely reported the facts, figures and findings from the CCRU's annual reports. By the mid-1960s the volunteer had disappeared from reports of the CCRU altogether, just as public faith in science faded in the same period.

iv. 'Subjects', not Volunteers: Military Experiments and the Press

The manner in which experiments were reported varied according to the slant that the different newspapers gave to the stories. The CCRU provided scope for 'quality' papers as well as 'middle market' and tabloids to make news from their press releases, owing to both the novelty of the CCRU and the important research it was undertaking that conformed to the collectivist agenda. Experiments which were relevant to the military, however, were reported without allusion to 'volunteers' but rather with reference to the importance for the Armed Services. A proposed experiment was reported on in December 1949, when the Admiralty undertook to plan a trial of naval life floats and the ability to survive in sub-zero temperatures aboard them with limited rations of food and water. *The Times* ran a piece titled 'Survival in Arctic Seas, Admiralty Experiments' which explained that the purposes of the experiments were borne out of 'considerations of humanity as well as Service requirements'.[294] It described the harsh conditions which the 'subjects', six to ten naval men, would have to endure and identified Dr. Glaser and Prof. McCance of the Dept. of Experimental Medicine as the designers of the trial. As later reported in the *Daily Telegraph,* part of the Arctic trial was undertaken by Dr. Glaser who immersed himself in the 'icy sea' and found that providing he kept moving it was possible to stay alive.[295] Unlike reports on civilian volunteers which explained both the justification for experiments and offered a motivation for volunteering, the arctic experiments were described by the process with which the trial would take and did not mention the 'subjects' as volunteers. This suggests that the use of military personnel or, indeed, scientists as 'subjects' in

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[294] *The Times,* 19 December 1949, p. 2.
[295] *Daily Telegraph and Evening Post,* 4 January 1951, p. 7.

experiments did not equate with the use of the general public as 'volunteers', according to the British newspaper press.

The substitution of the word 'subject' for 'volunteer' in the arctic experiments was perhaps because 'volunteer' has particular relevance in the military. In this context it has been used to convey the voluntary enlistment of individuals into military service and such service in the military since the mid-seventeenth century.[296] Conversely, from the mid- twentieth century the word 'volunteer' in a military context took on the opposite meaning to its common civilian understanding, coming into common parlance to mean: 'To assign or commit (another) to a particular undertaking, typically without his or her consent', similarly with reference to a military context.[297] The continuation of National Service after WWII, in which compulsory military duty was required, seems to have coincided with the later interpretation of the 'volunteer'. Therefore the cultural connotations of the term 'volunteer' were firmly embedded in the military, and continue to be so,[298] yet its use in the context of military experiments is problematic. Rather than refer to the Servicemen who were to take part in the Arctic Sea experiments as volunteers, the word 'subject' was used instead. This suggests that the media differentiated between a military 'subject' and a civilian 'volunteer' in human experiments, but the explanation for this is unclear. However, a letter to the Editor of *The Times* in 1956 from a former parachute officer, C.A. Harrison, reveals that volunteering in the military was not necessarily considered to be a choice. Harrison wrote that 'Every parachute officer is a volunteer in the true sense of the word, not in the Army sense' and went on to explain that during parachute training no one was forced to jump.[299] Therefore the reluctance by the press to refer to military 'volunteers' was perhaps due to the oppositional meaning in the military sense.

News stories relating to Porton were scarce up to the late 1950s and news stories specifically about experiments at Porton were scarcer. In 1947, the *Daily Express* ran a

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[296] *Oxford English Dictionary Online* (*OED*) (Oxford University Press, 2005).
[297] *OED On-line*.
[298] In Hockey, J., *Squaddies: Portrait of a Sub-Culture* (University of Exeter Press, Devon, 1986), a sociological study of army life, frequent references are made to volunteering. Under the sub-heading 'Never Volunteer', Hockey demonstrates that while 'One of the most pervasive clichés of military life is "never volunteer for anything", p. 90.
[299] *The Times*, Letter to Editor, 9 May 1956, p. 11.

story about the invention of a 'plague machine' by Dr. Henderson of Porton. Despite the references to pneumonic plague, the report was positively written. The scientists working in this area were described as 'medical researchers' who 'were able to discover cures' through their research.[300] This story was shaped to accord with the collectivist agenda through representing the Porton scientists as 'medical' and their research findings as of collective benefit. However, for the most part there appeared to be very little coverage of Porton during the mid-1940s to the late 1950s. This was probably due to the fact that only Service personnel could volunteer and therefore it would not contribute to the press consensus on promoting collectivism. The Cold War political climate ensured that the research conducted on service personnel at Porton, an Official Secrets Act designated area, remained out of the public domain.

It was not until 1968 that the Microbiological Research Establishment (MRE) at Porton held a week of Open Days and invited selected members of the Press and the public, followed a year later by Chemical Defence Experimental Establishment (CDEE). The opening message of the booklet that accompanied the Open Days at the CDEE was by Denis Healey, Secretary of State for Defence. It explained that the Open Days in 1968 at the MRE 'did much to kill the myth that secret work was being carried out on an offensive capability for biological warfare.[301] The purpose of the CDEE Open Days was, officially, to 'help the public to understand the necessity of the valuable defensive work' and that the 'sensible people in Britain will accept that this work is a vital contribution to our national security'. Privately, the Open Days were the result of negative Press attention which had been raging on and off since an article in the *News Chronicle* in January 1959 'sparked off ... a campaign of vilification of the activities of the Porton Establishments particularly MRE.'[302] The *News Chronicle* reported that the MRE had produced botulinum toxin, a bacterial derivative that causes food poisoning, following a report by Robert Watson-Watt, the inventor of radar, and Dr Brock Chisholm, former Director-General of the World Health Organisation. In response, the Minister of Supply, Aubrey Jones, addressed the

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[300] *Daily Express,* 9 May 1947.
[301] Trinity College Library, Dublin, CDEE, Porton Open Day Booklet, September 1969.
[302] WO286/ 28, Minute from C.A.C. Witheridge, Assistant Secretary to Under Secretary, Ministry of Supply, 6 April 1959.

Commons on 26 January and stated that the claim by Watson-Watt and Chisholm that half a pound of the toxin would destroy all living creatures was 'grossly exaggerated'.

The press response to Jones the following day was widespread with most of the national newspapers printing his comments that the remarks were over-inflated. However, unlike many of the newspapers, *The Times* added that Jones had also pointed out that the production of botulinus toxin was not a new development but a story that re-emerged at various times.[303] Following on from this, on 30 January *The Tribune,* claiming to be 'the paper that leads the anti-germ warfare campaign' printed a front page article headlined as 'The Poison factory'. The reporter, Mervyn Jones, outlined Porton's work on 'germ warfare' and the claims that it was defensive rather than offensive research. Painting a very grim view of the establishment, without differentiating between the MRE and the CDEE, Jones claimed that the nature of the work was such that it had caused depression among workers. He highlighted in particular the suicide of the head of the Chemistry Section in 1953. However, a letter in February 1959 copied to the Ministry of Supply from the legal representatives of L.T.D. Williams, the former head of the Chemistry Section, demonstrated that *The Tribune* had wrongly reported the identity of the suicide.[304] Williams was alive and well and working as a representative for the Ministry of Supply staff in Washington DC.

In March 1959 the Director of the MRE wrote to the Ministry of Supply's Chief Scientist, Owen Wansborough-Jones, about the 'dreadful period of horrible publicity' urging that 'some means must be sought to stop the flow of scandal.'[305] Henderson suggested that the press should be invited to Porton so that the 'more respectable elements of the Press' might get a better understanding of their work, while admitting that 'none of us could think of a worse fate than being invaded by a mass of Press reporters'. It appears that the press were not invited in 1959, despite Henderson's request, but that 1968 was the first Open Day

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[303] WO286/28, *The Times,* 27 January 1959.
[304] WO286/28, correspondence between the Ministry of Supply and Williams, 11-19 February 1959.
[305] WO286/ 28, Letter from D.W.W. Henderson, Director of the MRE, to Wansborough-Jones, 31 March 1959.

held.[306] Yet the Open Days failed to quell the disquiet, no doubt produced in part by the emerging activism against biological warfare by groups such as the Committee of 100 Against Biological Warfare, and the press were often left with questions unanswered and an air of secrecy that could not be penetrated.[307]

Without the 'hard facts', the press were only able to speculate about the nature of research at Porton and could only report the confirmation or denial by Ministry of Supply/ MoD officials when a 'story' came their way. However, most of the negative press regarding Porton from the late 1950s onwards came from newspapers more strongly identified with the working classes. This coincided with the declining enthusiasm for science witnessed in the press' representation and can be seen as part of the demise in support of the government's collective agenda. In particular, the ideal of collective citizenship had been unchallenged by the press across the political/ class spread with the sense that although the middle classes needed some persuading, the working class took up the idea. The negative press directed at Porton was strongly from working class orientated newspapers and this occurred at the same time as interest in the CCRU waned. The positive image of science that the government had been pushing and controlling as a collective enterprise for the good of the nation was becoming replaced with a new kind of science that was perceived as more sinister and suspicious.

Porton's work was defence-related and therefore secret which probably made it more appealing to the press in the climate of negative representations of science. Yet it remains that the topic of Porton's research on Service personnel was not front page news in the period under study and it did not cause the media flurry which was recently witnessed in the Maddison Inquest.[308] Perhaps people were afraid to speak out because the Official

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[306] The left-wing 'gutter Press', as Henderson referred to them, continued to publish stories of 'germs' being produced by the MRE and their use of animals in experiments. while the 'quality' newspapers published the ministerial response that the claims were 'exaggerated', WO 286/ 28, various press cuttings.

[307] The Committee of 100 Against Biological Warfare staged protests at Porton and film footage produced by the Photographic Section of CDEE, Porton, now archived at the IWM, shows banners demonstrating against 'germ warfare'.

[308] All of the national daily newspapers followed the Maddison Inquest, as well as television news reports and interest from local newspapers. A key figure in the emerging news reports into the work of Porton Down was the MP Tam Dalyell who frequently enquired into the activities of Porton in parliament beginning in the late 1960s and continuing into the 2000s.

Secrets Act was a powerful, enforceable piece of legislation, or maybe it was perceived as being disloyal or unpatriotic.[309] Whichever was the case, this survey of British national newspapers suggests that military-related experiments were not communicated to the press in the same way that human experiments in civilian contexts were. Porton press releases were not common-place, and without engagement with the press by Porton officials it appears that the press was reliant on other sources of information for news items. The reporting in 1968 that experiments with LSD had been conducted at Porton was confirmed by the MoD, but the continuation of tests with LSD up to at least 1969 was not disclosed.[310] Rather, a MoD spokesman confirmed that tests had been conducted 'about two years ago… under highly controlled conditions'. The criticism of the LSD tests reportedly came from the National Association for Drug Addiction at a time when the recreation use of LSD was widespread and causing controversy both in the newspaper and medical press.[311]

Similarly, despite claims of transparency in the MRE and CDEE Open Days, the Director of Biological and Chemical Defence, G.D. Heath, wrote to Brigadier General J.A. Hebbeler of the Department of the Army, Washington, that the MRE had 'firmly decided not to reveal that we have ever used E.Coli.'[312] The tendency of the MoD to give only 'half-truths' to the press did little to court the press' favour and perhaps explains why, as Carter has noted, stories about Porton are often resurrected over time as more information is garnered.[313] Carter's 'opprobrium' chapter attempts to address some of the controversies surrounding Porton as perpetuated by the Media as 'the perfidious history of Porton'.[314] Interestingly, the majority of the news reports highlighted by Carter that focused on Porton in the period of this study were not concerned with the use of Service personnel as human subjects in experiments. J.B. Visser of the Ministry of Supply observed in 1959 that 'None of the major organs of "the Establishment", in particular *The Times, The Guardian* and *The*

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[309] Interviews with former Porton volunteers conducted by Evans suggest that the Official Secrets Act did have a strong influence and deterred discussion of the research on human subjects at Porton.
[310] *The Times*, 'LSD tests on troops at Porton', 15 October 1968.
[311] For example, the optimism for the therapeutic benefits of LSD evident in the *BMJ* and *The Lancet* in the late 1950s had been replace by the mid-1960s with anxiety over possible harmful effects of the drug such as chromosome damage.
[312] TNA, WO32/ 21644, Final Costing Figures for Open Days', 1968 (emphasis in the original). The reason for not revealing this was that an outbreak of E.Coli in newborn babies had recently occurred.
[313] G. Carter, *Chemical and Biological Defence at Porton Down*, p. 123.
[314] Carter, *Chemical and Biological Defence,* p. 120.

Daily Telegraph, had printed 'hostile criticisms' of Porton by their correspondents. He further added that 'there are no signs of their doing so' which appeared to be an accurate prediction for the most part.[315]

Other than the death of Maddison, most newspaper attention was directed towards the nature of research at the MRE such as the plague, testing of anthrax, and other biological warfare research.[316] Maddison's death was reported in May 1953 by *The People* but without reference to his identity, with a subsequent report from the *Sunday Despatch* that identified Maddison from death records but failed to discover that his death was as a result of nerve gas exposure.[317] The *Southern Daily Echo*, the *Birmingham Gazette* and the *South Wales Echo* also reported the original Coroner's Inquest into Maddison's death, although none knew his name or the circumstances surrounding his death.[318] Given that the CDEE, Porton, used thousands of service personnel in tests from 1916 onwards, it perhaps seems remarkable that more news stories relating directly to their use have evaded the British press. Indeed, despite Evans' background in journalism, his publication in 2000 on human experiments at Porton lacks detailed references to historical news items on Porton, other than those relating to Maddison, which, along with this survey, demonstrates that the topicality of human experiments at Porton is fairly recent. However, this must be situated in its cultural context. Volunteering was cast as a collective enterprise created by the government consensus. Stories of volunteers for military experiments would have run counter to the collectivism that the press supported and therefore the lack of reporting up to the late 1950s does not, after all, seem so strange. Yet it remains that the use of Service personnel as experimental subjects seemed less of a concern to the press than the threat to the public-at-large from the development of 'germs' that could be used in warfare, and therefore this line was one that the left-wing, or more radical press took in 'sensationalising' such stories.

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[315] WO286/ 28, Internal minute from Visser to Owen Wansborough-Jones, Chief Scientist, 3 March 1959.
[316] Carter, *Chemical and Biological Defence,* ch. 6.
[317] Evans, *Gassed,* p. 150.
[318] WO286/ 28, Press cuttings on file, 25 May 1953.

v. Summary

Volunteering in the post-war period up to 1970 was framed by the ideology of citizenship, which the press perpetuated in their representations of volunteering in news articles. There are limitations to the conclusions which can be drawn from how volunteers were represented because there was a lack of news articles that focused on this. However, the limited accounts of human participants in experiments suggest that volunteering was not constructed solely as participation in science. Volunteering remained primarily a public-spirited action for the sake of the nation, rather than science, adhering to the language of citizenship that emerged from WWII. The press played a significant role in mediating volunteering to the British public through its support for the collectivist agenda until the late 1950s. The representation of volunteers in the press also suggests that there was a class element to the issue. *The Times* in particular, a newspaper with a largely upper middle class readership, took a lead in printing stories to appeal for volunteers, suggesting that its readership needed greater persuasion to 'buy in' to the government's collective agenda. In contrast, the newspapers that targeted the working classes paid less attention solely to the collective benefit but more on the personal gains.

The public representation of science through the press perpetuated the image of science as awesome and powerful and holding the answer to the economic recovery of the nation until the collective consensus declined. Despite the presence of science in the home, such as electrical appliances, science remained the specialism of scientists and participation in science was limited. Volunteers were depicted as being outside of the actual science who took part as good citizens. As the earlier chapter demonstrated, intra-professional concerns regarding the ethics of human experimentation were mostly contained within the medical scientific profession. It was not until Pappworth's exposé in a climate of increased activism in the 1960s that the press pursued medical ethics and the subject of human experiments in the NHS with any great interest. This also accorded with the decline in the public regard for science that began to emerge from the late 1950s in the representation of science by the press and the waning of support for collectivism. However, the press attention can also be seen as a reaction to defend the NHS as an enduring symbol of collective support for medical science and to ensure that it did not become tainted in the same way that science in

the 1960s was. Indeed, the 'public enthusiasm' for the NHS may have ensured that patients were 'more than willing to "do their bit" for scientific advance'.[319]It seems the public regard for science, and the profession, was sufficient to sustain the perception that scientists had a higher morality until 'the whistle was blown' by Pappworth. The apparent control that the scientific profession seemed to exert over the circulation of science stories involving human subjects to the press, offering press releases or leaving journalists to interpret the constructed research findings of published papers, seemed to keep them to a minimum.

In the military context, volunteers became 'subjects' and the jovial tones of reports on the CCRU were replaced by the late 1950s with more factual accounts of the unit's research findings. The lack of reports focusing on the use of human subjects in military experiments has to be framed, to a certain extent, by the political climate of the Cold War and the risk to national security. Much of the research at Porton involving service personnel as human subjects was classified as 'secret', and therefore would not be put into the public domain through journal publications or press releases. Moreover, given the patriotism that was being invoked in this period (at least up to the late 1950s), to publicise the use of service personnel in human experiments would have been counter to the prevailing patriotism that lingered into the post-war period. Indeed, it was patriotism that was common to both volunteering and the representation of science in society. While patriotism was used to construct volunteering as an act of citizenship, science was a focus of patriotic pride. The pride that was conveyed in the press gave science an elevated position in society until support for the government's agenda dissipated. The next chapter considers the position of scientists in society, not in terms of their representation to society but how the perception of science in the post-war period up to 1970 strengthened the position of scientists. It will explore how scientists' autonomy, authority, and credibility were bolstered by the image of scientific progress. In particular, the hierarchy and organisational structures of the CCRU and Porton will be examined in relation to institutional representations of volunteers within the establishments.

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[319] Hazelgrove, 'The Old Faith and the New Science', p. 122.

Chapter V. Scientists and Organisational Structure: Authority and Autonomy in Research

The representation of scientists in society cast them as either socially conscious or helpless to the authority of large corporations and government funded projects. This gave the impression that scientists had little autonomy within large scale research programmes and that their research agenda was dictated for them. However, as this chapter shows, the popular image of the scientist did not reflect accurately the situation scientists were in after WWII. Immediately after WWII, scientists appeared to be sensitive to the deteriorating image of science caused by its military application and perceptions of the 'abuse of science'. Attempts to construct an 'ethos of science' that detached scientists from the application of their research demonstrated an awareness of the potential damage to science following WWII. Yet, the links between science, government and the military meant that scientists had important roles. They enjoyed a considerably more elevated position in society with many working both in laboratories and as government advisors. Furthermore, the link between science and political power through emerging studies of the sociology of science from the 1940s challenged the image of scientists as simply pursuers of 'facts'. The concept of scientific researchers working independently in isolation was an ideal, especially in light of the extension of government-funded research programmes. However, as will be examined, this image appeared to be very much shaped by scientists themselves who did not want to identify with the stereo-typed scientist who was aloof, absorbed, and cut off from the 'real' world.

The authority and autonomy of scientists within institutional settings challenges the public image of scientists. By examining the organisational structure and the role of scientists at Porton through case studies, it will be shown that authority and autonomy was a complex mix of hierarchy of knowledge and hierarchy of rank. The two case studies presented focus on discussions that arose between government ministers, Armed Service representatives and Porton committee members (which included their own scientists). These discussions arose from conflicting views regarding experiments on human subjects using nerve agents and the hallucinogenic drug LSD. Taken in turn, the case studies highlight how knowledge

was negotiated between the interested parties. Moreover, they demonstrate how authority at Porton was not a unitary entity. This contrasted with authority at the Common Cold Research Unit (CCRU) which was conferred on the unit's director.

Pertinent to this study is the issue of secrecy in science, which was important in the context of the Porton scientists engaged in military research, and its impact upon the research practices of scientists. Through comparing the organisational structures of Porton and the CCRU, the impact of secrecy and how it shaped the authority and autonomy of scientists can be examined. This then contributes to a clearer context for understanding how scientists perceived the role of volunteers within the institutional setting and how this was constructed through the scientists' justifications for their research and their expectations of the role of volunteers.

i. Putting the 'Norm' into Normative Science: Professional Ideals of Scientific Conduct and the Impact of Government Funded Science

In 1942, Robert Merton, attributed as the founder of the sociology of science, published a paper, *The Normative Structure of Science*. In this, Merton acknowledged that attacks on the integrity of science had forced scientists to consider their relationship with the social structure of society.[320] While he did not make the nature of these 'attacks' explicit, the destructive image of science was presented at this time through the application of science and technology in warfare. Merton sought to explore how scientists functioned sociologically and set down what has become referred to as Merton's Norms- universalism, communism (not in the political sense), disinterestedness, and organized scepticism.[321] Universalism was concerned with the notion that scientific knowledge was accepted or rejected through verified results from an objective standpoint. The norm of communism (sometimes mistakenly referred to as communalism, which better differentiates it from political communism) described how science was 'a product of social collaboration' through scientists working together towards a common goal. Results were therefore shared

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[320] R. Merton, 'The Normative Structure of Science' (1942), reprinted after original in R. Merton (edited by N. Storer), *The Sociology of Science: Theoretical and Empirical Investigations* (University of Chicago Press, 1973), p. 267.
[321] Merton, 'The Normative Structure of Science', pp. 267-278.

and crossed cultural, political and social boundaries, as well as national borders. The term 'disinterestedness' explained scientists' supposed neutral regard for their work. It was claimed that they sought neither emotional nor monetary rewards, but rather rewards came from recognition of their achievements. The last norm, organized sceptism, referred to the non-judgemental position of scientists regarding scientific theories until all results were available.[322]

These norms, which represented what Merton called 'the ethos of science', were collated from Merton's observations on various published scientific papers. These, he asserted, portrayed the 'moral consensus of scientists'. However, Merton was not critical of the sources from which he drew. The writings of scientists on 'the scientific spirit' were accepted as their beliefs rather than ideals of principles and no consideration was given to the context in which scientists were writing. As Barnes et al have pointed out, Merton's norms described scientists as being within a 'moral community' which conformed to institutional norms of conduct rather than describing how scientists actually 'did' science.[323] However, the 'officially professed' norms were ideal values claimed by scientists and this scientific myth is important in understanding the role of scientists in society.[324]

Rather than challenging Merton's Norms as idealized, over-simplified, or incorrect, it would perhaps be more fruitful to turn attention to the context out of which these arose. Merton's sociological analysis of science was influenced by the impact of science on society and the growth in directed research sponsored by the government, particularly in the US. The writings of scientists from which the norms were inferred were influenced by reactions to government-directed research such as Nazi science, UK and US big science programmes and military science. While the norms could be viewed as general principles that governed scientists, they were also apparent in the political rhetoric. Except for disinterestedness, which puts in mind the stereo-typical aloof 'boffin', the principles of

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[322] Merton, 'The Normative Structure of Science', pp. 267-278.
[323] B. Barnes, D. Bloor & J. Henry, *Scientific Knowledge: A Sociological Analysis* (Athlone Press, London, 1996), p. 114.
[324] P. Bourdieu, 'Animadversiones in Mertonem', p. 298, [Trans. J. Clark], in J. Clark, C. Modgil & S. Modgil, (eds.), *Robert K. Merton: Consensus and Controversy* (Falmer Press, London, 1990), pp. 285-294.

universalism, communism and organized scepticism were comparable to the emerging collectivism in British society. Accepting that Merton's Norms represented an institutional code of conduct, which at the same time did not reflect individual scientists' practices, it demonstrated that science as a profession was largely self-regulating and autonomous. Moreover, the acceptance of these norms by the scientific profession provided them with a positive self-image, one that scientists appeared in need of, and so it served the profession's interests to be modelled in this way. The extent to which Merton's Norms were a scientific myth that served to bolster the image of scientists can be seen through the increase in state intervention in science in the post-WWII period.

The justification for scientific research which came from the norm of communism- that results were the property of society at large- demonstrated the influence of 'social demand' upon science. Yet the status of the scientist had risen through the ranks as science assumed increasing importance in both politics and society. For Sir Solly Zuckerman, Chief Scientific Advisor to the Ministry of Defence and the Cabinet Office between 1960 and 1969, the influence of science in the military became generally recognised during WWII '... when Pandora's box opened to reveal to the world the richest store of technological wonders it had ever seen.'[325] Interesting as Zuckerman's observations on the 'wonders' of science are, what is of relevance is the position which he held as chief scientific advisor. Since WWII, scientists increasingly took up advisory positions within government agencies and, as noted by Zuckerman, the appliance of science provided 'the apparatus which has made central government powerful.'[326] At the same time, the use of science to bolster central government made scientists more powerful in their advisory capacities and the relationship between science, government and the military became almost inseparable. Therefore, the position of scientists as government advisors countered the norm of disinterestedness when scientific advisors were not in receipt of reward through 'recognition of achievement' but through their position in government circles. Furthermore, the norm of communism cannot have been anything more than an ideal of the scientific community because military science was not shared between countries and was subjected to

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[325] S. Zuckerman, *Scientists and War* (The Scientific Book Club, London, 1966), p. 3.
[326] Zuckerman, *Scientists and War,* p. 131.

intense secrecy. It is perhaps the impact of secrecy in science, particularly in military science, that best highlights the irony of the significance of Merton's norms and suggests that they served as an ideology of institutional conduct rather than a set of universal beliefs.

In 1960, the eminent British physiologist, Archibald Vivian Hill, published *The Ethical Dilemma of Science, and Other Writings,* a collection of lectures and articles that he had previously published or delivered. Hill had been a member of the government's Scientific Advisory Committee between 1940 and 1946 and was an active defender of scientists who were persecuted under the Nazi regime.[327] He was one of the first members of the Academic Assistance Council (which became the Society for the Protection of Science and Learning) and offered assistance to fellow scientists 'in distress'.[328] Hill's article in *The Ethical Dilemma of Science,* 'Science and Secrecy', originally published in *The Spectator* in 1945, conveyed his concern for the protection of scientists from the 'hate and hysteria' of the Nazi regime. However, this article also demonstrated how Merton's norm of communism fitted with Hill's outlook and at the same time how Hill advocated increased involvement of scientists in political affairs, thus countering the norm of disinterestedness.

Hill clearly considered that Nazi science was destructive to the profession and the culture of science, which was conveyed in the following extract:

> Political isolationism, aggressive nationalism, and secrecy in preparing scientific methods for mutual destruction, must stop. Scientific men themselves throughout the world must be allowed to work together in mutual confidence and sincerity. Ethical standards in their work must be restored, so that the misuse of scientific knowledge and discovery (the common property of mankind), either for selfish exploitation or for general destruction, will be regarded … as the unforgivable sin.

The idea that scientists should 'work together' for the common goals of science appeared to be an attempt to take a stand against Nazi science invading 'normal' science. Given that the article was published during WWII it is difficult to understand how this conception could

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[327] A.V. Hill, *The Ethical Dilemma of Science and Other Writings* (Rockefeller Institute Press, NY, 1960).
[328] B. Katz, 'Hill, Archibald Vivian (1886-1977)', rev. V.M. Quirke, *ODNB,* online ed. Jan. 2007, www.oxforddnb.com/view/article/31230, accessed 30 July 2007.

be realised and, interestingly, Hill's view accorded with Haynes' classification of the (fictitious) scientist as a 'social idealist'.[329] Hill proposed that science belonged to mankind and that it should have transcended political boundaries, which concurred with Merton's communism of science. Furthermore, he asserted that 'mutual destruction' through developments in science were counter to the ethos of science. It seemed that Hill was attempting to define morality in science according to what he did not want it to be identified with, i.e. Nazi science, by asserting that 'normal' scientists were higher-minded and tended to work together in a collaborative culture of trust. However, Hill's involvement as a member of the war cabinet's Scientific Advisory Committee did not distance him from the application of science and technology in warfare. Therefore, the notion he put forward regarding scientists from around the world working towards a common goal for the good of humanity, rather than destruction, was more of an ideal than an actuality.

In the same article Hill went on to call for greater involvement of scientists in policy-making. 'Too long we scientists have been treated as "backroom boys", he asserted. Clearly Hill felt that scientists had been denigrated by government and that this was an unacceptable position. He stated that should scientists not be given their 'proper place in framing policy', then he would press upon his colleagues 'to keep aloof and let things go to the devil without us.'[330] The notion that a scientist was disinterested in the pursuit of science for any reward other than recognition by peers was overturned by Hill's assertion that scientists should be involved in shaping policy. Indeed, scientists did have an elevated position in helping to shape and inform upon post-war government policy which endowed them with considerable power and influence. Hill appeared to be affirming both the public view of scientists and asserting the role of scientists in politics, which was to assume greater importance after WWII. Winston Churchill described scientists as 'war-winners' and by 1961, Charles Snow observed that the investment of trust by the government in scientific advisors had given them enormous influence and he warned that there was a

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[329] Haynes, *From Faust to Strangelove,* in Frayling, *Mad, Bad or Dangerous?*
[330] Hill, 'Science and Secrecy' in Hill, *The Ethical Dilemma of Science,* p. 305.

'danger in having one scientist in a position of power among non-scientists' who did not have the ability to challenge the scientist in a powerful position. [331]

Secrecy was a significant factor in the Cold War climate after WWII, notably in military science, which involved consultations with various scientific advisors. While Hill claimed that secrecy contravened the communal culture of science, it appears there were other intra-professional concerns regarding the impact of secrecy on science. Walter Gellhorn, a political science professor and campaigner for civil rights, in his 1950 publication *Security, Loyalty and Science*, consulted with a number of scientists on the issue of secrecy in the profession. One physicist observed that 'secrecy is creating a new class of scientists, inbred and aloof'. He argued that 'honest competition' between individuals and among research teams that was fostered within a traditional scientific community was being threatened by secrecy. These 'aloof' scientists lacked the challenge of intra-professional discourse and therefore were left to 'stagnate'.[332] Later, in 1965, Hagstrom made similar observations on secrecy that conflicted with 'the norms of free communication in science'.[333] He observed that scientists who were engaged in secret research did not want it to be known among their peers that they were undertaking such projects; secret science 'must usually be kept secret'. In a sense, Hagstrom argued that secret scientific research went against the nature of the scientist who relied on exchanges of information and research to both further their careers and extend their status. Hagstrom's research in the US concurred with the view of Hill regarding British scientists, who considered there to be a real danger that secrecy in science could lead to 'scientific mischief'.[334] The impact of secrecy in science, according to a report compiled by the American Association for the Advancement of Science (1965), was the creation of a 'hazardous use of partial knowledge' to meet the social and political demands

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[331] Frayling, *Mad, Bad and Dangerous?*, p. 179; C.P. Snow, *Science and Government* (OUP, 1961); Snow, *Postscript to Science and government* (1962). Snow compared the positions of Tizard and Lindemann as government scientific advisors, both of whom were invested with an enormous amount of trust by ministers and prime ministers. Snow's motive for writing about this subject may have been political; however, he did highlight how scientists enjoyed an elevated position in society brought about by the extended role of science in WWII.

[332] W. Gellhorn, *Secrecy, Loyalty and Science* (Cornell University Press, NY, 1950), p. 51.

[333] W. Hagstrom, *The Scientific Community* (Basic Books, NY, 1965), p. 88.

[334] Hill, 'Science and Secrecy', p. 303.

placed upon scientists in the course of their research.[335] Partially fulfilling the 'scientific mischief' prophecy of Hill, this report considered that secrecy was impeding the scientific exchange of information- the 'normal procedures of science, errors or inadequacies'- and without such peer scrutiny inadequacies and errors were going unchecked.

These observations on secrecy in science suggest that it had the perceived potential to impact upon the practices of science in more than one way. The career-limiting factor of secrecy potentially stifled exchanges of knowledge and impeded publication. Likewise, the demands placed upon science as an authoritative source created a situation whereby science could be left unchecked when conducted under the veil of secrecy. Where social and political demands for scientific research served to put pressure on the production of 'results', when secrecy limited peer review it created the potential risk that certain factors could be overlooked. The concern that secrecy bred mistrust can be viewed as part of the broader Cold War context in which suspicion, espionage and intelligence services were characteristic of the relationship between the West and the USSR. Chemical and biological warfare, nuclear bombs and developments in the delivery of these highly destructive forms of 'modern' warfare positioned science at the forefront of mistrust between opposing governments.

In contrast, the public regard for science had been bolstered by directing attention away from the destructive elements of science. As part of the government's collectivist agenda for citizenship, science was used as a focus for patriotic pride. Negative associations with science that emerged during WWII were replaced with public images of science that were of collective benefit. The NHS was the clearest example of how science was re-shaped in the public mind through casting it as medical and therefore beneficial. The press' support for the collectivist consensus ensured that science was mediated favourably to the British public. This helped to alter the image of science from destructive to constructive up to the late 1950s, after which the collective consensus weakened.

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[335] Report of the Committee on Science in the Promotion of Human Welfare of the American Association of the Advancement of Science, 'The Integrity of Science', pp. 291-332, in G. Holton, (ed.), *Science and Culture* (Beacon Press, Boston, 1965), p. 313.

The authority of science that was held by the public, combined with the demands placed upon science in the political arena, was pertinent to the subject of internal justification of science and the autonomy of scientists within their laboratories. This was particularly relevant in state-led research where the scientists worked under the general direction of government. The authority and autonomy of scientists at Porton and the CCRU not only gives an indication of the organisational climate of research in which volunteers participated, it also gives an indication of how the identity of 'the volunteer' came to be constructed within each research facility as the research agendas of the scientists dictated. The brief exploration of secrecy in science put forward the view that the profession considered secrecy to be destructive to the scientific community. Merton denied the action of secrecy altogether and yet many scientists were engaged in clandestine projects. By 1959, over 1,000 men and women were involved in research at Porton.[336] Furthermore, extra-mural research conducted on behalf of Porton in laboratories throughout the UK engaged numerous other scientists in classified research. For example, in 1961 a report on War Office sponsored extra-mural research disclosed that there were 25 contracts with UK universities to the cost of £42,268.[337] Although the report did not give a break down of the specific contracts, it did state that additional 'fields of work' included 'chemical and radiological' research and therefore it would be fair to assume that some of the contracts included classified research.

The suggestion that secrecy in science was destructive to the profession did not, therefore, deter scientists and technicians from undertaking such work. This highlights how the 'disinterested, communal' scientist was part of a mythological representation of the principles held by scientists. The following examination of the organisational structure of Porton demonstrates that secrecy enabled scientists to set out their research agendas and operate to a degree of autonomy within the broader political research priorities.

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[336] WO286/ 28, Confidential notes accompanying a response to parliamentary questions, 23 January 1959. This figure is the combined number of scientists that worked at the MRE (306), the CDEE (721) and Allington Farm (52), all located at the Porton site. Unless stated otherwise, the file references in this chapter refer to material obtained from The National Archives, Kew (TNA).

[337] WO195/15129, Advisory Council on Scientific Research and Technical Development, report by the executive officer, 6 April 1961.

Furthermore, the relationship between Porton scientists and government officials, who needed to be consulted, shows how the proximity of scientists to both volunteers and the research which engaged them gave their knowledge credibility. The contrast between Porton and the CCRU comes from the latter's widely publicised 'holiday camp' environment and how there was a less complex organisational machinery yet more public accountability.

ii. Identifying Scientific Authority & Autonomy at Porton and the Common Cold Research Unit

Both the CCRU and Porton conducted research which could be viewed as of national importance, and as such succeeded because they accorded with the government's concerns and post-war insecurities to further their own research agendas. When in 1948 an MP attacked the CCRU in parliament as 'a waste of money', the director of the unit, Christopher Andrewes, consulted the Department of National Statistics and went to great lengths to demonstrate that the loss of working hours caused by the common cold, and the cost in terms of sickness benefit, more than justified the continuance of the unit.[338] Speaking in the rhetoric of post-war efficiency and productivity, the CCRU was able to fend off critics by defending its research within the framework of government policy. Likewise, the importance of the research at Porton was largely driven by the political climate. After the defeat of Nazi Germany new chemical warfare agents were discovered, namely the lethal range of G nerve agents, and intelligence that Russia had captured a nerve gas plant and were stockpiling this lethal war gas put research into the effects of and protection against nerve agents at the top of the research agenda. This dominated the programme of research with volunteers throughout the 1950s, only to be superseded by chemicals which would incapacitate but not kill in the 1960s.

It is plausible that the physical environment of science and the facilities it contains have an equal role in the expansion of knowledge; however, it has its limitations when extended to the dissemination of scientific knowledge between scientists and interested parties.[339]

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[338] FD1/3301, C. H. Andrewes, 'The Cost of the Common Cold to the Nation'.
[339] Barnes et al, *Scientific Knowledge*, p. 76.

While the environment is important for the negotiation of new ideas and theories, for knowledge to become scientific 'fact' it has to be accepted initially by immediate peers and then by the wider scientific community, what Bruno Latour calls 'a network of fact builders'.[340] Underpinning the network of 'fact builders' is the organisational framework; Porton Down and the CCRU existed as institutions of research within a wider framework of government-supported organisations, for which public money was provided. The particular institutional values of scientific practice, which then relate to the use of volunteers at Porton and the CCRU, however, are underpinned by authority and credibility.[341]

The particularities of practice in the use of volunteers, as will be shown, suggests that secrecy at Porton and transparency at the CCRU were important factors in the institutional construction of volunteers. Moreover, the hierarchical structure of personnel and within that, the hierarchy of knowledge, demands attention. To provide a more nuanced view of how scientific authority and autonomy operated at Porton, two case studies will be presented concerning discussions over VX nerve agent and LSD experiments. Both of these caused conflict between scientists, ministers and the Armed Forces representatives. By comparing them to the role of authority and autonomy at the CCRU, the importance of scientific authority and how it was mediated within the institutional setting comes into focus. This is significant to the volunteer question as it provides the institutional context for human experiments and conveys the expectations and justifications of scientists for undertaking research on human subjects.

Authority and Autonomy at Porton

The esoteric position of the Porton scientists has meant that they have often been at the forefront in determining the level of threat posed by USSR capabilities, using the 'fear of the possible' as a threat through which they could justify their research to sustain themselves.[342] Whereas, purportedly, in traditional scientific communities scientists gained credibility and status through publications and written discourse on research findings

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[340] B. Latour, *Science in Action: How to Follow Scientists and Engineers Through Society* (Open University Press, Milton Keynes, 1987), pp. 208-213.
[341] Golinski, *Making Natural Knowledge*, p. 29.
[342] Balmer, *Britain and Biological Warfare*, p. 186.

through the scientific journals, the Porton scientists were somewhat impotent in gaining recognition through similar practices. [343] The publication of research output in the 'open literature' was somewhat limited. Publications by scientists in 1957, working in all sections of the CDEE, Porton, consisted of 35 published journal articles with 48 unpublished Porton technical papers. The latter had a restricted circulation with many classified as secret.[344] In 1958, there were only 23 academic journal publications from scientists at CDEE, Porton, compared to 44 unpublished technical papers that were produced.[345] Similar figures occurred in 1959, with 40 technical papers compared to 25 open publications.[346] In addition to the technical papers, 'Porton Notes' were also produced which were unpublished, although the exact numbers are not known. Therefore, those scientists engaged in secret research were hampered by their inability to publish fully on the precise area of their research. The secret nature of their work determined that its publication, if achieved, would come some years after, unless a more acceptable 'spin-off' research finding could be used.[347]

Rather than being motivated by recognition of status through publications, it appears that some of those who worked at Porton received their reward through the honours system. This can be discerned by the number of knighted scientists that worked at Porton from WWII onwards, for example, Sir Paul Fildes, Sir Charles Lovatt-Evans, Sir Harold Hartley, Sir Frederick Bain, Sir Owen Wansborough-Jones and John D Morton OBE, to name a few.[348] However Hagstrom, in his sociological study of 79 American scientists published in 1965, found that 'material rewards' such as financial gain were increasingly superceding the meritocratic system of recognition through publication, partly owing to the 'success' of science, notably in 'weaponry and medicine'.[349] The limitations of free publication at

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[343] For example, Hagstrom, *The Scientific Community*, a sociological study of American scientists, found that the process of giving an article for publication was a reciprocal gift, in return the scientist expects recognition of his 'status as a scientist ... and it assures him of prestige within the scientific community', p. 12-13.
[344] WO189/ 110, CDEE, Porton, Publications, 1957.
[345] WO189/ 111, CDEE, Porton, Publications, 1958.
[346] WO189/ 112, CDEE, Porton, Publications, 1959.
[347] It appears that papers prepared for publication had to be passed to the director of the CDEE who would then approve their submission for publication. Clearly the scientists knew the boundaries as far as what could be published, as seldom were papers refused publication, conversation with Gradon Carter, November 2005.
[348] Carter, *Chemical and Biological Defence,* p. 67, p. 94.
[349] Hagstrom, *The Scientific Community,* p. 294-5.

Porton meant that they could not achieve status through the publication of their research in the same way as scientists working on unclassified (i.e. not classified as top secret, secret or restricted) research projects.

The effects of this seemed to be that honours were conferred on scientists, at least in the immediate post WWII period, in recognition of their achievements in the field. However, a number of Porton scientists had extended roles as government advisors which placed them in an elevated position whereby their expertise helped to inform upon government policy. This reflected the organisational shift of scientific enterprise towards corporate and government-funded establishments. The ideal of scientists as pure pursuers of facts became consumed by the use of science as a political tool for government and a source of wealth for large corporations. This might suggest that scientists were losing their autonomy as organisations dictated scientists' research agendas and the imagery of the 'helpless scientist' of the cinema reflected a truism. However, discussions at meetings and written exchanges between and among Porton scientists and government officials reveal that Porton scientists were able to maintain a considerable degree of autonomy. Moreover, the authority of their specialised knowledge often took precedence, permitted by the secrecy in which they operated and not withstanding the lack of peer review, as they were, effectively, their own experts.[350] In contrast, the organisational structure of the CCRU was far less complex. As becomes clear, the CCRU was far less accountable to the MRC, yet its engagement with the public through the press meant that it was effectively accountable to them through its dependency on volunteers. Maintaining public support secured volunteers and the paternalism of the CCRU contrasted with the military authority in place at Porton.

The nature of Porton's research into chemical warfare agents meant that it was of governmental concern, and as such was a military research facility under the general direction of the Ministry of Supply, the War Office and the Ministry of Defence, as one

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[350] There was some exchange of information through the foundation of the Tripartite Agreement during WWII, in which the UK, and later Australia, shared research into chemical warfare with the USA and Canada. This involved exchanges of reports and visits to each others' research facilities. For example, see G.Carter & G.S. Pearson, 'North Atlantic Chemical and Biological Research Collaboration: 1916-1995', *Journal of Strategic Studies* (March 1997), vol. 19, no. 1.

replaced the other over the years.[351] Within Porton, the organizational structure comprised of a number of committees that acted as advisory bodies through which proposed experiments were sometimes passed. The government department responsible for Porton, the Ministry of Supply, was advised by the Chemical Research Advisory Board (CRAB) which was a sub-committee of the Ministry's Scientific Advisory Council.[352] The Chemical Defence Advisory Board (CDAB) later replaced the CRAB, although its role remained the same. Membership of the CDAB was both internal and external, with around half of the committee members being scientists from academic institutions or industries.[353] Further sub-committees also existed, such as the Biological Warfare (BW) Sub-committee and the Chemical Warfare (CW) Sub-committee which defined policy and reported to the Chiefs of Staff. The CRAB, and later the CDAB, also provided technical advice to the CW Sub-committee. The CDAB then formed five committees which focused on specific aspects of chemical warfare research- chemistry, biology, physics and physical chemistry, defensive equipment and offensive equipment- with the Biology Committee taking on the physiological aspect of research which included tests on human subjects.[354] The division of committees concerned with aspects of research at Porton meant that it was a complex network which required communication between heads of divisions, scientists within the divisions and ministers. The communication process depended on exchanges of research findings and professional opinions, and yet the secret nature of their work meant ultimately that not everyone was privy to the same knowledge which affected not only the 'coherence of any policies' but also the planning of research programmes.[355] This was particularly highlighted through discussions on the testing of a type of nerve agent, VX, between the Armed Services ministers, Porton scientists and external committee members.

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[351] MoD, *Historical Survey,* p. xiv.
[352] Liddell Hart Centre for Military Archives, King's College, London (LHC), Gassed Collection, TNA ref. WO188/667, 'Division of Responsibilities, 3 November 1947. A number of documents were archived at the LHC by Rob Evans. Many of these are copies of documents from TNA but at various points some were removed from TNA so copies were obtained from LHC.
[353] MoD, *Historical Survey,* p. xiv. The *Historical Survey* notes that the CDAB was set up in 1946, although this contradicts with the War Office document referred to in fn. [WO188/667]. However, this is a minor point that does not affect the understanding of the organisational structure of Porton.
[354] MoD, *Historical Survey,* p. 15.
[355] Balmer, *Britain and Biological Warfare,* p. 186.

Case Study 1: Experiments with Nerve Agents

In September 1959, a meeting was convened of government ministers' representatives, accompanied by representatives from Porton, to discuss a proposal to conduct intravenous experiments with nerve agents. The proposed experiments were to carry out skin tests with the nerve agents Sarin, also known as GB, and the lesser researched VX nerve agent.[356] Shortly prior to this, a letter from the Assistant Private Secretary of the Ministry of Supply was circulated internally between the ministries concerned. This affirmed the Minister of Supply's support of the proposed tests as 'necessary if we are to have an adequate means of defence against these powerful agents.'[357] The minister's decision was based, according to the letter, on the advice given to him from various advisory bodies but especially the Biology Committee of the CDAB. The meeting in September was therefore for the purpose of satisfying the War Office Ministry, represented by Sir Edward Playfair, Permanent Secretary of the War Office. In attendance was Sir William Strath, Permanent Secretary of the Ministry of Supply, Playfair, Sir Owen Wansborough-Jones, Chief Scientist of the Ministry of Supply, and Surgeon Commander Burnett from Porton.

In the note that recorded this meeting, Playfair asked what the 'real nature of the risk' entailed and questioned whether 'genuine volunteers' were used, as he suspected that 'some pressure might be exerted on the individuals by their Army units.' Burnett responded that investigations he had conducted found 'all the volunteers to be genuine', despite most of them having 'no idea' what the tests were for until they arrived at Porton. He explained that upon being informed of the 'exact nature of the tests', the option to withdraw was respected and they would be returned to their units without 'victimisation'. He added that no one had refused to take part in any series of tests, although some had declined individual tests. It was apparently the procedure at Porton that when volunteers arrived, usually on a Sunday, they were informed that they would be taking part in tests, referred to by Burnett as the 'series of tests'. Volunteers were then used for various experiments during their time at Porton, which were the 'individual tests'. The 'real nature of the risk' was explained by

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[356] AIR 20/10719, 'Note of a Meeting … to discuss Nerve Gas Tests on Human Observers', held on 23 September 1959.

[357] LHC, Gassed C, DEFE7/ 1451, letter from Northrop with handwritten note 'To be raised by Ed. Playfair'. 26 August 1959.

Wansborough-Jones who assured Playfair that the intravenous tests with GB would be conducted with doses 'well below' that which would cause risk. The only risks Wansborough-Jones identified were 'human error' and 'human idiosyncrasy', which he claimed was what caused the death of Maddison. However, he countered these risks with assurances that Porton maintained 'elaborate precautions' and had a 'wealth of experience' with gas chamber tests and IV experiments on animals. Finally it was noted that Playfair was 'perfectly satisfied that the tests were acceptable' having had the situation explained to him.

While the note on this meeting is fairly brief, occupying only two pages of type, Playfair's ignorance of the *modus operandi* at Porton suggested that little prior communication had taken place between the ministry's office and Porton. Playfair's suspicion that volunteers were not 'genuine', by which he recognized the role of authority in the use of military subjects, was not supported by Burnett who considered that a 'genuine' volunteer was one who attended without pressure, even without prior knowledge of the precise nature of the tests. Without an independent scientific advisor present who could have asked pertinent questions, Playfair was dependent on the assertions of the Porton scientists and therefore it seems that his acceptance of their assurances was based on their superior knowledge and their disclosure of this. As a civil servant, not a scientist, Playfair was not an expert and was in no position to challenge the information imparted. In this instance, the authority on the proposed tests at Porton was the scientists at Porton themselves who had already 'won over' the Ministry of Supply's support.

With the Ministry of Supply and the War Office on side, the Air Ministry and Admiralty still needed convincing. Patrick Nairne, Admiralty Secretary, wrote in response to the letter from Northrop in August 1959 which gave the Ministry of Supply's support for the proposed tests. In November 1959, Nairne responded that 'We [the Admiralty] do not like the sound of these new tests.'[358] However, he conceded that for the protection of the Navy in the event of chemical warfare it was necessary that such tests continued for 'the

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[358] AIR20/ 10719, Letter from Nairne circulated within Admiralty departments and to the other ministries concerned, 27 November 1959.

development of protective measures'. In addition, he put forward a condition to the use of Naval personnel in tests at Porton which he hoped the other ministries would concur as 'indispensable' - the use of a form that explained the nature and risk of the test which would be signed by the volunteer. Nairne's position on this was formed from the opinion that the risk of the intravenous tests were 'decidedly greater' than previous tests and therefore required 'tangible evidence' that the nature of the procedure would be fully understood and that the subject had clearly agreed 'to face it'. Playfair wrote to the Admiralty Secretary Sir John Lang stating that, in regard to the condition of 'the chit' to be signed by volunteers, 'I do not like this'.[359] Playfair viewed Nairne's proposal as a 'new and non-medical concept', presumably because it involved a legal dimension. He therefore proposed that a meeting be held 'of civil servants plus doctors to thrash the whole matter out'. This meeting took place a few days later at the War Office building in London.

Present at the meeting were representatives from the War Office, Air Ministry, Admiralty, Ministry of Defence, the superintendent of the Medical Division of Porton, Dr William Ladell, and the Director of Chemical Defence Research Eric Haddon (later to be Director of CDEE Porton in 1961).[360] The meeting opened with the question of the necessity of the tests and 'after discussions' it was agreed that they were necessary based on the knowledge that 'the Russians could, if they wished, use gases of this type'. Then it considered the proposition of using Porton staff as subjects rather than Service personnel. Haddon gave his view that while this had occurred in the past, it was 'wasteful to use highly qualified staff' in this way and Ladell supported Haddon that there was 'no alternative' to Service personnel, which was accepted. Air Commodore Muir requested that detailed answers to a paper he had prepared and circulated to the War Office and Admiralty be given by Ladell and Haddon, which was agreed by the members of the meeting. They asked that it was drafted in 'non-technical language' and went into 'some detail' of the procedures, methods and risks of each type of test and was produced in consultation with the Biology Committee. Discussions then turned to the Admiralty's suggestion of signing a 'chit', which was also supported by the Air Ministry. The arguments against the signing of a chit

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[359] AIR20/ 10719, Letter from Playfair to Lang, 10 December 1959.
[360] LHC, Gassed K, DEFE7/ 1451, 'Note of a meeting… to discuss chemical tests on service volunteers at CDEE Porton, 21 December 1959.

were two-fold - that 'a security point would be involved' if a written description of tests was produced and that 'in another connection' where chits were used, it had the effect of deterring volunteers. Playfair's prior communication that identified consent forms as a 'new' angle was apparently misguided in light of this, which suggests that Porton did not necessarily communicate its policies, procedures and practices to the Armed Services representatives and ministers. The dissenting ministries were advised to take note of these points on consent forms and reconsider their positions. They were reminded that volunteers remained 'on duty' during their period at Porton and therefore continued to be the responsibility of the ministries who were 'bound to accept full responsibility', which was meant as an assurance.

For those in attendance that were not directly involved in the research at Porton, the assurances by Porton based on their scientific knowledge and experience with experiments using nerve agents was seemingly enough. The perceived threat from Soviet Russia provided the justification for the tests and the need for the UK to be able to defend against an attack using the chemical agent. Ministerial involvement in the discussions showed both 'insider' and 'outsider' perspectives with the contrast between Wansborough-Jones, who had a close association with Porton, and Playfair who was a civil servant without such connections. Playfair's questions on risk and the real nature of volunteers were responded to by Burnett, who as a Surgeon Commander working at Porton was credible as both a man of medicine and a military man. Playfair's general ignorance of the day-to-day affairs at Porton suggests that there was a lack of ministerial involvement and, moreover, that discussions between Porton and the Ministry only took place when conflict arose. In terms of accountability, it appears that ministerial approval was only sought when the degree of risk taken in the use of human subjects increased; even then, Porton provided the justification to the Ministry who were not scientifically trained and therefore unable to challenge the Porton scientists on their own terms.

Porton assured that, regarding the proposed VX experiments, safety precautions were in place and asserted that frequent reports would be placed before the Biology Committee of the CDAB. This satisfied the ministries, except for Air Commodore Muir who remained

unconvinced. Muir's position was no doubt influenced by his own experiences at Porton, notably that he witnessed the death of Maddison in 1953, and while his request for more details was upheld at the meeting the consensus remained that the tests should go ahead. It appears that the weight of credibility rested with Porton as the experts; Muir's lone voice was to be addressed in a following note produced by Dr John Gaddum, chair of the Biology Committee. The paper that Muir referred to in the meeting has not been located. However, Gaddum's brief report concerning the proposal to conduct experiments on service personnel using V agents set out the main debates.[361] The rationale for the experiments proposed was that it was still unknown whether V agents were 'more dangerous' than G agents (such as Sarin) and if they were, it was considered 'best to find this out by cautious experiments with very small doses, rather than by the sudden use of them by an enemy in war.'

In outlining the argument for testing with V agents, Gaddum set out that intravenous doses were far safer than the skin tests, which had resulted in one death, or the inhalation of nerve gas because the dose could be most accurately controlled.[362] Gaddum referred to Muir's 'thoughtful minute on the subject' and went on: 'It must have been a terrible experience to be present when the accident [death of Maddison] took place and I can understand why he feels so strongly about it.' Gaddum's expression of sympathy for Muir's situation conveyed the sense that Muir was over-reacting. He refuted Muir's claims that 'dangerous signs' had been observed prior to Maddison's death stating, 'This is difficult to believe.' Furthermore, Gaddum claimed that 'the evidence of the present AD(M) [Assistant Director (Medical)] is that no dangerous signs were seen in the 600 experiments for which he was responsible.' Finally, Gaddum quantified the risk of intravenous V agent experiments as comparable to the risk of some people being allergic to aspirin but concluded with a strong statement aimed at the Armed Services:

> If the Services decides to take the other risk that, if these gases were used in war, this country would not have the best possible information about them, the proposal to do these experiments will have to be abandoned, but it must

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[361] LHC, Gassed E, WO32/20843, 'Human Experiments with Nerve Gases', February 1960.
[362] The reference to a death was that of LAC Ronald Maddison in 1953.

be made clear that the responsibility for this decision lies with the services, and not with the C.D.E.E. or with the Biology Committee.

Gaddum was an external advisor to Porton, not a Porton scientist. However, despite his external position as Director of the Agricultural Research Council Institute of Animal Physiology, Cambridge, Gaddum briefly served in the war as a lieutenant colonel in the army and had spent some time at Porton during WWII supposedly developing a suicide drug for use in emergency situations by British troops.[363] Gaddum's response in the report he compiled on V agents was likely to some extent to be formed by his experiences. His dismissal of Muir's reservations and claims of dangerous signs, believing to trust in the opinions of the AD(M), suggest that the proximity of the scientist to the experiment and repeated observations made the opinion more credible than that of a military officer, albeit one involved in scientific aspects at Porton on behalf of the Air Ministry. Evidence heard in the Maddison Inquest, however, demonstrated that there had indeed been dangerous signs, including one subject who had to be resuscitated after exposure to GB.[364] Furthermore, the onus of responsibility for V agent tests not being conducted was placed firmly in the hands of the Services, for whom the tests were to benefit, but the section with the least scientific knowledge. Gaddum's use of a humanitarian justification for experiments with VX, and not solely a scientific justification, was interesting. In appealing to the Services who were not wholly convinced about the tests, he invoked patriotic sentiment by referring to the protection of 'this country' and suggested that by not agreeing, the Services were not conducting themselves in their duty to serve and protect the UK. It appeared that in the course of the conflicting opinions as to the safety of tests in this situation, the scientists 'closed ranks' against the Services, demonstrating that theirs was the higher authority. In March 1961, the Director General of Medical Services of the Air Ministry, P. B. Lee Porter, minuted that he still considered the proposed tests were 'simply "science for the sake of science" and therefore ethically unjustifiable' but conceded that because the risks were

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[363] Oxford Dictionary of National Biography, www.oxforddnb.com.chain.kent.ac.uk/view/article/33305, last accessed 29 March 2007.
[364] Evidence of Dr Forrest, given on 21 June 2004, from notes taken during the Maddison Coroner's Inquest, The Old Town Hall, Wiltshire.

minimal they would support the War Office for the tests to go ahead.[365] In any event, the intravenous tests did not appear to go ahead at that time and were considered by 1962 not to be of imminent political concern.[366] This was around the time that Porton had turned its attention to incapacitating agents which would reduce military effectiveness, but not kill.

The journalist Rob Evans has claimed that since the death of Maddison ministerial involvement had combined with the safety rules set out by the Adrian Committee to restrict Porton's experiments with nerve gas 'to quite an extent'.[367] The Adrian Committee was set up in response to Maddison's death, presided over by Dr Edgar Adrian, president of the Royal Society, and the committee set maximum doses of nerve agents that volunteers could be exposed to without the need to refer it to the ministers.[368] The need to consult ministers prior to any new tests with nerve agents, according to Evans, 'was some semblance of a system to check and regulate the experiments'; however, the above discussions and meetings suggest something different. While Porton had to obtain ministers' approval, the process of gaining their consent was to give them the 'facts' of the nature and potential risks of proposed experiments. Where there was an absence of independent scientific advisors, Porton's assertions of the validity of new tests went unchallenged because civil servants lacked the scientific knowledge required to comprehend fully the nature of scientific research. Yet, in the case of Gaddum, even where an external scientist was involved and who was competent to fully understand the nature of the tests, still the authority remained with Porton who held the vast experience and were, therefore, their own experts.

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[365] AIR20/ 10719, internal minutes of Air Ministry, February to March 1961.
[366] Evans, *Gassed,* p. 192. There is a degree of confusion relating to the approval for the testing of V agents at Porton. In late 1960, it appears that service personnel were used to test VX although this did not occur again until 1968. The *Historical Survey* has been unable to unravel precisely when permission was granted or whether Porton acted with permission or not in relation to tests with V agents, see www.mod.uk/NR/rdonlyres/3F87942D-3841-40D9-B972-398784616FFB/0/part_iii.pdf for a fuller discussion.
[367] Evans, *Gassed,* p. 213.
[368] WO195/12437, Note of the chairman of the Advisory Council on Scientific Research and Technical Development, August 1953. Files that relate directly to the Adrian Committee remain closed due to its sensitive nature and the legal proceedings in relation to Operation Antler and the Inquiry.

Rather than restricting Porton's experiments, ministerial involvement seemed to add a degree of transparency but it appears that the lesson learnt from Maddison's death and the fear that should another death occur the work of Porton would be jeopardized held them in check.[369] Moreover, the development of advisory bodies and their increasing involvement in the work at Porton mirrored similar practices within other institutions, and was perhaps not merely a reactionary measure since 1953. As was set out in chapter II, the MRC had been developing guidelines that sought to standardise practices within its units. Likewise the measures implemented at Porton can be seen as part of this wider concern that practices with human subjects should not be left completely unchecked. Yet both the MRC and the government ministries were limited as to the extent of their involvement and were by no means in positions to dictate the 'rights' and 'wrongs' of human experimentation. It remained that the individual scientists continued to self-regulate their practices to a greater extent and provided their own justification for what was considered to be valid.

Case Study 2: Porton's Experiments with LSD

The self-regulation of human experiments by Porton scientists was also evident in discussions on experiments with mind-altering substances, which became a dominant research programme in the 1960s. In September 1960, Surgeon Commander Burnett presented a paper to the Biology Committee regarding the screening of subjects prior to tests with 'psychotomimetic drugs'.[370] 'Psychotomimetic' refers to drugs that produce changes to a person's psychological state or behavioural changes induced by the administration of chemical substances. LSD was one such drug that Porton was particularly keen to experiment with. Burnett's paper referred to previous discussions with the Chemistry Committee in March 1959 and the Biology Committee in June 1959. These discussions concluded that checks should be carried out into each subject's family history and consultation with a psychologist or psychiatrist ought to be sought. Burnett then put forward a number of psychological screening procedures and psychiatric interviews which, having consulted the Director of Army Psychology and psychiatrists of the Royal Victoria

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[369] LHC, Gassed K, DEFE7/ 1451, 'Note of a meeting… to discuss chemical tests on service volunteers at CDEE Porton, 21 December 1959. This was the concern of ministers and scientists alike during the meeting.
[370] WO195/ 15026, Surgeon Commander Burnett, 'Screening tests prior to administration of psychtomimetic drugs in human subjects', 7 September 1960.

Hospital, Netley, Porton proposed to use prior to any experiments with psychotomimetic drugs. Approval was then given for the commencement of tests with LSD in 1961, subject to the use of screening procedures to eliminate unsuitable persons.[371]

A meeting of the Applied Biology Committee in April 1966, which discussed Porton's research with LSD, was attended by a number of Service representatives, Ministry officials, Porton representatives, and external scientific staff.[372] The chair of the meeting was Professor Thompson who had conducted extensive wartime research on antidotes to mustard gas and lewisite as an extra-mural project within the Department of Biochemistry, Oxford. Thompson's research was published with permission shortly after WWII.[373] In the course of the discussions an external committee member raised the issue of the press' concerns with the 'alleged LSD25 addiction in considerable numbers of young persons' and suggested that Porton could investigate whether LSD was indeed addictive. The director of Porton, Eric Haddon, responded that Porton's role was to determine whether incapacitating substances 'presented a real threat in a military context' and that to give more than one dose, as was suggested, 'in the present state of knowledge' was undesirable.

Ladell, Porton's medical superintendent, elaborated more fully on the matter when he informed the committee that LSD tests had been 'halted 15 months ago' over concerns with a Porton staff member who had performed 'multiple self-administration'. It was this concern with addiction that caused Porton to seek advice from the Biology Committee with regards to the 'safety aspects'. When attention turned to the future work with LSD, Dr Beswick of Porton suggested that two doses of LSD be administered to volunteers to compare the effects through alternative routes of administration. Thompson queried whether it was necessary to expose a man to LSD twice but Neville Gadsby, Director of Biological and Chemical Defence, offered his support for two doses to test the routes of administration.[374] Furthermore, he proposed that the dose used in a previous experiment with LSD which had been administered orally be increased for inhalation by 'two or three

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[371] MoD, *Historical Survey,* Chapter 12.
[372] LHC, Gassed C, WO195/ 16273, Meeting of the Applied Biology Committee, 20 April 1966.
[373] Thompson published both single-authored and collaborative papers in the *Biochemical Journal* in 1946.
[374] The Biological and Chemical Defence department was the London headquarters for Porton and Gadsby took directorship of Porton in 1968.

times'. However, it was Ladell, supported by an external member, who erred on the side of caution. He proposed that doses should not exceed that already used in previous tests and that single exposures should be maintained. The committee therefore agreed for LSD experiments in the form of laboratory tests and experiments in mock combat situations to be conducted with single doses per man.

Six months later, the committee reconvened and discussions into self-experimentation with LSD and screening procedures continued to be a major topic of debate.[375] Committee members were split over whether Porton staff should self-administer LSD. Those who supported this asserted that it gave them 'greater moral authority' when administering it to volunteers and that it would help staff understand the subjects' experiences under the influence of the drug. They also claimed that it would give the experimenter an appreciation of how external conditions, which could be 'considerably influenced by the test supervisor', affected the subjects' experience with LSD. Major Wawman of the Royal Victoria Hospital, Netley, and Brigadier J. McGhee of the Department of Army Psychology supported self-experimentation, as did two external members, while Haddon thought it was 'a misuse of highly trained and specialized manpower'. Ladell, who in the previous meeting had opposed self-administration, was not minuted as making any contribution to this discussion. However, the weight of support for self-experimentation from an external psychiatrist and a psychologist, as well as Moylan-Jones and Lovatt Evans from Porton, meant that the committee agreed that those wishing to self-experiment should be 'judged on their individual merits', subject to the agreement from Porton's Human Safety Committee.

The lack of experience at Porton with mind-altering substances initially required consultation with external experts, but this did not mean that Porton scientists conceded their own authority. The 1966 discussions of the ABC regarding experiments with LSD revealed some conflict of opinion. Beswick, a Porton scientist, supported giving volunteers two doses of LSD whereas Ladell opposed it. Within Porton's hierarchical structure, Ladell was superior to Beswick and it appears that this influenced the decision not to administer two doses. Porton's director, and therefore Ladell's superior, also opposed increasing the

[375] LHC, Gassed C, WO195/ 16371, Minutes of Applied Biology Committee, 7 October 1966.

number of doses and perhaps this influenced Ladell's view too. Both Ladell and Haddon also opposed self-experimentation with LSD; however, the resolution to this conflict of views was very different. Lovatt Evans, who had worked at Porton since WWII, was in support of self-experimentation alongside his colleague Moylan-Jones and the psychiatrists employed by Porton. Despite Haddon and Ladell's positions of authority within the organisational structure of Porton, the ABC agreed to allow self-experimentation subject to the 'merits' of doing it put forward by each individual scientist wishing to do so.

This suggests that the committee was unwilling to undermine the autonomy of the scientists by imposing rigorous rules. Self-experimentation in scientific research has a long history and for some scientists it was motivated by curiosity; in others, perhaps, an 'altruistic desire to accept the same risk' as volunteers.[376] It also served to verify claims of 'truths', giving the self-experimenter increased credibility through using his own body as a 'site of evidence'.[377] Yet it remains unclear what the motivations for Porton scientists were, although there did appear to be a 'tradition' of self-experimentation at Porton that was described by a former employee as a 'moral obligation'.[378] Indeed, despite Ladell's apparent opposition to the self-administration of LSD, he had acted as an experimental subject in the past. In 1963, Ladell, along with seven colleagues, underwent multiple exposures to VX nerve agent after Porton was denied permission to use service volunteers.[379] The motivation to undergo VX experiments appeared to be driven by the inability to use Service volunteers and, therefore, the pursuit of knowledge about the action of VX on man could only be determined through scientists' own participation. Whether obliged through conscience or otherwise, such as giving the experimenter greater authority having undergone an experiment personally, self-experimentation was practiced at Porton. The scientists' autonomy over this was largely preserved despite opposition, in the

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[376] I. Kerridge, 'Altruism or reckless curiosity? A brief history of self experimentation in medicine', *Internal Medicine Journal* (2003), vol. 33, no. 4, p. 206. See also L. K. Altman, *Who Goes First? The Story of Self Experimentation in Medicine* (University of California Press, Berkeley, 1987).

[377] S. Schaffer, 'Gestures in Question' in J. Chandler, A.I. Danson and H. Hartootunian (eds.), *Questions of Evidence: Proof, Practice and Persuasion across the Disciplines* (Univeristy of Chicago Press, 1994), pp. 98-99.

[378] Evans, *Gassed,* p. 204. Self-experimentation caused one scientist at MRE, Porton, to contract plague and die in 1962, see Carter, *Chemical and Biological Defence,* pp. 126-7.

[379] WO189/ 359, Porton Technical Paper 837, Recovery of blood cholinesterase in man after exposure to VX. 1963.

particular instance of mind-altering drugs, from authoritative figures within the establishment. The contrast between taking risks with themselves and risks with volunteers suggests that risk-taking in self-experimentation was regarded as the individual's own responsibility. In the use of volunteers, Porton scientists in positions of authority were conscious not to jeopardise the establishment's research and therefore remained cautious. This element of caution was also apparent in discussions regarding the screening of potential volunteers for LSD experiments.

During the ABC meeting of October 1966, Moylan-Jones reported that in the recent trial, codename 'Recount', a number of men had been rejected prior to the experiment. This was because assessments had shown that they exhibited 'anti-social traits, anxiety, anxious/ obsessional reaction' or that 'a past history of psychiatric illness in the volunteer or in his close family history, or anyone with current severe domestic problems' had been declared.[380] Wawman added that if a psychiatrist was on hand to tend to those 'experiencing unpleasant effects' then he considered that the screening measures could be relaxed. McGhee agreed with Wawman, stating that Porton was 'over-cautious' with its screening of Service personnel when compared statistically 'even with student populations' on the incidences of adverse effects. Ladell acknowledged that initially screening procedures had been conducted under the guidance of Sir Aubrey Lewis, who was a leading figure in psychiatry as Professor of Psychiatry at the University of London and director of the Institute of Psychiatry (formerly the Maudsley Medical School). In light of the 'more experience' Porton had acquired since they first sought guidance, Ladell agreed that they could 'be relaxed'. Haddon, however, was not keen on making the screening process less stringent on the grounds that 'the occurrence of a single accident would put a stop to future tests'.

Despite invoking Lewis, the leading psychiatrist of the time, the knowledge and experience of Wawman and McGhee appeared to have greater authority. Both Wawman and McGhee were directly involved in the Porton tests as they were responsible for conducting psychiatric observations and supervision of subjects under the influence of chemical

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[380] LHC, Gassed C, WO195/ 16371, Minutes of Applied Biology Committee, 7 October 1966.

substances.[381] Ladell, who was not a psychiatrist, did not challenge the opinions of Wawman and McGhee in this instance, despite having opposed the administration of two doses of LSD before. This suggests either that their expertise and experience was considered to be superior, and therefore more reliable, or that Ladell was in agreement even though it was not recorded in the minutes of the meeting. Haddon's caution echoed his sentiment with regards to multiple administration of LSD. As Director of Porton he would have been keen to protect the establishment operationally and therefore it appears that he had a different perspective. Haddon had worked in the field of chemical defence research since 1929, assisting with the development of policy and instigating the 're-equipment of the Services for chemical defence' in the post-war period.[382] Despite being Porton's director, he lacked the scientific credentials comparable to Wawman and McGhee, and his remarks were more guided by his loyalty to chemical defence rather than to the scientific imperatives of research into LSD as an incapacitating chemical agent of warfare.

The next meeting of the committee in April 1967 confirmed that screening measures had been modified and Porton was now accepting 'borderline cases' which had in the past been rejected.[383] In terms of percentages, Porton was now accepting 50 percent of volunteers after initial screening, compared to only twenty percent prior to the unofficial relaxing of screening measures.[384] Beswick stated that 'C.D.E.E. [Chemical Defence Experimental Establishment, Porton] would like to abide by the decisions of the psychiatrist' in regard to screening procedures. Therefore, it was agreed that the presence and opinion of a psychiatrist would ensure that adequate safeguards were in place. By this time, there was a significant decline in the number of volunteers attending Porton when compared to previous years, especially those during which National Service was compulsory.[385] While it

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[381] For example, Wawman contributed an appendix to the report of the Recount trial, 'Summary of the mental state of 16 subjects treated with T3456 [LSD]', WO195/ 16660, 18 September 1967. The trial took place in September 1966.
[382] Carter, *Chemical and Biological Defence,* p. 89.
[383] LHC, Gassed C, WO195/ 16462, minutes of meeting of the Applied Biology Committee, 26 April 1967.
[384] I refer to 'unofficial' because the minutes record that 'the formal standard had not been officially relaxed' but with a psychiatrist on hand and 'increasing experience' they had accepted men who previously would have been rejected.
[385] LHC, Gassed A, WO195/ 14846, History of the Service Volunteer Observer Scheme by Wing Commander E.C.B. Bramwell, Porton note 119, 27 November 1959; WO195/ 16136, Addendum to Porton note 119, The

was not stated that this was a motive for relaxing the screening measures, it would explain Ladell's lack of opposition especially when he had been so keen not to allow multiple administrations of LSD. More cynically, it could be that by accepting a relaxation of screening measures, based on the views of experts in psychiatry, the Porton scientists were effectively absolving themselves of responsibility. Aware that screening measures impeded their research with an already limited volunteer body, by accepting the psychiatrists' opinions it helped to remedy the situation. Ladell was able to supersede the authority of committee members, yet he did not do so in this case but rather allowed the psychiatrists to be the experts without resistance.

Having explored discussions relating to the use of human subjects at Porton in tests with nerve agents and LSD, a clearer picture emerges of the mechanisms of authority. As an establishment under the general direction of the government, Porton was to an extent accountable. Nevertheless, in setting out their research agenda and explaining and defending programmes of research Porton was in effect its own authority. Its research was justified based on its importance in national defence and the credibility of the Porton scientists was based upon their superior scientific knowledge. Comparing the discussions on V-agents with those of LSD, it is evident that proximity was a significant factor in credibility. Gaddum's support for Porton's V-agent experiments was based on Porton scientists being at the cutting edge of research with their knowledge and experience. This perhaps appears at odds with how 'cutting edge' research would be defined because Porton scientists lacked full access to peer-review through publication. Yet this worked both ways because without the opinions or scrutiny of 'outsiders', as the secrecy of their work dictated, Porton scientists could not be challenged and therefore were able to justify and validate their own research. Porton conferred authority on the psychiatrists they had contracted to assist with the LSD trials acknowledging that their specialism and experience in the field was superior to that of Porton's scientists. However, it remains unclear whether this was a genuine acknowledgement or rather that it suited the Porton scientists for it to appear that way as a resolution to the external non-scientific problem of recruitment.

Service volunteer Observer Scheme at CDEE from 1959 to 1965, by Lt. Col. R.P. Bradshaw. Copies of these documents were also made available by Gradon Carter.

Porton scientists were engaged in military related research and therefore there was some involvement of the Armed Services in the research agenda. Nonetheless, it appeared that in terms of authority and autonomy, the Porton scientists were able to use the military threat as a justification for their research. At the same time, they could invoke their scientific expertise as the source of their authority. The organisational structure did not impede their research as they were able to construct their own identity as experts in a closed, esoteric field, away from external scrutiny and shielded by secrecy. Science at Porton was hardly representative of Merton's Norms, and in many ways highlights how idealised they actually were. Porton scientists were not accountable to their own profession in the same way as industrial scientists would be through publication and dissemination of research. Therefore, the relationships among scientists at Porton, and their relationship with the Ministry of Supply and its successors, were perhaps less artificial than similar institutional discourses in other settings because they were not under as much scrutiny or accountability. Bureaucracy at Porton existed but it appeared that it had little influence overall, providing that Porton could justify itself adequately.

Authority and Autonomy at the CCRU

Unlike Porton, the organisational structure of the CCRU was far less complex and involved little bureaucracy, and yet it was far more accountable. Its accountability rested not so much with the MRC as its funding body, but rather with the public from which it drew its volunteers. The CCRU provides a contrast to the complex organisational machinery of Porton that operated in secrecy. The impact of publicity, which the CCRU invited from the outset, on the authority and autonomy of its scientists meant that they were very much under public scrutiny.

The CCRU was partially funded by the Ministry of Health, up to 1977, who were financially responsible for the accommodation, maintenance of the buildings, wages of domestic staff and the cost of feeding the volunteers.[386] In contrast to the involvement of numerous scientists working in external and internal departments at Porton, the staff

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[386] FD1/3301, Letter from MRC finance officer to Treasury Valuer, 13 March 1948.

working at the CCRU was small in number. In its entire existence, the CCRU only ever had two directors - Christopher Andrewes from 1946 to 1968 and David Tyrrell from 1968 - until the closure of the unit in 1989. The duty of the director was to oversee the scientific aspects of the research, while it was the role of medical officer that had direct responsibility for procedures on human subjects.[387] The role of the CCRU's medical officer, or medical superintendent as he was also known, mirrored that of the same position in hospitals. The position of medical superintendent was that of an 'administrative head', in the context of mental hospitals at least, although responsibilities varied from being responsible for all patients within the hospital to only being responsible for the clinical side of the patients' care.[388] Initially, the first medical officer, Dr Malcolm Chalmers, had to oversee the clinical aspects as well as act as administrator.[389] The introduction of the NHS had caused some changes to the status of medical superintendent with some being reduced to 'hospital secretary' and others being offered clinical consultant positions. Those who retained the title of medical superintendent were generally lower paid than their consultant counterparts. Those not qualified for consultancy positions were regarded as senior hospital medical officers (SHMO). At the CCRU, the position of medical officer or superintendent was not solely administrative, since administrative staff was appointed to work in the unit's office, and the collection of nasal samples and administration of nose drops formed the bulk of the duties.

The matron's role in hospital care was traditionally in charge of laundry, domestic, and catering for the ward, as well as supervising the nurses. By the introduction of the NHS this had changed and matron was increasingly 'head of nursing services', with the other tasks administered to domestic staff, although within smaller hospitals matrons did continue to carry out their traditional roles.[390] The matron of the CCRU performed a similar role, although initially she was on her own until nurses were appointed at a later date; all nursing

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[387] C. Andrewes, *In Pursuit of the Common Cold*; D. Tyrrell & M. Fielder, *Cold Wars*.
[388] B. Watkin, *The National Health Service: The First Phase 1948-1974 and After* (George Allen & Unwin, London, 1978), p. 103.
[389] Andrewes, *In Pursuit of the Common Cold*, p. 5.
[390] Watkin, *The National Health Service*, p. 103.

staff were female.[391] Despite the matron's day-to-day care of volunteers, Chalmers was resident at the CCRU and initiated a 'meet and greet' session upon the arrival of volunteers, which was to ensure that volunteers were 'regarded as human beings and not just "experimental subject No. 237!"'[392] The 'Chalmers attitude', as Tyrrell called it, was adopted by the unit's longest serving staff member, Keith (Tom) Thompson, who originally worked for the unit as a driver. Thompson became the unit's executive officer and believed in unison with Chalmers that 'each volunteer was to be regarded as a VIP'.[393]

Scientific research at the CCRU was conducted within the laboratories where cold viruses were cultivated and examined which minimised direct contact with volunteers. Unlike Porton, who reported to advisory bodies, the CCRU did not operate under any direct organisation. Although it was a MRC unit, the direction of the research was internally organised and co-ordinated by the director. It also appears that the atmosphere at the CCRU was somewhat relaxed. Tyrrell noted Andrewes' paternalistic attitude towards his research staff and his 'informal' recruitment style which involved being invited to the unit, followed by a personal letter from Andrewes stating that an official offer was on its way.[394] The scientists therefore operated in a separate sphere to the volunteers and did not come into regular contact with them. Whereas Porton scientists within the Medical Division were involved in devising, supervising and conducting experiments, CCRU scientists did not have the same involvement. The 'face' of science at the CCRU was the medical superintendent, assisted by the matron, who collected daily nasal washings and applied cold virus solutions into the nasal passages of volunteers. The observation that the director, who was responsible for the organisational structure, was paternalistic suggests that authority at the CCRU operated in a different climate to the scientific and military authority that was at play in Porton. Paternalism can be interpreted as either a fatherly concern or a one-man dictatorial regime. The 'paternalistic' style of Andrewes, recruiting new staff ahead of MRC approval, gives the impression that he was very much in charge of his unit. Despite

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[391] It is not clear when nurses were appointed to assist the matron, although FD12/ 1551, Staff 1983-87, shows that there was a nursing sister in employment accompanied by a part time nurse.
[392] Andrewes, *In Pursuit of the Common Cold,* pp. 26-7.
[393] Tyrrell & Fielder, *Cold Wars,* p. 55. Thompson remained at the unit until its closure.
[394] Tyrrell & Fielder, *Cold Wars,* pp. 68-9.

having to provide periodic reviews of the work of the unit, its day-to-day running and research agenda was left to the director.

Scientific autonomy, therefore, appeared to be centred on the unit's director who assumed over all responsibility for the research agenda. The medical superintendent oversaw the day-to-day routine of collecting nasal washings and administering nose drops, assisted by the matron who was on hand to deal with all other matters to do with the care of the volunteers. The CCRU staff who engaged with volunteers had clearly defined roles that did not conflict with each other. The staff was accountable to the director who was in turn accountable to the MRC and the Ministry of Health who funded the unit. However, the extent to which the director's accountability affected his autonomy and authority can be seen within reports that were submitted periodically to the CCRU's funding bodies.

In 1956, a review of the work of the CCRU was undertaken by the MRC as the Ministry of Health's financial support for the unit was due to expire in 1957.[395] The review outlined the estimated costing figures and the staff members currently at the unit, which amounted to three scientific staff, four technicians and seven others. It then summarised the MRC's position following three visits that were conducted by MRC headquarters staff members to discuss the 'future developments' of the unit with Andrewes and his staff. It was noted that the MRC were 'impressed by the excellent organization' and 'competence' of the unit's work and the facilities for 'human volunteers' represented a uniqueness which was considered to be 'difficult to re-create if allowed to lapse'. The MRC fully supported the continuance of the unit, with the recommendation that a virologist should be secured to expand their research. Dr David Tyrrell, later to take over from Andrewes as director, had already been interviewed for the position and it was also put forward that a biochemist should also be found to assist with virological research. Finally, 'on the recommendation of Dr Andrewes' it was agreed that the unit should extend its scope into influenza and upper respiratory infections.

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[395] T227/ 629, Statement on the Common Cold Research Unit by the MRC, 12 October 1956.

Considering that the MRC review and subsequent report written by the MRC was for circulation to the Ministry of Health, Andrewes' paper was thick with scientific 'jargon' specific to his field. He explained that the initial research with animals and the cultivation of cold virus in eggs had been unsuccessful, but that success with human transmission had resulted in limited success. Although 'virus did not survive in cultures of adult nasal mucosa obtained in submucous resections … in one series of cultures a strain of common cold apparently multiplied …' which Andrewes summarised as 'early success and subsequent failure'.[396] He went on to give an overview of their work in studies of virus, the susceptibility to colds by volunteers, and the study of colds produced at the unit and their transmission. With regards to 'immediate future plans', Andrewes did not go to great lengths to justify the unit's existence but rather gave a short statement:

> We plan to follow up our partial successes with tissue cultures with the object of learning how to grow the virus regularly and to detect its growth in the laboratory. A cytopathic effect [degenerating] in cultures of animal as well as human tissues will be sought, in view of the recent developments in virus tissue-culture field. There is much recently reported work on tissue-culture of viruses which we hope we can usefully exploit.

Compared to Andrewes' description of the past work, his closing future plans were outlined very simply. The inclusion of 'recently reported' developments demonstrated that the unit kept up with current research and were proactive in building on research in the field.

The simplicity of this final piece contrasted with the scientific terminology he used to describe the work of the unit and, given that its circulation was not confined to scientists, it appears that to the lay-person this final brief statement was the most comprehensible part of the paper.[397] The first part of Andrewes' paper worked on its audience on two levels. For the uninitiated, it appeared to be blinding its reader with science but for a scientific reader it demonstrated his knowledge in the field and gave him authority as an expert. This contrasted with the section in which future directions were laid down that was simply articulated. Andrewes was seeking continued funding for the unit and therefore the clarity

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[396] T227/ 629, Appendix by Andrewes, Ten Years' work on the common cold, 12 October 1956.
[397] The letter 'T' in the files of TNA refer to files from the Treasury.

of future research plans which he outlined served to appeal to both scientific and lay persons within the MRC and the Ministry of Health. Typical of research funding applications, Andrewes was clearly stating the objectives to secure the required funding having already impressed upon the reader that he was knowledgeable and competent in his field.

The MRC seemed satisfied that the work of the CCRU provided a positive contribution to medical science. As noted, they took direction for future work from Andrewes himself, which demonstrated the high regard they had for him as an expert virologist. As its director, Andrewes provided the justification for the research of the unit and was the authority on its work as he was responsible for directing its programme of research. Progress reports were submitted to the MRC periodically which outlined the unit's research and these formed the basis upon which the decision to continue funding was made. The report for 1960-63 circulated to the MRC identified six members of scientific staff working at the CCRU.[398] The work of the unit was described and the use of 'large numbers of volunteers' in the study of viruses formed a central part of the research. Compared to Andrewes' report in 1956, this report was written in very clear language with minimal specialist terminology which made it quite comprehensible to a non-specialist. The clarity of the progress report contrasted with the statement issued jointly to the MRC and the Ministry of Health in 1956. Perhaps this was because Andrewes did not have to prove himself to the MRC in the same way as he did to the Ministry of Health. The progress reports were to keep the MRC informed of the unit's work, not to secure funding, and therefore the simplicity of language made the work comprehensible. Unlike in the case of funding applications, there was no need to demonstrate the authoritative expertise of its director. Future directions were set out very clearly as bullet points, all of which required the continuing attendance of human volunteers as 'an integral part of many investigations'. The report was accompanied by a bibliography showing extensive publication of journal articles in the medical press, which gave authority to the work of the unit as making a positive contribution to scientific knowledge through the dissemination of its work.

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[398] FD12/ 1631, Common Cold Research Unit Progress Report 1960-63, 9 May 1963.

In the absence of meetings which recorded discussions regarding the work of the CCRU, it appears that the unit's continuance was subject to the reports satisfying the MRC that their research was making a decisive contribution. Despite its apparent isolation close to Salisbury Plain, the CCRU maintained international links throughout its existence. Its contribution to 'big science' through collaboration with industries and drug firms meant that it was a unit of international importance and reputation and yet the scale of staff was by no means considerable.[399] The authority and justification for the research came from the director, delegated among the expertise and knowledge of the scientific workers at the unit and were not externally driven, other than keeping current with similar research in the field.

iii. Porton and the Common Cold Research Unit Compared

The scale of research at the CCRU when compared to that of the Porton was very different. Porton operated with various sections conducting research into aspects of chemical warfare, whereas the CCRU remained a small operation with limited facilities. However, it appears that there were some similarities in the relationship between science and scientists. At both establishments, the scientists drew their authority from their specialist scientific knowledge and expertise. The CCRU operated in relative autonomy, having only to submit periodical reports, which left the director with a free hand to guide research. Scientists at Porton did not go unchallenged, as was evident in the discussions at committee meetings, but when controversy arose it depended on the knowledge of the most suitably positioned and qualified scientists to settle the debate. External factors were important to the work of Porton and the CCRU. Both were driven by a perceived national need - on the one hand national security and on the other national health - which could be invoked when the research of the establishments came under attack. Interestingly, authority at Porton appeared to be shared among scientists whereas the authority of the CCRU's director seemed to dictate the unit's programme. Similarly, Porton scientists maintained their autonomy despite the more complex organisational structure within which it operated, whereas the individual research scientists at the CCRU appeared to be less autonomous with the director leading the research agenda. The CCRU was accountable to its funding

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[399] Tyrrell & Fielder, *Cold Wars,* ch. 8.

bodies and this accountability assured that its research focus remained clear. Porton did not have to apply for funding in the same way and therefore did not have the same concerns.

The examination of scientists at Porton and the CCRU reveal that neither reflected the stereotyped public image of a scientist. Even though it appeared that Merton's Norms accorded with the image scientists wished to project, which in turn accorded, in part, with their public image, this was not evident in this study. Both establishments conducted research that could be constructed as of national importance, while only Porton operated in a climate of secrecy which served to internalise the operation of military science. Scientific authority at the CCRU appeared to come from the director, although he had little contact with volunteers, and it was the director who set out the research agenda. This appeared to minimise conflict as there was no conflict of interest between the scientists. The authority of the CCRU scientists was displayed through publications, as they operated in a more traditional climate of research that depended on the criteria of funding and peer-review. The CCRU, therefore, appeared to function more closely with some aspects of Merton's Norms, particularly the communalism of science in the dissemination of research. However, the comparison of Porton with the CCRU also challenges the notion of a 'scientific community' as a universal body of professionals.

The scientific community of Porton was very different to that of the CCRU, operating in an isolated setting with limited external scientific engagement. Communication within the organisational structure appeared to be disconnected, as highlighted by the Ministry's lack of comprehension in the use of Service volunteers, and scientific knowledge seemed somewhat fragmented owing to the operation of various divisions within Porton. Situations where conflict arose among scientists engaged in research on human subjects at Porton seemed to emanate from three main areas - the fear that risk-taking would jeopardise the future work of the establishment; competing interests of scientists dictated by the imperatives of research; and conflict between military personnel and scientists. These themes drove the discussions and it is not easy to discern to what extent one superseded the other in decision-making. Moreover, the conflicts revealed that authority at Porton was not a unitary entity.

Authority was broken down into military authority, institutional authority and scientific authority. Institutional authority, in the form of the Ministry of Supply, had little direct involvement with volunteers, whereas military and scientific authority was what governed volunteers who attended Porton. The question of authority is important because it contributes to an understanding of the position of volunteers within the research establishment. The nature of authority is significant to how scientists perceived the role of volunteers. At Porton, military authority had an informing place as volunteers were recruited from the Armed Services and remained under military orders. Scientific authority governed the direction of their use as experimental subjects but there was not a clear divide between scientific and military authority, especially when military personnel were also scientists. Service personnel, trained to obey orders, were accustomed to receiving scant information and therefore the Porton scientists recognised that as human subjects in secret tests, it was less challenging to recruit from the Armed Services than it would be from the general public. The issue of military authority is significant and the following chapter explains the structure of military authority in more detail to bring out the issues for recruitment. The following chapter also addresses scientists' perceptions of the role of volunteers and how this was influenced by their authority. Furthermore, it explores how such perceptions were shaped by the expectations of the scientists and the research agendas.

Chapter VI. Institutional Definitions of Volunteers for Human Experiments in Military and Civilian Contexts

The analysis of authority and autonomy at the CCRU showed how the need to make use of the general public was of the highest priority and the simple organisational structure ensured that conflicts were minimised. At Porton, in contrast, it was demonstrated how organisational structures and hierarchical knowledge shaped the decisions made with regards to human experiments and illustrated the competing interests of the sub-groups of ministers, the Armed Services, and the scientists. It also demonstrated that authority came from three 'camps'- military, science and the institution - which is particularly pertinent to this chapter when examining how the definition of the volunteer reflected the interests of these groups. This chapter shows how the institutions of Porton and the CCRU defined the volunteer and the extent to which the definitions were guided by the status of the experimental subjects. It argues that the institutional construction of the volunteer was determined by the research needs of the establishments and the types of volunteers used. The volunteer question at Porton was so central to their research requirements that studies were undertaken to probe the psychology of Servicemen who attended Porton to ascertain whether a volunteer 'type' could be discerned.

The social structure and organization of the Armed Forces, in particular the institutionalisation of obedience to authority, is pertinent to this study because of the use of Servicemen as experimental subjects and the presence of military authority within Porton. Discussions that took place regarding the nature of the volunteer acknowledged that military authority was a factor in defining the volunteer. Moreover, the use of Service personnel in experiments, other than at Porton, was the subject of discussions which identified different categories of volunteers. These discussions demonstrate that Porton Service volunteers were considered to be somewhat different to Servicemen used in experiments by other research bodies. This enforces the argument that the definition of the volunteer was specific to the cultural framework within which research was undertaken.

The CCRU recruited from society in general and the need to foster the goodwill of the British public was acknowledged from the outset. Institutional discussions relating to the CCRU volunteer were limited but its volunteer-centred approach and transparency towards potential volunteers was deliberately constructed to court enthusiasm. In contrast, secrecy prevailed at Porton and the use of Service personnel ensured that secrecy was maintained. Discussions and exchanges between advisory committee members, government ministers and Porton staff provide an insight into how the institutional definition of the Porton volunteer was shaped by the scientific requirement for experimental subjects within the parameters of military authority.

i. Military Culture as the Context of the Service Volunteer

The Armed Services during the period of this study comprised of Regulars and National Servicemen, up to the end of conscription in 1963, who were barracked alongside Regulars for their basic training before being posted. Both were governed by the same discipline but there appeared to be some differences in how Regulars and National Servicemen were conceptualized by each other. From the point of view of National Servicemen, who were forced to complete a period of National Service, Regulars were apparently considered by National Servicemen to be defective, or 'thick', for choosing to make a long-term commitment to the Armed Services.[400] Conversely, Regulars were frustrated by a 'continuous trickle of partially trained National Servicemen' who no sooner were trained were then returned for release.[401] The hierarchical structure of the Armed Forces with Non-Commisioned Officers, Officers and other ranks caused a degree of tension which co-existed with a certain amount of division between the 'professional soldier' and the conscript. Trevor Royle's compilation of recollections from ex-National servicemen recalls these tensions: Regular officers feeling threatened by better educated conscripts; resentment by conscripts towards the authority of military superiors who were 'intellectually inferior'; and the graduates who found themselves among many young recruits whose educational

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[400] D. Morgan, *'It will make a man of you': notes on national service, masculinity & autobiography* (University of Manchester, 1987), p. 63.
[401] Field Marshall Lord Carver, *Britain's Army in the Twentieth Century* (Macmillan, London, 1998), p. 328.

standards were minimal featured in many impressions of National Service life.[402] Arnold Wesker's play, *Chips With Everything*, about a group of RAF conscripts, draws into stark contrast the assemblage of attitudes towards social classes and education by officers and conscripts who found themselves involuntarily thrown together.[403]

There were similar issues of division between the three branches of the Armed Services, the Army, the Royal Air Force (RAF) and the Royal Navy (RN). The Army was the largest of the Forces, having the strength of 305,000 in 1950 made up of 155,000 National Servicemen.[404] In comparison, the Royal Navy had 144,500 enlisted in 1949, of which merely eleven percent were conscripts.[405] Only around a third of National Servicemen entered the RAF, with a far smaller number, one in 46, joining the RN; the Army comprised of largely unskilled persons and in terms of status, it ranked below the other two Services who valued skilled operators.[406] The Royal Navy expressed concerns regarding the post-WWII continuation of National Service on the grounds that it took 10,000 men to adequately train conscripts and so further stretched their manpower.[407] In any event, the Navy only recruited those with relevant skills and who passed an intelligence test which led to 'a good conceit of themselves'.[408] Similarly, the RAF used an intelligence test for entry and therefore the Army took all those who were unable, or unwilling, to pass the tests imposed by the other Services. When the end of National Service was announced in the 1957 Defence White Paper, the three Armed Services consisted of 690,000 personnel of whom 300,000 were National Servicemen; only 164,000 of the 373,000 Army personnel were regulars.[409] This resulted in a vast reduction in the strength of the UK's Armed Forces, in particular the Army. Nevertheless, both National Servicemen and Regulars were

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[402] T. Royle, *The Best Years of their Lives* (Hodder & Stouton Ltd, Kent, 1988), p. 59; p. 74; p. 73. The latter aspect, the diversity in education, was a strong feature of David Lodge's fictionalised account of his personal experience of military service in *Ginger You're Barmy* (Penguin Books, London, 1988. First published in 1961).

[403] A. Wesker, *Chips With Everything* (Jonathon Cape, London, 1966). The play was first staged at the Royal Court Theatre on 27 April 1962.

[404] C. Bartlett, *The Long Retreat: A Short History of British Defence Policy, 1945-70* (Macmillan, London, 1972), p. 27.

[405] E. Grove, *The Royal Navy since 1815: A New Short History* (Palgrave, Hants, 2002), p. 215.

[406] Morgan, *'It will make a man of you'*, pp. 8-9.

[407] Grove, *The Royal Navy since 1815*, p. 215.

[408] Royle, *The Best Years of their Lives*, p. 63.

[409] Carver, *Britain's Army in the Twentieth Century*, p. 407.

governed by the same regulations, formal and informal, within the ethos of military culture, which was characterized by authority through orders and the hierarchical command of personnel.

The sociological notion of authority puts power and authority in a 'circular relationship' whereby a person with authority is automatically conferred with power because of his or her status; authority is further augmented when it reinforces commonly held values of a group or society in general.[410] Military obedience conforms to the sociological interpretation of authority through regimentation, hierarchical command and the giving of orders which reinforce the social values of the military as well as the organizational duties. Military orders are complied with not out of obligation, but rather because Service personnel are compelled to obey through the exertion of authority and invoking social control through conformity to the norms of military conduct.[411] As an organization, the military represents a 'nomic community', creating and sustaining their own norms and mechanisms that uphold the military ethos.[412] The Army Act of 1955, the Air Force Act of 1955 and the Naval Discipline Act of 1957, and their predecessors, were the legal instruments that governed military law. These set down that all Service personnel subject to military law who failed to obey a 'lawful command (by whatever means communicated to him)' were liable to incur punishment and potentially a prison sentence.[413] Therefore obedience to orders was enforced by law as well as through the processes of regimental discipline.

The conditioning of new recruits to obey orders was entrenched in basic training that was undergone which stripped away individuality and replaced it with group functioning. This served to create solidarity among military units and therefore obedience to orders took on another dimension whereby the failure of one person to comply with an order could have resulted in the whole unit being punished. 'Jankers', the name given to meaningless tasks

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[410] N. Keijzer, *Military Obedience* (Sijthoff & Noordhoff, Alphen aan der Rijn, 1978), pp. 19-20.
[411] Keijzer, *Military Obedience*, p. 17; p. 48.
[412] M. Osiel, *Obeying Orders: Atrocity, Military Discipline & the Law of War* (Transaction Publishers, New Jersey, 2002), pp. 164-5.
[413] Sections 34 and 36 of the Army Act, which accorded with the Acts of the other Services, quoted in Osiel, *Obeying Order*, p. 77.

such as whitewashing coal or weeding with a knife and fork, were imposed to break the will of those who did not conform and 'become conditioned to respond to any order, however absurd'.[414] One National Serviceman's recollection of his call up described how 'individualism disappeared' as civilian dress was replaced with military issues and conscripts were subjected to the routines of military life, but that 'fellowship developed out of our common trials and tribulations'.[415] Described as 'the cardinal military virtue', loyalty to one's comrades has been acknowledged as extremely important in the cohesion of military units for centuries.[416]

Fellowship, solidarity and camaraderie, whatever label was used to describe the bonds created between Service personnel, helped to make them into a cohesive (potential) fighting force and remained part of the process of constructing military order through authority.[417] Military discipline was instrumental in creating solidarity and *esprit de corps* to weld units together, despite their often very different backgrounds.[418] The structure of military authority appeared to be a complex one, that worked both formally and informally, and the enormous amount of written orders archived give testament to the importance of regulations in the effective administration of the Armed Services.[419] The construction of the Service volunteer has to be placed in the context of military authority and culture which shaped institutional definitions. In contrast, the MRC discussions of the use of volunteers centred on ensuring the 'goodwill' of the general public to whom they were appealing.

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[414] Lodge, *Ginger You're Barmy,* p. 90. One National Serviceman described the 'misery of 'jankers' imposed by the 'bully boys' at training camp, quoted in Royle, *The Best Years of their Lives*, p. 48.
[415] Quoted in Carver, *Britain's Army in the Twentieth Century,* pp.313-4. See also Royle, *The Best Years of their Lives,* expressed by one man as 'The only relief from this purgatory was the extraordinary comradeship, solidarity and human warmth of the barrack-room', p. 48.
[416] F.M. Richardson, *The Fighting Spirit: A Study of Psychological Factors in War* (Leo Cooper Ltd, London, 1978), pp. 7-13.
[417] Morgan, *'It will make a man of you'*, p. 29.
[418] Royle, *The Best Years of their Lives,* p. 50.
[419] TNA holds copious amounts of administrative orders for the three Armed Services.

ii. 'Many potential sources': Common Cold Research Unit Discussions on the Nature of the Volunteer

Christopher Andrewes officially approached the MRC for financial support for a centre dedicated to the testing of the common cold on human subjects in March 1946.[420] Approval was swift, coming only a month later when Edward Mellanby, secretary of the MRC, responded that the MRC was prepared to co-support the project.[421] Prior to this, a meeting of eight scientists had occurred in February 1946 which included Andrewes and his friend William (Bill) Bradley, a Ministry of Health medical officer.[422] The CCRU's first Press release was headed 'RESEARCH INTO THE COMMON COLD. Special Unit set up: Students as Volunteers.'[423] The Press release explained that 'as a check on [researchers'] laboratory studies', volunteers were required to test cold viruses who 'will for the time be drawn from men and women students at the universities'. It went on to inform that university students were 'carefully selected, because special qualities are needed and an exact discipline must be maintained', therefore 'applications from the general public cannot be entertained'. The reason for the decision to use students as subjects in the unit's first year is not altogether clear, although perhaps it came from Andrewes' own experience as a medical student and the practice of using the student body as volunteers.[424] Some further consideration was given to which sections of society should be used. Shortly after the unofficial meeting of Andrewes, Bradley and others in February 1946, Bradley wrote to Andrewes on the issue of volunteers stating,

> ... you already know that I am not very happy about prisoners and service personnel and that I believe that free volunteers are best. There are many potential sources apart from undergraduates and I do not think we should have difficulty in getting volunteers provided they were approached in the right way and with great enthusiasm.[425]

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[420] FD1/ 3302, proposal of research programme sent to the MRC secretary, Edward Mellanby, 8 March 1946. Unless otherwise indicated, files in this chapter were obtained from TNA.
[421] FD1/ 3302, letter from Mellanby to Andrewes, April 1946.
[422] Tyrrell & Fielder, *Cold Wars,* p. 52.
[423] FD1/ 3301, Press release, 21 May 1946. Capitalisation in the original.
[424] Andrewes was a medical student as St. Bartholomew's Hospital, London. For a brief biography see, D. Tyrrell, 'Andrewes, Sir Christopher Howard (1896-1988)', rev., *ODNB,* www.oxforddnb.com/view/article/40059, accessed 1 August 2007.
[425] Letter from Bradley to Andrewes quoted in Tyrrell & Fielder, *Cold Wars,* p. 52.

Bradley's attitude towards the use of prisoners and Service personnel was perhaps informed by his own experience as a member of the MRC's wartime Jaundice Committee that met between March 1943 and May 1945, which was set up to investigate the transmission of jaundice.[426] Initially, experiments were performed on patients with rheumatoid arthritis, based on Bradley's suggestion that earlier literature had reported some benefit to the sufferer following jaundice in terms of remission of symptoms of arthritis, but later requests were made to use Service personnel and prisoners. Permission to use either was refused and the Ministry of Health then became anxious that Bradley's name was associated with these experiments that had deliberately infected patients with jaundice. This was out of concern that there would be a public outcry because the experiments demonstrated that blood transfusions were the cause of some cases, including fatalities, of jaundice in the war.[427] As Stanton's research on the MRC jaundice experiments shows, the 'volunteers' were not informed that the purpose of the experiments were to study transmission, but rather were led to believe that they were of therapeutic benefit. Moreover, when it was felt that the experiments could no longer be conducted on arthritic patients owing to their dubious ethical nature, the studies appeared to be completed on military prisoners in America.[428] From July 1944, Bradley was no longer associated with the Jaundice Committee but the discussions which the Committee had over the use of prisoners, Service personnel, and inmates of asylums and monasteries gave him some insight into the associated difficulties that volunteer recruitment involved.

As both a friend and a colleague to Andrewes, it appears that Bradley's advice on volunteers was taken up and the last piece of advice on approaching subjects in 'the right way' and with 'great enthusiasm' remained a guiding principle which the CCRU continued to use. However, initially the information given to potential volunteers appeared rather more formal and austere than enthusiastic. In January 1947, the literature put together by Andrewes for distribution to volunteers began: 'Failure to solve the puzzle of the common

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[426] J. Stanton, 'Wartime Medical Research council Jaundice Committee Experiments' in Goodman et al, (eds.), *Useful Bodies,* pp. 109-132.
[427] Stanton, 'Wartime Medical Research council Jaundice Committee Experiments', pp. 117-8.
[428] FD1/ 6952, letter from De Witt concerning faecal samples sent to America.

cold is a constant reproach to the medical profession ... a team of workers [...] is now making an attack on this difficult problem.' The military tone with the use of the word 'attack' continued throughout, referring to volunteer isolation as 'solitary confinement', time away from the site as 'on parole', and the accommodation as 'quarters', as well as informing volunteers of the 'strict discipline' required of them.[429] The site was also described as 'the Camp' in the information given to volunteers upon arrival and again trips off site were referred to as 'parole'.[430] The Harvard Hospital's military use in WWII and its original purpose of construction as a military hospital seemed to influence its description even after it ceased as a military facility and despite the regimental references, 129 volunteers were secured in the first year. Yet there was perhaps another reason for this. In 1947 it was proposed that a volunteer panel be formed, along the lines of the register of conscientious objectors, from which subjects would be drawn for experimental work at the CCRU.[431]

The 'national panel' was envisaged to assist with 'a continuous flow of volunteers' following the first year which attracted students, Voluntary Aid Detachment nurses, and industrial workers but which were, at the start of the second year, 'proving insufficient' to source volunteers from throughout the year. By enrolling on the panel, volunteers would be secured for experimental work and the unit would have a register of volunteers for future tests. The establishment of the Sorby Research Institute which used conscientious objectors as subjects for a series of experiments on scabies and vitamin deficiencies during World War Two perhaps provided a model for the CCRU. Indeed, the investigator who set up the Sorby, Kenneth Mellanby (nephew to Edward Mellanby, the secretary of the MRC), considered that his model of acquiring research subjects provided a prototype for experimental work which could be developed in other settings using volunteers not confined to pacifists.[432] Mellanby's 'ideal plan' was the utilisation of a 'large country mansion' in 'one of the pleasanter parts of the country' which would attract volunteers as a

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[429] FD1/ 3300, Notes for volunteers, 10 January 1947.
[430] FD1/ 3300, Routine during the trial, January 1947.
[431] FD1/ 3300, Information on national panel of volunteers, January 1947.
[432] K. Mellanby, *Human Guinea Pigs* (Victor Gollancz, London, 1945).

break from city life and also attract undergraduates in the summer months.[433] The CCRU was later considered to be 'a project partially foretold' by Mellanby when his revised edition of *Human Guinea Pigs* was published in 1973.[434] He also proposed that 'a permanent nucleus of volunteers' would be required, similar to the national panel Andrewes envisaged. However, there is no evidence that this national panel actually came into existence and the militaristic language used was not conveyed in press reports following the unit's first press conference in January 1947.[435]

Rather, future dealings with the press and the public tended to revert to the advice of Bradley. The publication in 1965 of Andrewes' book, *The Common Cold,* continued to adhere to the principles of goodwill and enthusiasm when he wrote:

> ... there is still a need for volunteers and the Medical Officer will be overjoyed to hear of people who would like to help in unravelling this problem and have a ten-days free holiday while doing so.[436]

Eight years later, Andrewes had published *In Pursuit of the Common Cold* and referred to the 'public goodwill' which had made the results of the unit obtainable.[437] With reference to the nature of volunteers, he stated that CCRU scientists and staff had 'not thought it right' to use either 'mental defectives or prisoners: the latter group cannot be regarded as free agents (in a psychological sense)'.[438]

The CCRU, as a research facility dedicated to the on-going use of volunteers for primary research drawn from the general public, had no precedent to follow. However, although the Sorby Research Institute used conscientious objectors and not the general public, there are notable similarities between the two. The Sorby volunteers were paid as subjects and given full board, as were the CCRU volunteers, but of greater significance was the way in which volunteers were engaged in the research project. Mellanby asserted that 'one thing only was essential in the managing of the volunteers in these experiments, and that was to be willing

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[433] Mellanby, *Human Guinea Pigs*, pp. 95-6.
[434] Mellanby, *Human Guinea Pigs* (Merlin Press, London, 1973), p. 16.
[435] FD1/ 3300, cutting from *The Times,* 21 January 1947.
[436] Andrewes, *The Common Cold* (Weldenfeld and Nicolson, London, 1965), p. 179.
[437] Andrewes, *In Pursuit of the Common Cold* (William Heinmann Ltd, London, 1973), p. 108.
[438] Andrewes, *In Pursuit of the Common Cold*, p. 22.

to take the trouble in explaining in detail just what was the purpose of anything which we asked them to do.'[439] From the outset, CCRU volunteers were furnished with a description of the procedures involved and the reason for the tests conducted at the unit. Given that both started out as collaborative projects between the Ministry of Health and the MRC, it is possible that the CCRU looked to the methods of the use of volunteers at the Sorby and modelled their practices on it.

Discussions on which sections of society should have been selected for experimental work at the CCRU do not appear to have been extensive. Clearly the intervention by the Ministry of Health, in the form of Bradley, had some influence on the decision to use only adults of sound mind and not captive populations. Perhaps it was through the Ministry's knowledge of the work of the Sorby and Mellanby's book that was published shortly after the war that some of their practices in the use of human subjects became embedded in the CCRU.[440] It was the transparency with which the CCRU operated in regards to the information given to volunteers and the desire to court their goodwill that was characteristic of the CCRU. The volunteer-centred approach that manifested in the 'enthusiasm' conveyed to potential volunteers remained the central tenet of volunteer recruitment and ensured that volunteers continued to be attracted to the unit. The research aim of the unit, to discover more about the common cold, was of collective benefit and therefore accorded with the government's socio-political agenda. Moreover, the 'medical' aspect of the CCRU's work positioned it alongside the NHS and distanced it from the negative image of science. Yet in contrast, discussions at Porton regarding the nature and role of volunteers were far more contentious.

iii. 'Securing volunteers': Discussions on the Nature of Volunteering in the Military

It is estimated that over 20,000 men and women have been used as 'volunteers' at Porton under the 'Service Volunteer Observer Scheme', although in the period under study here women were not permitted to attend Porton as volunteers.[441] The extent to which ministers were involved in the issue of volunteer recruitment is unclear due to the incompleteness of

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[439] Mellanby, *Human Guinea Pigs* (1945), p. 31.
[440] The CCRU's second director, Tyrrell, was a student at Sheffield and during his time there observed Mellanby's experiments, Tyrrell & Fielder, *Cold Wars*, pp. 155-6.
[441] This figure is that given by Carter, *Chemical and Biological Defence,* p. 121. However, Evans estimates the figure to be nearer 30,000, see *Gassed,* Appendix I, pp. 365-367.

the historical record; although it appears that only after the death of Maddison did discussions take place over the nature and meaning of being a Porton volunteer.

In December 1953, an internal minute from the Permanent Under Secretary (PUS) of State for War noted that ministerial permission for the continuance of nerve gas tests should be granted following the recommendations of the Adrian Committee that was set up after the death of Maddison, but that attention should be given to the recruitment of volunteers.[442] He stated that he was not altogether happy that only Servicemen were used as subjects 'because I am sure the public dislike the idea'. Moreover, he felt that the public were not 'comforted' by 'assurances' that the Servicemen were volunteers. Therefore he proposed that administrative instructions should be made 'abundantly clear that the volunteering must be genuine' and in the event that 'free volunteers' were not obtained in adequate numbers, 'the Ministry of Supply will have to offer more attractive terms'. The PUS displayed some uneasiness with current practices which he suggested did not make it wholly transparent that volunteers for Porton should have been 'free' and 'genuine'. His solution was to offer better remuneration as an incentive, and furthermore he suggested that civilians were also used.

It was not until 1961 that any further consideration was given to the use of civilians in tests at Porton. In a letter from Eric Haddon, Porton's director, to J. E. Gale at the Ministry of Supply, Haddon confirmed that it would be possible to accommodate up to ten civilian volunteers at Porton.[443] Attached to the letter, set out as a table, a comparison of the 'indication of tests proposed' was given between the Armed Services and that which might have been used for civilian volunteers. The comparison outlined that the wording of proposed tests at Porton was different in each of the Services. For the Army, the briefing was as follows:

> The tests carried out at CDEE are carefully planned and are arranged so as to eliminate all foreseeable danger. They are carried out under expert medical supervision and any physical discomfort which may result form them is

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[442] WO32/ 20843, internal minute from PUS to A.G., 14 December 1953. I have not been able to identify A.G. or the name of the PUS whose initials were given as G.W.T.
[443] WO32/ 20843, letter from Haddon to Gale, 17 August 1961.

> usually very slight. During their stay, volunteers are not required to carry out military duties or fatigues, and they are free every evening, subject to the exigencies of their tests.[444]

This appeared to be a fairly detailed overview, which claimed that the tests were closely monitored and assessed to ensure the safety of participants, and further offered reassurance that potential volunteers would be under 'expert' supervision. It also alluded to the benefit for the individual who would be permitted ample leisure time and freedom from military routine.

The indication given to the Navy was briefer with reference to the tests, stating that 'The tests are carefully planned and are carried out under medical supervision'. It went on to outline the potential amount of extra pay that could be earned, which 'on average' was 40 shillings a week, and the freedom from duties on offer. Haddon claimed that the RAF was 'more forthcoming' in its description:

> The tests carried out at the CDEE provide important information that is of benefit not only to the Services but to the nation. They are carried out under expert medical supervision and any physical discomfort which may result from them is very slight. During their stay, volunteers are not required to carry out duties or fatigues, and they are free every evening, subject to the exigencies of their tests.[445]

However, as can be seen, whereas the Army description asserted that physical discomfort was 'usually very slight', the RAF description omitted the word 'usually' which gave an altogether different impression. It is difficult to see how the RAF description of Porton tests could be described as 'more forthcoming', when compared to the Army's description, as it makes no reference to the planning of the tests or 'danger'. Moreover, the opening line of the RAF's indication of tests at Porton was not so much 'more forthcoming' than the other two, but more psychologically astute. It alluded to the indoctrination of patriotism and duty in Service personnel who served the monarchy and the nation. This sentence framed the work at Porton in the institutional ethos of military culture.

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[444] WO32/ 20843, table comparing wording of calls for volunteers to Porton issued to the Armed Services attched to Haddon's letter to Gale, 17 August 1961.
[445] WO32/ 20843, table attached to Haddon's letter, 17 August 1961.

In relation to the composition of the Armed Forces at that time, it appears that the largest of the Armed Forces, the Army, with the greatest number of National Servicemen were given more details about the work of Porton. The Navy, comprising of far fewer National Servicemen, were given the least information, while the RAF additionally invoked patriotism to their force which was two thirds Regular Service Personnel and considered to be the elite of the Armed Services. The description given to the Army, which consisted of over half of the total strength being National Servicemen, was worded in an articulate manner that gave expert justification for the tests. Considering that the Army comprised of a large number of unskilled young National Servicemen, many of whom were bored with the monotony of military life, the description hinted at the opportunity to participate in medical science while offering an escape from military routine. The lack of information given by Navy, the smallest of the Armed Services with the lowest number of National Servicemen, was perhaps explained by the shortage of Regulars and the operational necessity to utilize National Servicemen (even though the Navy were not in favour of post-WWII conscription). Therefore, the social diversity within the Armed Forces and the perceived status that each carried over the other may have influenced the construction of the wording.

In a separate 'comment' column, it was noted that 'Experience has shewn that detailed description tends to deter the Serviceman and so now very little is said'. This directly contrasted with Mellanby's advice on the management of volunteers, that the investigator should 'take the trouble' to provide detailed explanations.[446] However, the issue of secrecy limited the amount of information that could be imparted, regardless of whether more or less detail of the nature of the experiments would dissuade or persuade potential volunteers. With regard to civilian volunteers, it was considered that the wording of any recruitment material directed at a civilian population needed to be 'carefully phrased' with as 'fewer details the better' to avoid attention from the press, but at the same time they needed to be cautious not to be 'accused of "insulting the public's intelligence".[447]

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[446] Mellanby, *Human Guinea Pigs* (1945), p. 31.
[447] These discussions did not come to fruition as civilian volunteers were not recruited as subjects.

The concern that the public's intelligence was not insulted by providing inadequate information did not seem to be mirrored in the treatment of Service personnel when calling upon them to take part in tests. This perhaps suggests that Servicemen had prior knowledge of Porton and some idea of the work it carried out. Clearly the full name of Chemical Defence Experimental Establishment, Porton Down, gave an indication of the nature of the establishment's work but there is some evidence that suggests otherwise. In a paper presented to the Biology Committee in 1968 on the difficulties of securing volunteers experienced by Porton, it was concluded that:

> Undoubtedly the basic difficulty in securing volunteers is that of ignorance at unit level of firstly the existence of the [Volunteer Observer] scheme and secondly of its importance to the Services themselves.[448]

It appears odd that Kemp and Beswick, the authors of the paper, would claim that the scheme was relatively unheard of because calls for volunteers were at this time being regularly published as Defence Council Instructions (DCIs).[449] Moreover, despite their own acknowledgement that 'in certain circumstances [which were not spelled out] potential volunteers are actually dissuaded by their unit Commanding Officer from coming to Porton' they did not consider that this was a significant factor in the problem of attracting volunteers. In an earlier report by a Service Experimental Officer at Porton, Lieutenant R. P. Bradshaw, the problem of 'publicising the scheme adequately' was also acknowledged, as was the fact that lectures given at the nearby Nuclear, Biological and Chemical Defence School at Winterbourne Gunner by Porton Service Medical Officers had failed to increase the number of volunteers attending.[450] However, Bradshaw pointed out that another reason for the falling numbers was that the wording of 'administrative instructions' issued to units was deterring potential volunteers.

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[448] WO195/ 16686, Statement on volunteer observer scheme at the Chemical Defence Experimental Establishment, c. May 1968. In the appendix to this document the weekly intake figures are listed up to April 1968, suggesting that the report was written shortly after.
[449] The distribution of DCIs will be discussed in detail below.
[450] WO195/ 16136, Porton note 119, The Service Volunteer Observer Scheme at CDEE from 1959 to 1965, 28 October 1965.

Prior to the re-organisation of the Armed Services under the Ministry of Defence from 1964, when DCIs became the standard form of circulating administrative information, administrative matters were issued in letter form from the War Office to the other Service ministries. This was then circulated to the units as Army Council Instructions, Admiralty Fleet Orders, and Royal Navy Standing Orders. In January 1962, a meeting between Porton's Service Experimental and Medical Officers, chaired by the Assistant Medical Director of Porton, William Ladell, was held, whereupon it was agreed that the administrative instructions issued by the War Office in 1960 and 1961 were 'unfortunate as [they] probably deterred some potential volunteers'. The contentious paragraph was quoted:

> The tests carried out at C.D.E.E. are carefully planned and are arranged so as to eliminate all foreseeable danger. They are carried out under expert medical supervision and any physical discomfort which may result from them is usually very slight.[451]

Accordingly, it was apparently agreed that the paragraph be 'recast, omitting any reference to physical discomfort and danger', and a revised administrative instruction was attached to Bradshaw's paper. This was the form which administrative instructions took when issued in 1962 and 1963, according to Bradshaw, which included some indication of the types of tests undertaken, such as 'work with respirators, protective clothing, decontaminants and studies of the effects of small, safe concentrations of various drugs'. The reference to 'physical discomfort' was changed to read that the tests 'result in little or no discomfort to the individual' and 'foreseeable danger' was dropped completely from the wording. However, the recently published *Historical Survey* (2006) notes that despite Porton's assertions that the wording was changed, the new wording did not, in fact, appear in Admiralty Fleet Orders issued to the Navy in 1962 or 1963. The *Historical Survey* deduced that there was a suggestion that 'the statements of risk which appeared in recruitment notices were tempered by the desire not to deter volunteers from coming forward.'[452]

Nowhere in the above discussions and comments relating to volunteers, by ministerial or Porton officials, was there any indication that a volunteer was defined as someone who had

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[451] WO195/ 16136, Porton note 119, The Service Volunteer Observer Scheme at CDEE from 1959 to 1965, 28 October 1965.
[452] MoD, *Historical Survey,* p. 313.

prior knowledge of what they were volunteering for, as medical ethics codes have dictated. This suggests that there were a different set of 'rules' at work which exempted Porton from following procedures implemented elsewhere when Service personnel were used as experimental subjects. From time to time, requests were made to the Army by researchers who wanted to use Army personnel in experiments. In 1965, a request was made by Colonel Keith Stephens, Advisor in Anaesthetics, on behalf of Professor J. P. Paynes, Director of the Research Department of Anaesthetics at the Royal College of Surgeons, for six soldiers to assist with research.[453] This experiment was supported by the Director of Army Surgery and the proposal was passed to the Army Medical Directorate (AMD) for 'official sanction'. The purpose of the investigations which required six men in turn for one day was to investigate 'suitable tests for fitness to drive motor vehicles', which was a project endorsed by the Home Office and the Ministry of Transport. The Army volunteers requested were 'healthy adults ... accustomed to drinking alcoholic beverages' who would be given gin to drink and then have samples of blood (through venupuncture), breath and urine extracted from them.

The Director of Army Surgery, in making his case for the official sanction of this experiment, presented supporting documents on prior policy of using Servicemen as subjects. In 1959, the Army Medical Directorate (AMD), which was responsible for developing policy for the Army Medical Services (AMS), set down that there were two categories of volunteers. The first category referred to subjects who were used to obtain samples of blood through pin pricks, and to whom injections with 'harmless liquids' were administered. 'Category II' was those who were subjected to vein puncture 'with or without previous test vaccination [i.e. whether or not the vaccine was in use or was under development and required to be tested]'.[454] In the case of category I procedures, indemnity certificates were not required to be signed. Instead, affirmation from their commanding officer 'to confirm that they are true volunteers' was considered sufficient. Category II volunteers, however, 'might be asked to certify that they are true volunteers', although

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[453] WO32/18677, Loose minute from the Director of Army Surgery to Army Medical Directorate (AMD), 5 March 1965.
[454] WO32/18677, 'Proposal regarding army volunteers for medical investigations sponsored and controlled by the Army Medical Directorate', 1959.

these volunteers 'should not be asked to certify that they have been given no inducement. (It should be noted that an inducement is offered to "observers" at CDEE, Porton).' Clearly, when deciding policy on the use of Army personnel as experimental subjects for the AMS. there was a conscious awareness that policy should not conflict with Porton's use of Service personnel as subjects.

In March 1960, a loose minute from the Director of Pathology, Deputy Director-General of the Army Medical Services (DDGAMS) to the Directorate, Personal Services (Army) (DPS), set out the position of using military personnel as subjects. This expanded on the issue of inducement which was deliberately omitted in the categorization of volunteers from the Army. In defining 'the conditions of acceptance' of a Serviceman as a volunteer for an experiment, it stated that:

> If a man is not a volunteer but is under orders, or is a volunteer after threat or inducement, the responsibility for compensating the individual in the event of a mishap would fall on the officer or other person in authority giving such an order, threat or promise and not on the State.[455]

In the AMD's policy of 1959, references to 'inducement' were to be omitted because of Porton's policy of paying volunteers for tests. The DDGAMS' acknowledgement that 'a volunteer after threat or inducement' could not be indemnified by the State highlighted the reason for omitting any references to inducement. However, volunteers at Porton who, by receiving payments for tests were, by definition, in receipt of an inducement, were still the responsibility of the State because Porton was a State-funded military research facility. In response to the DDGAMS, the DPS replied that indemnity certificates were 'to ensure, as far as we could, that a soldier who volunteers to undergo an experiment is not only a true volunteer but could be shown, should the necessity arise, to have been a true volunteer'.[456] Evidently, the classification of a 'true volunteer' was defined in comparison to 'a volunteer after threat or inducement'; yet it appears that in the Army a Serviceman who had been in some way coerced to take part in an experiment could still be considered a volunteer.

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[455] WO32/18677, DDGAMS to DPS, 4 March 1960.
[456] WO32/18677, Loose minute, DPS to DDGAMS, 11 March 1960.

While the exchanges between personnel of the AMD are somewhat piecemeal, the AMD's policy on the use of Army personnel in experiments clearly emerged by 1967. This set down that soldiers could only be used as subjects in experiments of direct benefit to the Armed Services if it did not interfere with their ability to perform their military duties. Furthermore, it was required that they 'each sign a certificate that he takes part of his own free will and without inducement, threat or fear of punishment'.[457] This conflicts with the resistance to consent forms by Porton because they had caused a decline in numbers of volunteers.[458] The same was observed by the DDGAMS who acknowledged that the signing of indemnity certificates could cause volunteers 'to interpret its implications in exactly the opposite sense', resulting in them believing that they were absolving the State from responsibility.[459] Furthermore, he outlined that the act of signing an indemnity certificate in the belief that it was for the purpose of absolving the State's responsibility could result in potential volunteers assuming that 'the risk must be considerable'. However, the DDGAMS remained resolute that when the 'true reason' was explained, it would not deter potential volunteers from taking part. Porton did not share in the DDGAMS's opinion on the signing of indemnity certificates (consent forms). This suggests either that the implication of risk by potential volunteers at Porton was too strong to be overcome by offering the 'true reason' for the tests, or that perhaps Porton did not try hard enough to explain the purpose of the indemnity certificates.

So it appears that indemnity certificates, or 'blood chits' as they were referred to, were not used at Porton even when other branches of the military establishment were endorsing their use as a matter of policy. The use of volunteers at Porton was of direct and specific benefit to the Armed Services and the research conducted informed upon the protection of Service personnel against chemical agents in warfare. Therefore, it corresponded with the AMS' policy on the use of military personnel as experimental subjects.[460] However, the primary

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[457] WO32/18677, Internal minute from Assistant Adjutant-General, Army Medical Services to Army Medical Directorate (7), 4 December 1967.
[458] LHC, Gassed Collection, DEFE7/1451, minutes of a meeting to discuss chemical tests on service volunteers at CDEE, 21 December 1959.
[459] WO32/18677, DDGAMS to DPS, 4 March 1960
[460] The only area of research in which the Services took an active role, other than Porton experiments, was in trials of influenza vaccines in conjunction with the CCRU. Clearly protection against influenza was of direct benefit to the Armed Services and therefore permissible for Servicemen to be used.

difference between Porton tests and those conducted by the AMS or externally were that tests at Porton were secret and that for the period of attachment the volunteers were still considered to be on duty. As such, Porton volunteers were covered by the Ministry of Pensions and National Insurance's Warrant in the event of disablement or death.[461] Clearly if Service personnel took part in external tests they would not be on duty and therefore would not be covered and so the signing of an undertaking freed the Services from responsibility. Responsibility for Porton volunteers, however, remained with the Services, and hence the State, throughout. Moreover, the secret nature of the experiments at Porton meant that disclosure of the 'true reason' for the tests, as endorsed by the DDGAMS, was revealed only when volunteers arrived at the establishment.

The recruitment of volunteers for Porton was conducted through administrative instructions that were distributed by the Service Ministries, not by Porton directly. Although some face-to-face recruitment was attempted at Winterbourne Gunner through the delivery of lectures, on the whole it was not until volunteers arrived at Porton that they came into contact with the Porton staff.[462] Often it was not until they arrived that volunteers were given some indication of what they were there for and given the option to withdraw.[463] The collation of data for the *Historical Survey* found that there were very few cases of volunteers withdrawing either before tests or in the course of tests, amounting to a total of three volunteers in the 1950s and 1960s respectively.[464] While it is possible that other refusals were not documented, considering the number of volunteers that had attended Porton the number of refusals was a very small percentage. What the *Historical Survey* fails to consider is the nature of military culture and the impact this would have had on the refusal of volunteers.

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[461] AIR20/ 12171, various correspondences between Air Ministry, War Office, and Treasury regarding insurance of Porton volunteers, August 1960.
[462] The Operational Records Books of Winterbourne Gunner at TNA outline lectures and films that were conducted by Porton, AIR29/ 2487; AIR20/ 1116; WO32/ 13461.
[463] AIR20/ 10719, Note of a meeting to discuss nerve gas tests on human observers, 23 September 1959.
[464] MoD, *Historical Survey,* p. 343. Some discrepancies with the data arose in the course of the research, as experimental logs kept by Porton scientists and other reports which cited refusals did not always correspond.

Indeed, the experimenter Kenneth Mellanby, who conducted scabies experiments on conscientious objectors mentioned above, was also an army major and he acknowledged that the 'nature of the volunteer' in the military sense was somewhat different:

> When a regular soldier volunteers to take part in an experiment he nearly always does so either because the sergeant-major says, "I want three volunteers ... Jones, Smith and Robinson report, etc.," or else because he thinks that by being a volunteer he will get a cushy job for a time, and perhaps some extra leave as well. [...] once he has "volunteered" he is expected to continue with the experiment until he is dismissed. Finally, the military situation usually means that the Army is short of fit and intelligent men and only the crocks and the dullards are usually encouraged to volunteer for human experiments.[465]

It is not clear whether Mellanby was referring to National Servicemen or Regulars, or both.[466] However, the reference to 'the military situation' suggests that he was alluding to National Servicemen. Nevertheless, this highlights the difficulties of using a section of society who were subordinate to authority, conditioned to obey orders, and therefore possibly more vulnerable. Hence, the 'volunteered' becomes another category to add to the 'true volunteer' and the 'volunteer after threat or inducement' in the context of military experiments.

The claim by Mellanby in 1945 that volunteers in the military tended to be less intelligent, and so were put forward as volunteers for that very reason, was apparently not one without substance when Porton commenced psychological studies of Service volunteers in the late 1950s. The programme of research at Porton into mind-altering substances as incapacitating agents of chemical warfare offered an avenue of exploration in the field of psychology. The issue of volunteer recruitment was such a pressing concern to Porton that a series of studies were undertaken to analyse the psychology of Servicemen who attended Porton, thereby turning the volunteer into a research subject in its own right.

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[465] K. Mellanby, *Human Guinea Pigs*, p. 30.
[466] The word 'regular' in the quoted extract does not appear to mean Regular Army in the context in which it was written.

iv. Persuading the 'Ill-disposed': Psychological Studies at Porton

The expansion in the field of psychology post-WWII found utility in industry, education, therapy and treatment; psychology provided a method by which groups and individuals could be measured, in terms of their 'normality', and organised according to certain traits. For institutions that functioned as 'systems of authority', such as schools, prisons and the Armed Forces, psychology served to legitimate authority based on the knowledge it provided of the individuals within the system.[467] Therefore, by seeking to understand the subjects psychologically, establishments held the authority to 'know' how to enable their subjects to 'regulate their own conduct' and at the same time legitimated the power and authority of the institution. Just as psychology sought to define itself scientifically through 'experimental, quantitative procedures', so it produced a conception of the person as something that was calculable and predictable.[468] Studies conducted at Porton between 1959 and 1966 reflected this train of thought in psychology which sought to characterise the volunteer through psychological assessments of the personality and intelligence of Porton volunteers.

When Porton commenced research into mind-altering substances such as BZ and LSD as agents of warfare, it became necessary to consult with psychiatrists and psychologists who recommended that potential subjects should be screened for psychiatric 'problems' prior to the administration of any drugs. The initial use of screening measures to assess the suitability of volunteers for experiments with 'psychomimetic drugs' meant that only 20% of volunteers recruited were deemed to be suitable.[469] The identification of certain traits among volunteers which were commensurate with the ideal volunteer 'type' was an appealing proposition as it had the potential to make it easier for Porton to identify and select suitable test subjects. Incorporated in these studies of personality traits was an investigation into the motives which volunteers gave for attending Porton which, at a time

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[467] N. Rose, *Inventing Ourselves,* pp. 62-3.

[468] H. Eysenck, *The Scientific Study of Personality,* Foreword by Aubrey Lewis, p. 1. Along similar lines, the Cybernetics Group which convened between 1946 and 1953 in America focused on the mechanics of the human body, bringing together scientists and social scientists who contributed to subsequent scientific and sociological thought, see S. Heims, *Constructing a Social Science for Postwar America: The Cybernetics Group 1946-1953* (The MIT Press, Cambridge, MA, 1991).

[469] The screening process and the difficulties experienced were outlined to the Biology Committee in 1966.

when Porton was experiencing a decline in the number of volunteers, provided useful information that could be utilised in recruitment methods.[470]

A Porton paper produced by R.J. Shephard titled 'The "volunteer" personality. Responses to a modified Cornell medical index health questionnaire' was distributed to the Biology Committee in December 1960.[471] Roy Jesse Shephard was a physiologist who had previously been a RAF medical officer but from 1958 was working for CDEE, Porton. initially as a senior scientific officer and then as the principal scientific officer.[472] The purpose of this study was to analyse the responses of two groups to a series of questions, which focused on medical, general and psychological issues, to determine whether 'the subjects used represented a normal cross-section of the population'. All the questions required 'yes' or 'no' answers with the 'normal' answer being 'no' to all but five of the questions posed. These five questions were deliberately included to 'test whether the subject was cooperating'. The questionnaire was also used to test 'possible motives' for volunteering, with five questions aimed at probing motivation.

The overall aim of the study was to ascertain whether 'a "volunteer personality" ' could be determined which would assist with the future selection of potential volunteers. The paper opened with the following sentence:

> Where the primary effects of a test are discomfort and pain, as for instance in the evaluation of many incapacitating agents, the duration of exposure supported by an experimental subject is determined as much by subjective as by objective considerations.

For this study, 117 men who volunteered for 'experimental duty' between 23 November 1959 and 3 February 1960 were questioned, while a control group of NCOs from Winterbourne Gunner were used comprising of 63 Regular Servicemen. The Porton volunteers were aged between 18 and 46 years, with the average age of 22. The NCOs were mostly in the 30 to 49 year old age range, consisting of two Marines, fourteen from the

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[470] The falling numbers were provided in table form by Col. R. P. Bradshaw in a paper 'The Service Volunteer Observer Scheme 1959 to 1965', LHC, Gassed Collection, WO 195/16136.
[471] WO195/15070, Porton note, No. 173, 1960.
[472] A.G. Debus, (ed.), *World Who's Who in Science* (Marquis-Who's Who Inc, Chicago, 1968).

RAF and the remainder from the Army. The Porton volunteers were a mix of Regulars and National Servicemen from all three Services. The Army volunteers comprised of eleven, nine Regulars and two National Servicemen, the RAF volunteers totalled 35, of which thirteen were National Servicemen, and the volunteers from the Navy consisted of two National Servicemen and 69 Regulars.

It is surprising, given the size of the three branches of the Armed Forces in comparison to each other and the composition of Regulars and National Servicemen in each, that the Navy supplied the largest number for the period of the study. Furthermore, while there was proportionally the lowest ratio of National Servicemen to Regulars in the Navy volunteers, which accorded with the 1:46 in this branch, only seventeen of the 117 total were National Servicemen. By this time, the end of National Service had been announced and it was in the process of winding down which accounted for the small numbers of National Servicemen, but did not explain the large number of Navy personnel. Typically, Naval ratings were considered to be more skilled and better educated than their equivalents in the RAF and Army, and it may have been deliberate that the study was conducted at a time when a high number of volunteers from the Navy had been secured given the generally held opinion that they were more intelligent.

The study found that although National Servicemen volunteers 'in general tended to score lower than the Regulars', it was not significantly different. It also noted that 'consistently higher scores were given by the Army personnel', both Regulars and National Service. This suggests that there was some consciousness of the view that the Army attracted the less intelligent 'dullards' of Mellanby's description. After all, if it was not a consideration then it would not have been subject to comparison. On the whole, the study concluded that there was 'a clear difference' between the volunteers and the NCO control group, with the former's average score being 'significantly greater' than the ' "normal" group'. The results derived from the study which probed motivation for attending Porton also showed significant differences between the two groups.

Responses to 'Q.100 Are you very bored with normal work?' was significantly higher in the volunteer population than the control with results of 53.6% and 28.1% respectively. The volunteer response to 'Q. 98 Do you long for a more adventurous life?' produced 60.8% positive responses compared with 49.1% among the NCOs. Question 94, 'Do you like to stand out from amongst your fellows?' had a lower percentage of positive responses with only 33.9% agreeing compared to the NCOs, of which 59.6% agreed. Question 93 was 'Do you like new experiences?' and question 96 was 'Are you particularly short of money at the moment?' The responses to the latter question indicated that financial rewards were not significant in motivating the volunteers to attend and that of the men questioned, there was 'an above average proportion of "neurotic" and "introverted" personalities'. Regarding these 'neurotic' types, it was considered that these would be keen to attend Porton 'for the glory of "secret tests" ' but that equally so too would 'the conscientious individual anxious to serve his country.'

In the discussion section of the paper, which set out the findings and considered additional factors which may have influenced the results, it was acknowledged that the control group of NCOs were a 'biased' category. This was because the NCOs had been selected to attend Winterbourne Gunner by their COs, 'for a variety of motives', and so their attendance was not based purely on self-election to attend. The study considered that 'similar factors of selection may also have limited the number of "volunteers" actually reaching Porton'. This remark suggests that there was a parallel between NCOs who were 'selected', and therefore ordered, and Service personnel who attended Porton. The inverted commas around the word "volunteer" imply that Shephard considered it not to be an accurate label for volunteers who were possibly selected by their COs to go to Porton. Porton's assertion to Ministers' representatives in 1959 that all volunteers were 'genuine' appears to be challenged by this study which suggested otherwise.[473] Rather, the consideration that the Porton volunteers may have been selected by their COs resonated with the DDDAMS'

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[473] LHC, Gassed K, AIR 20/10719, Notes of a meeting … to discuss nerve gas tests on human observers, September 1959.

classification of 'a volunteer after threat or inducement' and not the alternative, a 'true volunteer'.[474]

The responses to the questions, which deliberately probed what Porton experimental officers believed to be issues of motivation for attending, appeared to confirm their suspicions that S Porton were largely bored with Service life and likely to act according to the group behaviour rather than stand out from everyone else. The latter was significant because the function of military training was to strip away individual identity and condition men to function as a unit. Whether this could be further exploited was raised in one of the follow-up studies, discussed below, and was of significance because a Serviceman's tolerance to pain or discomfort could be affected as much by the group behaviour as by the individuals' responses. In their role of conducting research into the protection of the Armed Forces against chemical warfare, Porton needed to provide measures which would protect, for example, an entire unit and therefore an appreciation of the variability of pain thresholds was significant. The questionnaire given to the sample of Porton volunteers served to understand the psychological make-up of those who attended and to determine how the psychological profile of volunteers affected their performance in tests.

A follow-up study was conducted between August 1960 and November 1961 by Kenneth Herbert Kemp. Kemp was a qualified anthropologist who worked at Porton, and was also a member of the Ergonomics Research Society (ERS).[475] The ERS emerged following the coming together of ten scientists in 1949, including Charles Lovatt-Evans who worked at Porton, who initially formed the 'Human Research Society'.[476] In the first ten years of the ERS membership was limited to below 200 places, reportedly for administrative reasons, although internationally human factors, ergonomics and cybernetics societies were being formed. Interest in the psychological, physiological, and anatomical relationship between man and his working environment was a growth area of research in the post-war period in

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[474] WO32/18677, DDGAMS to DPS, 4 March 1960.
[475] Entry in the *Directory of British Scientists, 1964-5* (Benn, 1964).
[476] Ergonomics Society historical timeline, www.ergonomics.org.uk/page.php?s=3&p=15, first accessed 28 April 2007.

industry and the military. Kemp's membership of the ERS, which at the time had a total membership of only 345, was significant to his methodology of attempting to quantify the Porton volunteer. Work in the field of cybernetics, which was closely allied with ergonomics, sought to compare man to machine and the brain to a computer processor, reducing the function of the human body to sets of mechanisms. The use of psychological tests similarly sought through 'codification, mathematization, and standardization' to render the subject knowable 'in a brief time, in a manageable space, and at the will of the expert'.[477]

Kemp's research - 'A study of the personality and intelligence of service volunteers at CDEE' - involved volunteers completing the Maudsley Personality Inventory (MPI) and Raven's Progressive Matrices intelligence test (RPM).[478] Circulated to the Biology Committee in 1963, the paper included an investigation into the men's motivations for volunteering and how they had heard about Porton. Between August 1960 and November 1961, 471 servicemen, of whom 32 had previously attended, were asked to complete the MPI and RPM in groups. From December 1960 onwards, 379 of the Service volunteers were also interviewed to find out their reasons for attending. The volunteers had an average age of 22 years, with a range of between 18 and 47, and only 22 men were over the age of 30. They were all 'nominally fit' and none of them held a commission. The MPI and RPM questionnaires, and the interviews on motivation to attend, were 'subsidiary to the main experimental programme' and therefore this dictated the method of group assessment which was more expedient. The purpose of the study was to compare and contrast the Service volunteer with other volunteers, with the general public, and with non-volunteer Service personnel. It also sought to compare intelligence and personality of the group and identify 'any sub-groups which might be responsible' for the differences. Finally, the study examined how volunteers came to attend Porton and why, which then could be compared with the results of the tests 'so that the recruitment of "normal" subjects may be facilitated.'

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[477] Rose, *Inventing Ourselves,* p. 74.
[478] LHC, Gassed A, WO195/15638, Porton Technical Paper No. 857, June 1963.

In the opening section of the report, in which a review of the literature relating to similar studies was given, Kemp referred to Shephard's paper on the personality of volunteers as 'the only British study' made on the subject of personality and stated the findings that volunteers 'were shown to be more "neurotic" and more "introverted" than "normal" Servicemen.' However, Kemp identified that 'no specific traits of volunteers' had been recognised within the variety of mostly American studies, although there was evidence to suggest that volunteers were 'abnormal' types who were disposed to being 'the first to answer calls for volunteers.' Kemp's hypothesis, based on the results of earlier studies, was that:

> As the non-commissioned members of the British Armed Forces are reputed to be, on principle, generally ill-disposed towards volunteering for anything, a volunteer sample from these sources might be anticipated to show abnormal personality characteristics.

The findings of the study partially accorded with Kemp's hypothesis, concluding that volunteers were abnormal in personality when compared to the general population, but that the Porton volunteers possessed 'higher intelligence'. By comparing Porton volunteers with non-volunteer Service personnel, Kemp was attempting a classification of the common characteristics of a Porton volunteer. However, such traits proved to be unidentifiable.

Of particular relevance to understanding the role of the volunteer were the references to why men attended Porton, and this part of the study was conducted once they had completed their tests and before they returned to their units. The Sick Berth Petty Officer (SBPO) conducted interviews with the men, 'informally', asking volunteers why they attended and how they had heard of Porton, with assurances given that whatever their answers there would be 'no "come-back" '. The volunteers' responses were reported as being given without prompt for clarity to vague answers, or change to 'the occasional facetious one', so as to 'produce "true" answers' and avoid eliciting responses which volunteers might have thought were those ' "acceptable to authority"'. This demonstrated that Porton was aware of the relationship between military authority and the actions of the Servicemen as volunteers, and the resulting influence which could be exerted. However, it was stated that 'Rapport between the SBPO and the volunteers was generally excellent'

and, despite Kemp's acknowledgement that the method of an officer interviewing non-commissioned Service personnel who held no rank of authority was potentially flawed, he felt that there were 'no grounds for not accepting the responses at face value'. However, this raises a number of points about military hierarchy and the relationships between officers and other ranks.

The interviews were reportedly conducted 'informally', which suggests that they were carried out in a non-confrontational, relaxed manner. Yet, the interviewer was an officer and it is difficult to comprehend how this was played out in the situation. The 1960 film *The League of Gentlemen* highlights, through its characterisation of ex-Army personnel, how pervasive the military hierarchical structure was.[479] Furthermore, the assurance of 'no comebacks' by the SBPO and the meaningless nature of 'true answers' in the military context were parodied by the film in one particular scene. The gang of ex-Army officers con their way into an Army barracks to steal guns and equipment from the Arsenal, to be used in their planned bank heist, by pretending that a complaint has been received regarding sub-standard food being served.

Posing as Brigadier Christie, Colonel Riley and Major Williams, they carry out an inspection of the Cook House and then enter the Mess. Addressing the soldiers eating their meal, the 'Brigadier' asks, 'Any complaints here?'. The troops are ordered to 'Answer the Brigadier' and one man stands up to reply 'No, sir'. The Brigadier then asks, 'You're completely satisfied with the food? You can speak quite freely'. With this prompt, another soldier responds that the food is 'messed about with', to the glare of his commanding officer. The rank of Brigadier was the highest rank present during this interchange and therefore all others, including the complainant's CO, were subject to his authority. Yet this did not negate the authority of the unit's CO, as evident from the initial response that there was no complaint. The responses elicited, one negative and one positive, demonstrates how, in the face of authority, they are rendered almost meaningless. From the support given to the soldier by his mates as the Brigadier and his entourage left, the film made it evident that generally soldiers did not give their honest opinions where conflict between those in

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[479] *The League of Gentlemen* (Allied film Makers Ltd, 1960).

authority and themselves arose.[480] Therefore, the authority of the SBPO as a member of Porton's staff, and the resulting influence this may have had on responses given by the volunteers, needs to be considered. Moreover, the influence of authority over the responses elicited allowed for some responses to be considered less credible than others.

Of the 379 men interviewed, 308 stated that they heard about Porton 'through some form of "orders" '(i.e. an official notice but not a directive)'. Only 108 men knew the specific nature of the orders which suggests that they were communicated verbally. The minority claimed they had heard about Porton from friends, superiors and verbal requests. Fewer still claimed they heard about Porton from what was described as "bizarre" sources- 'a "letter to the C.O." and "orders and T.V.". The claim by two men on their second visit that they were ordered to attend was dismissed as being 'deliberately misinterpreted by the men' who were given 'every opportunity to withdraw ... and still volunteered to stay.' It is apparent that the 'bizarre' responses were readily dismissed rather than attempting to probe further as to how the volunteers might have been formed their mistaken impressions. Furthermore, it was accepted that the men who claimed they were ordered to attend for a second visit assented to being there voluntarily by not taking the opportunity to withdraw.

However, given that 'all men' were interviewed at the 'ends of their visits' to Porton. it could not have been known that they claimed to have been ordered. This suggests that volunteers were given the chance not to take part in tests, as has been claimed elsewhere in this study here, but it ignores the influence of group behaviour and peer pressure among trained Service personnel. The act of withdrawing could be seen as a weakness on the individual's part or a failure to support his fellow Servicemen, and therefore the decision to withdraw would be influenced by notions of solidarity and *esprit de corps*. In any event, Porton did not probe very deeply into these responses which avoided having to qualify them, and, furthermore, allowed for such replies to be accepted as genuine. Yet when the

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[480] *The League of Gentlemen* (Allied Film Makers Ltd, 1960). A similar exchange over food is recorded in an account of National service when an officer asked if there were any complaints about the food. A new recruit complained that the potato was watery after the rest of the table, who had been in the Army longer, had replied 'No, Sir'. The new recruit was admonished with 'You'd better change your attitude quick, sonny, or you'll be in trouble', Lodge, *Ginger You're Barmy,* pp. 27-28.

'stated reasons for volunteering' are given in the paper, further anomalies arise which once again were not given much attention.

The most frequently cited response for attending Porton was 'for a change', closely (and for some synonymously) followed by 'interest or curiosity'. Other reasons cited were the location (i.e. nearer the volunteer's home), financial reward, and 'a rest', although these were given by only a minority of volunteers. Another reason given by two men, described as 'odd, but apparently true', was that they 'came by "mistake" believing [sic] that they were going to the Common Cold Research Unit in Salisbury.' How these two men who thought they were attending the CCRU heard about Porton is not revealed, yet their answer was accepted as true without further qualification. Given that the questions were asked at the end of their participation, it appears that the men took part in the Porton tests even when they realised that they were not at Porton for common cold research. Rob Evans suggested that unit officers could have deliberately misled men into believing they were attending the CCRU. However, it should be emphasised that only two men out of 379 gave this response. While it must remain speculative without further evidence, although some testimonies were given at the Maddison Inquest which supported this suggestion, what it does highlight is that there was some confusion over the nature of Porton as a chemical warfare testing and research facility. As an establishment engaged in many top secret programmes of research, responses that volunteers heard about Porton through television or thought they were going to the CCRU and the curiosity expressed in relation to Porton, suggest that either very little information was imparted regarding the work of Porton and the role of volunteers in their research prior to attending, or that the information lacked clarity which allowed for misinterpretation.

Further discussion in the paper related the results of the questions on motivation and how they had heard of Porton to the context of recruiting volunteers, in which it was revealed that 'from conversations with subjects it seemed that, generally, little encouragement was given to men to volunteer and at times steps might even [have been] taken to dissuade them.' This statement tends to contradict the earlier assertion that responses were accepted without further questioning, but it does highlight how officers exercised control over their

units. Therefore, volunteering for Porton was subject to a Serviceman's CO's approval and was dependent upon whether or not the Serviceman could be dispensed with, according to the CO's assessment. In a subordinate position, a Serviceman could not simply volunteer for Porton and go; he had to be released for the period of his attachment to Porton. Speculating on 'the high incidence of junior NCOs (non-commissioned officers) among volunteers', Kemp suggested that this could have been as a result of 'good conduct and service' for which permission was granted to attend Porton. Conversely, he also considered that sending 'potential nuisances' to Porton temporarily alleviated the problem for the units and that they 'may discourage the "better" man from volunteering.' This further challenges the rejection of the claim by two men who stated they were ordered to attend Porton, as Kemp acknowledged that there was a certain degree of control by officers as to which men would be released to attend.

With regards to motivation, Kemp asserted that in situations where men were being dissuaded from attending Porton they needed to be 'highly motivated in their desire to escape from their unit'. This once again demonstrated the powerful influence of authority in the Armed Services, whereby it was acknowledged that only those determined to 'escape' their units would challenge a commanding officer who did not wish to release them. The high frequency of interest and curiosity as the reasons for attending was acknowledged as being reinforced by the prospect of extra pay. It was noted that while financial gain 'appeared to have been less of an inducement than it is sometimes claimed to be, [...] remarks made by the men indicated that the prospect of "extra pocket money" may have strongly reinforced their primary reasons for volunteering.' The payment of Service volunteers was therefore significant because without financial reward, so the findings suggested, men would have been less willing to volunteer.

In 1966, Kemp and Shephard jointly produced a paper entitled 'Further Studies of the Service Volunteer at CDEE'.[481] Drawing on the results of the previous papers of Kemp and Shephard, which found that 'subjects volunteering for experimental work at Porton' were more 'neurotic' yet of higher intelligence and motivated by boredom, interest and curiosity,

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[481] LHC, Gassed A, WO 189/167, Porton Technical Paper No. 950, March 1966.

the purpose of the collaborative paper was to explore the 'social values' of the Service volunteer. The results of this would then assist with determining possible degrees of motivation among the volunteers. Three groups were used in the tests, Porton volunteers, a group of NCOs from Winterbourne Gunner, and a group comprising of laboratory staff from Porton.

In order to assess the volunteers' social values in relation to money, a test was devised in which volunteers in groups of between four and ten were exposed to a riot-control agent in a gas chamber. Accompanied by a medical officer, the men were offered financial rewards depending upon the amount of time spent in the chamber, up to a maximum of four minutes. Prior to exposure to the gas, a shortened version of a multiple choice questionnaire was used which consisted of twenty questions relating financial values to five other values: social, aesthetic, political, religious and theoretical. Of the men used in the test, fifteen subjects were assessed as having 'above average' interest in cash rewards and these proved to have, on average, greater tolerance. However, on the whole, the statistics collated deemed the results to be insignificant. While the incentive to prolong exposure was financial, the results failed to produce anything of 'predictive value' between the questionnaire findings and the actions of the subjects in the test.

In the discussion section of the paper, it was concluded that the few shillings offered to keep the volunteers in the chamber was 'inadequate bait'. Despite attempts to find links between personality types and tolerance to unpleasant tests, Kemp and Shephard found that there was no conclusive correlation but rather asserted that:

> … the influence of personality on performance is complex. An anxious man may be more apprehensive of unpleasant experiences than the "normal" subject and at the same time be more willing to admit failure in the presence of difficulty.

The study finally drew attention to the role of group morale as an 'important factor' in the behaviour of individuals within a group. They recognised that military operations required Servicemen to perform as a group, and therefore the 'group norm' established a threshold for behaviour, which was considered to be 'an important field of research.' The social

values of the Porton volunteers were not considered to be any different from other Servicemen, but they did tend to consist of a higher proportion of men with 'Manifest Anxiety'. Overall, it appeared that 'introverted', 'neurotic' subjects showed the greatest endurance, while 'extraverted', 'neurotic' subjects displayed the least tolerance.

The paper demonstrated that personality types, as used in psychological assessments, could not be identified as suitable for tests according to their traits. In assessing the use of cash rewards as incentives to endure discomfort, it was found that men would not tolerate significant discomfort for the sake of a small remuneration. However, it was recognised that the amount offered was limited by Porton's policy on payment for tests and therefore larger sums could not be offered 'under the present system'. The adage that every man has his price could not be tested, but group morale as an influential factor in endurance was an important finding which was highlighted as warranting further research.

v. Summary

Little discussion appeared to take place regarding the CCRU's use of volunteers drawn from the general public. However, their acknowledgement from the outset that they needed to court public goodwill determined the institutional definition of the CCRU volunteer. Moreover, the publicity that the CCRU attracted perpetuated the image of the volunteer as a public-spirited citizen as it accorded with the collectivist agenda. This ensured that people were forthcoming and demanded that a volunteer-centred approach was maintained. In contrast, the complexity of the position of volunteers in the military is demonstrated by the dominance of discussions and studies conducted relating to Porton's use of Service personnel in this chapter.

References to intelligence featured in the literature on a number of occasions. At Porton, assumptions were made that Service volunteers were less intelligent than the general population. Intelligence appeared to be significant to understanding the motivations of volunteers, with the suggestion that less intelligent individuals would be more likely to volunteer in the military context. However, Porton disproved this theory when it conducted the psychological studies but it remains that there was more concern that the public's

intelligence should not be insulted with regards to disclosure of the nature of tests than the intelligence of Service personnel. Service volunteers were not found to be any less intelligent but, because of their subordinate position and the institutionalisation created by military life, they were deemed to be less likely to challenge what was being asked of them than a member of the public.

In the military context, the 'volunteered', the 'true volunteer', and the 'volunteer after threat or inducement' were identified as categories of experimental subjects, within which Porton volunteers fell into the latter. Despite some uncertainty from 'outsiders' as to whether Servicemen who attended Porton could be labelled as volunteers in the 'genuine' sense of the word, the Porton volunteer was defined through the imperatives of research that demanded secrecy and the military culture that demanded obedience. Categorising the Serviceman who attended Porton as a volunteer 'after threat or inducement' acknowledges the pervasive influence of military authority, which was evident from discussions regarding volunteers and the psychological studies conducted.

Porton's research on volunteers through studies of their intelligence and personalities turned the subject of volunteering into a research question in itself. The imperative to maintain a steady flow of volunteers demanded that Porton scientists understood better the nature of volunteers and their motivations. The CCRU did not invest in a similar strategy because volunteers were always forthcoming. The psychological studies of Porton Service volunteers provided information on the volunteers' perceptions of the work of Porton as well as their motives for attending. They highlighted the lack of pre-disclosed information imparted prior to attending, but also revealed that the volunteers still took part in the tests. The studies failed to identify a volunteer 'type' but nevertheless, they identified the 'key ingredients' for positive publicity and the construction of the volunteer. While no evidence has emerged that the information on volunteers which was collated from the psychological studies was purposefully used in recruitment material, there were many similarities. Factors identified which potentially attracted Servicemen to volunteer, such as boredom, curiosity, financial reward, patriotism even secrecy, were used to construct the role of the volunteer within literature and film created to recruit Servicemen to attend Porton.

Chapter VII. The 'moulding of images': Analysing Volunteer Recruitment Methods at Porton and the Common Cold Research Unit

This chapter focuses on the methods of recruitment employed by Porton and the CCRU during the period 1945 and 1970 and how the construction of the volunteer was bound up with the institutional context it was situated in. The representation of volunteering to society through the press demonstrated how the ideology of citizenship, as a public-spirited collective action, was driven by the government's concern for economic recovery. Science was also part of this agenda; used as a symbol of progress and a focus for national pride the government directed citizens to volunteer for science as part of its collectivist agenda. The broader political agenda of active citizenship fed into recruitment at the CCRU, while Porton focused more on the particular section of society from which it recruited - the Armed Services. While the CCRU could draw upon the context of post-war citizenship ideology in their recruitment, the limitations of secrecy at Porton dictated that they were confined to advertising only to a Service audience.

The analysis of recruitment methods in this chapter does not seek to determine whether they were a 'true' representation of volunteering or, alternatively, attempt to expose them as misrepresentative. Rather than arguing that such recruitment methods were deliberately misleading, it should be noted that advertising in the 1950s and 1960s was similarly about persuasion rather than 'truth'. Corporations made use of psychology to ensure that persuasive marketing had 'the strongest appeal to greatest number of people', and misrepresentation was very much part of such advertising.[482] The representations of volunteers through the recruitment material conveyed the expectations of what a volunteer was from the institutional perspective as well as what the institutions considered was a favourable impression of the role of the volunteer. It is this 'moulding of images',[483] how volunteers could be persuaded to take part and conform to what was expected of them, that

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[482] V. Packard, *The Hidden Persuaders: An introduction to the techniques of mass-persuasion through the unconscious* (Penguin Books, Middlesex (1957); Reprint, 1961), p. 47. Packard unpacked the processes through which mostly American, but some British, companies used psychology to sell a product or idea to the consumer.

[483] Packard, *The Hidden Persuaders*, p. 45.

provides a more nuanced view of the identity of the volunteer and, moreover, how it was controlled and constructed by the parties involved.

The recruitment of CCRU volunteers in the national press has been explored previously in this study, but articles were also published in regional newspapers and features on the CCRU were put together for international circulation. Additionally, posters and leaflets, designed in the late 1960s by the CCRU's medical superintendent, were circulated through university libraries to target younger sections of society. Newsreel footage of the CCRU provided another avenue for increased publicity through which volunteers could be recruited. Porton produced its own volunteer recruitment film in c. 1965 which provided a visual representation of volunteering for distribution among the Armed Services. Volunteer recruitment was also carried out through the circulation of 'instructions' sent to units from the MoD and its predecessors, the government department responsible for the administration of the Armed Forces.

i. 'A definite, personal contribution ': Volunteer Recruitment at Porton

Published Calls for Porton Volunteers

When the administration of the three Armed Services was centralised under the Ministry of Defence from 1964, information and guidelines for service officers, to pass on to their units where relevant, became published under the Defence Council Instructions (DCI).[484] The general series applied to all three Services, while DCIs applicable specifically to the Navy, Army and RAF were published in their own series, DCI (RN), DCI (Army) and DCI (RAF). Prior to this, administrative instructions were published as Army Council Instructions (ACI), Air Ministry Standing Orders (AMSO) and Royal Navy Standing Orders (RNSO). It does not appear to be until the introduction of DCIs that Porton made regular use of published orders to publicise their need for volunteers, which coincided with the end of National Service.[485] Notice board information leaflets (NBI) were distributed

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[484] WO 293/54, Army Council Instructions, 1964. Files in this chapter are from TNA unless stated otherwise.
[485] For example, in the Army Council Instructions of 1962 to April 1964, there were no calls for volunteers to attend Porton, WO293/54. Similarly, Air Ministry Standing Orders from January 1947 to December 1960 do not contain notices to attend Porton either, AIR 72/91, AIR 72/92, AIR 72/93.

along with DCIs and their fore-runners; in the RAF it was from 1948.[486] Due to the disposable nature of NBIs, it appears that none have survived as originals. However, an NBI issued with DCI (Army) in 1964 was included as a Photostat annex to a paper by Lt. Col. R. P. Bradshaw, 'The Service Volunteer Observer Scheme at CDEE from 1959 to 1965'. This was a condensed version of the DCI and made no reference to discomfort but asserted that there was no danger, without further explanation or detailed qualification.[487] Although limited to Bradshaw's account, which was a confidential document with restricted distribution when it was written in 1965, it does appear that between 1959 and 1965 the amount of detail conveyed within instructions to recruit volunteers was significantly reduced. From an examination of the DCIs issued in relation to Porton between 1964 and 1971, the extent to which the lack of information imparted to potential volunteers prior to arrival at Porton can be better assessed.

The DCIs that were published calling for volunteers for Porton comprised of those within the general series, which listed the dates volunteers were required in advance, and more detailed information within the DCIs for the individual services. In the first DCI (Army) from April to September 1964, under the heading 'Chemical warfare- Volunteers for tests at the Chemical Defence Experimental Establishment, Porton', a notice was published giving an outline of the service requirements and the facilities available to the volunteer. It stated that volunteers were needed for 'physiological and medical studies' and that '... there was [sic] no danger to the individual' who would be supervised by a medical officer. Furthermore, there was no limit to 'the number of times a man may be accepted for tests' and it was clearly stated in this DCI that volunteers were 'under no obligation to take part against his wishes.' The period of stay at Porton was two weeks, with half being 'required to stay for a further two weeks' and the payment of 'at least 35s 0d a week.' (By comparison, the weekly pay of a conscript in 1962 was £1.18s. 6d.[488]) The notice paid particular attention to the 'recreational facilities', with the availability of numerous sports

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[486] AIR 72/91, index to Air Ministry Orders, 1 January 1947 to 31 December 1951.
[487] DEFE 46/1, DCI(Army), April to September 1964. NBI 2 is referred to within DCI (Army) no. 37 for 1964.
[488] T. Hickman, *The Call-Up: A History of National Services* (Headline Book Publishing, London, 2005), p. ziz. See also P. Buonanno, 'Long-term Effects of Conscription: Lessons from the UK' (2006), http://www.unibg.it/dati/bacheca/657/23064.pdf, last accessed 10 September 2007.

as well as 'comfortable billets' for both officers and other ranks, and 'weekend leave ... subject to the exigencies of the tests.' There was greater focus on the leisure and recreation opportunities afforded to the Service volunteers than on explaining what was involved in taking part in 'physiological and medical studies'. Clearly the emphasis on leisure was deliberate as an incentive to attract volunteers, while the lack of detail on what was involved in the 'tests' was dictated by both the need for secrecy and the fear that potential volunteers would be dissuaded if they knew precisely what they were volunteering for.

The DCI stated that the supply of volunteers from the Armed Services had been 'in operation for over 30 years' and that with the contraction of the forces there was a need for 'increased publicity'. Given that for the period 1948 to 1964 from random standing orders no mention is made of the CDEE, Porton, and recruitment was reliant upon the distribution of letters to Commands, it appears that the DCIs from 1964 marked a new medium through which to publicise the requirement for volunteers.[489] Under point five of the DCI (Army) 1964 it stated that the MoD notified the Army commands of the dates when tests were conducted at Porton and for which 'they will be responsible for providing volunteers'. Just as the psychological studies of Porton volunteers acknowledged the role of officers in the selection of Servicemen to attend Porton, so this notice betrayed a similar sentiment by making officers 'responsible' for volunteer recruitment. The implication of this was that officers had a duty to find volunteers and therefore Servicemen were selected rather than self-elected. By the headquarters of an Army command serving directives to unit officers to provide volunteers, as the DCI outlined, the tension between authority and the voluntary nature of a Serviceman's attendance at Porton becomes apparent.

In 1965 an amendment to the 1964 DCI (Army) was published, in which it was stated that '12 volunteers are required for each period', and a list of dates when the Services were required to send their volunteers in 1966 was published.[490] It was also requested that nominal rolls should be submitted to the senior military officer, CDEE, of those not available for the required dates but who would be 'spared' during other periods. The DCI

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[489] My research of pre-1964 standing orders (and equivalents) was fairly extensive, although not meticulous, but I was unable to find any references to Porton among those at TNA.
[490] DEFE 46/2, DCI (Army), 1965.

issued to the RAF in September 1964 was the same as that issued to the Army, with changes only in administrative detail to make it applicable to airmen rather than soldiers.[491] However the DCI issued to the Royal Navy in May 1964 differed somewhat from the ones issued to the other Services. In particular, the DCI (RN) appeared to be worded in a more authoritarian manner than those contained within the DCI (Army) and DCI (RAF).

The DCI (Navy) of May 1964 did not open with a description of the role of the CDEE in the protection of the Armed Services and the civilian population, as was the case in those for the other Services, but rather it came straight to the point by stating that volunteers were 'required in 1964 for tests'.[492] The work of Porton was highlighted as being important, without qualification, and the DCI asserted that Commanding Officers 'should make every effort to permit volunteers to take part'. Interestingly, although not knowingly connected, Shephard's psychological study in 1959 comprised of a majority of RN volunteers among whom it was found that similar problems with the selection of volunteers by officers existed.[493] Permission to volunteer was not an issue that was raised directly in the other DCIs for 1964, although they did make it clear that officers were responsible for finding volunteers. This request that officers 'permit' Naval ratings to attend Porton was far more candid because it made explicit the subordinate position of Naval ratings and the need to obtain permission. Any references to the nature of the tests were omitted in the Royal Navy DCI and no mention was made of volunteers' freedom to refuse to take part either before or during a test.

Whereas the Army and Royal Air Force DCIs stated that tests were 'carefully designed' and there was 'no danger', the Royal Navy DCI simply stated 'The tests are carefully planned and carried out under medical supervision.' Much of the detail conveyed in the DCI (RN) was administrative rather than informative, setting out who volunteers should report to, what to bring and the period of attachment, and by comparison to those of the other Services was far more austere. The leisure facilities highlighted in the DCIs for the Army and RAF were omitted from the DCI (RN) and on the whole the instruction gave few

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[491] AIR 72/101, DCI (RAF), September 1964.
[492] DEFE 45/3, DCI (RN), May 1964.
[493] WO195/ 15070, Porton note 173.

details that would either attract or detract potential volunteers. The DCIs of the Royal Navy for 1965 to 1970 remained largely unchanged from the 1964 version.[494]

The frequency of DCIs published throughout the Services between 1964 and 1970 was periodic rather than regular, other than the DCI (general) series which were annually published at the end of each year in advance for the following year's Service requirements for volunteers. The total number of DCI (RAF) published in this period was three, in 1964, 1967 and 1970. Slightly more publicity was given in the DCI (Army) with notices published in 1964, 1965, 1967 and 1968. The Royal Navy DCIs contained a total of eight calls for volunteers for tests at Porton, which were featured every year except 1968. By examining the frequency of the publication of DCIs and the total distributed for each of the Services, it is apparent that greater publicity was given to requirement for volunteers in the Royal Navy than the Army or the RAF, and yet the description remained less detailed and therefore less informative than those given to the RAF or the Army. However, the Royal Navy DCIs seemed to somehow fit better with the military culture. They were brief and forthright, and acknowledged the potential barrier which officers posed to the recruitment of volunteers. While they gave less detail when compared to the other branches of the Armed Services, they appeared to reflect the military tone of officialdom and authority rather than offering assurances of freedom to withdraw and (albeit limited) descriptions of the nature of the tests.

The 'success' of DCIs as recruitment literature is difficult to measure, but there is a suggestion that written orders that came down through the ranks which originated from the MoD, or equivalent, did not have the immediacy or impact that verbal orders had because they were not face-to-face orders. There appeared to be some degree of conflict within the military between the ministerial department responsible and the military units, with the general attitude that the MoD was 'positively hostile to what *we* [the regiment or corps] think of as being in the best interests of *us*'.[495] Thus in a situation where a Serviceman was

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[494] DEFE 45/11, DCI (RN), February 1965; DEFE 45/19, DCI (RN), January 1966; DEFE 25/22, December 1966; DEFE 45/30, DCI (RN), November 1967; DEFE 45/41, DCI (RN), November 1969; DEFE 45/48, DCI (RN) December 1970. The only change was the amount of money volunteers could expect to receive.

[495] Richardson, *The Fighting Spirit*, p. 136. (Italics in the original)

given a direct verbal order from an officer, even if the Serviceman was aware that the verbal order given contravened a written regulation, the authority and presence of the officer would ensure that his command was followed in most cases.[496] Therefore, this suggests that standing orders and later DCIs had limited impact. It appears that these administrative instructions could be upheld or disregarded as unit officers saw fit, allowing for a 'margin of discretion' according to the situation or the personality of the authority figure.[497] Likewise, a wartime study of the application of psychology in the Army recorded that officers did not necessarily adhere to written orders, and, furthermore, the communication of orders sometimes became misinterpreted as they were passed down the chain of command.[498] Therefore, while administrative information and instructions were issued from the administrative headquarters of the Armed Services, whether they were implemented or passed on to the unit depended on the units' officers.

.Nevertheless, the DCIs released during this period demonstrate that the level of information imparted to potential military volunteers was limited to a very brief outline; extra pay and leisure opportunities were highlighted but little description was entered into. The fear that more detailed descriptions would deter potential volunteers appeared to influence the construction of the literature because, despite the recognition in the DCIs that there was an increased need for publicity of the requirement for volunteers to take part in tests at Porton, greater publicity was not commensurate with more detailed information. DCIs did not provide a clear indication of what was expected of volunteers and continued to rely on making it attractive as a break from routine. This was also the focus of a film produced by Porton's Photographic Section featuring Porton staff members, entitled *Volunteers for Porton.*[499]

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[496] Osiel, *Obeying orders*, p. 42.
[497] Osiel, *Obeying orders*, p. 38.
[498] C.W. Valentine, *The Human Factor in the Army* (Gale & Polden Ltd, Aldershot, 1943), pp. 58-9.
[499] Imperial War Museum, DED 47, undated but given that the film is not mentioned in DCIs before December 1967 and the volunteer studies which fed into the production of this film were completed in 1966 it would appear that the date of production was between 1966 and 1967.

The Volunteer Recruitment Film

In 1967, after listing the dates when Servicemen were required to attend Porton, the following extract was published in the DCI (General):

> A new 16mm colour film "Volunteers for Porton" specially made for showing to unit audiences can now be obtained on loan from the A.K.C. [Army Kinema Corporation] Central Library. This is an entertaining film providing background information on the volunteer scheme and runs for 15 minutes.[500]

The film *Volunteers for Porton* opens with a close-up shot of a greetings card with the words 'Invitation to Porton Down' printed on it, unfolding with the message 'The Chemical Defence Experimental Establishment, Porton Down, invites you to take part in the tests which are held at this Establishment'; Porton is then highlighted on a map of the South of England. It then cuts to trench scenes from the Great War to explain how the research conducted at Porton has contributed to the protection of British Servicemen and the on-going need for 'volunteer observers' to take part in tests for the 'protection of man'.

Further scenes of the use of civilian gas masks in WWII carry the voice-over, which informs the viewer that the development of gas masks was 'perfected with the help of the volunteers in many thousands of tests'. The opening sections of this film are directed towards a justification of the work of Porton and the use of Service volunteers. Images of women and children donning gas masks and scenes from the trenches of the First World War provide powerful visual imagery which emphasise the necessity of Porton's work both for the Armed Services and the humanitarian protection of the nation. Moreover, it speaks to the audience's sense of camaraderie because the work of Porton volunteers is portrayed as being for their collective benefit.

The audience is informed of the methods of recruitment for Porton, through Defence Council Instructions (DCI) and notice-board leaflets, and that all three Services take part. (This was the most commonly cited response in the psychological studies of volunteers when they were asked how they had heard about Porton.) A shot of the DCI is shown,

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[500] DEFE 73/ 23, Defence Council Instruction (General) No. 138, December 1967.

followed by a scene at Salisbury railway station of Servicemen arriving. This is accompanied by the voice-over which states that volunteers in groups of twelve 'who are physically fit' stay for a period of two weeks. As the men arrive at Porton by minibus, the commentator states that all tests are 'carefully considered' and a shot of a number of military and civilian staff seated around a table follows.[501]

The next scene is within a hall where it is explained that the Medical Officer in Charge gives the volunteers information on the test 'in detail and emphasises that they can withdraw at any time'. Likewise, the right to withdrawal was mentioned in Kemp's volunteer study. During this scene, direct speech is recorded and the medical officer asks whether any of the group has been before, to which one responds that he has and the medical officer replies, 'It can't be that bad, he's come back for a second try.' Repeat visits were noted in the psychological studies conducted, and raised the issue of Servicemen being ordered to attend. In the film, the man's admission that this was not his first visit was not qualified with a reason for it. The medical officer then informs the men that they are at liberty to withdraw from of any test at any time and that the purpose of the experiment they are to be involved in is to test gas masks by entering and exercising in a gas chamber containing 'a tear gas, not a poison gas'. Asked if there are any further questions, one man asks what will happen if the gas mask leaks and is told that should this happen a member of staff 'who will be there throughout' will remove him to recover.

The billets feature in the next scene, where men are filmed lying on beds reading and relaxing and talking to a female cleaner before being called to the 'Servicemen's Club'. In the Club, men are filmed having their meals served to them by two women at the canteen, and the facilities available are filmed: TV, billiards, darts, table tennis and a bar. Claims by Servicemen, both Regulars and National Servicemen, that they were bored with military life came out during interviews and questionnaires conducted for the psychological studies. The provision of plentiful leisure facilities appeared to counter any such boredom with numerous opportunities to keep pleasantly occupied. A close-up shot is taken of a pint of beer being served by the female assistant. The voice-over informs that outside facilities

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[501] The DCI's filmed are the same as those discussed above.

include football and badminton. Typical of bawdy humour akin to the *Carry On* genre of films, the next scene shows a naked young lady taking a shower as a towel-clad man walks in on her, with the voice-over stating 'unfortunately volunteers from women's Services cannot be accepted for administrative, amongst other, reasons' but the following scenes of the vibrant Salisbury nightlife include shots of women to accompany the shots of pubs and clubs.

Up to this point in the film, the ways in which Porton and its work are represented are specific to the intended Service personnel audience. The description that the volunteers would be involved in the testing of respirators (gas masks) would have been familiar to Servicemen. Training in chemical, biological and nuclear warfare involved being taught how to fit respirators and protective clothing correctly, followed by entry into gas chambers to test that they had achieved an air-tight fit.[502] Therefore the expectation of Servicemen to undertake the testing of gas masks at Porton would have been similar to their experiences in training which they were required to undertake. The use of Great War trench scenes gives Porton's role in the defence against chemical agents cultural authority. By conjuring up images of the past use of gas masks developed at Porton, it gives the impression that Porton was decisive in the protection of the military and civilians alike, and also experienced in meeting the needs for protection against chemical agents. The effect of this patriotic visual representation of Porton meeting the needs of the British Armed Forces would have reinforced the expectation that Servicemen were doing their duty for their country, and likewise that Porton had been engaged in 'doing their bit' since before the Great War. Nationalism and patriotism were, as Martin Edmonds, has noted, fundamental in the 'induction process' of the Armed Services and remained central to the military.[503] Similarly, this played up to the findings of Shephard's 'Volunteer Personality' study in 1960 that considered 'the conscientious individual anxious to serve his country' was a likely type to volunteer for Porton.[504]

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[502] The Joint School of Chemical Warfare, later renamed the Nuclear, Biological and Chemical Defence School, Winterbourne Gunner, was located close to Porton and its role was to train officers in methods of chemical warfare protection which they would pass on the their units.
[503] M. Edmonds, *Armed Services and Society* (Leicester University Press, 1988), p. 37-8.
[504] WO195/15070, Porton note No. 73, December 1960.

In contrast to the familiarity of gas masks and the expectations placed upon recruits from the military to perform their duty to their country, the representations of the freedom to enjoy leisure facilities to such an extent would have been somewhat novel. The representation of the more informal routine at Porton in part played up to the military sub-culture of drinking and womanising.[505] However, it contrasted with aspects of military life that were regimented, such as following orders and performing routines, and designed to reinforce obedience and strip away individual identity. In this respect, the film portrayed Porton as an opportunity for Servicemen to get away from institutionalised, and often repetitive, military life. Free from daily fatigues, Servicemen were informed that apart from the experiments they were involved in they were at liberty to leave the establishment and take advantage of Salisbury nightlife, while Porton could adequately meet their leisure needs through the provision of good food, beer and recreational facilities on site. The opportunity to relax and socialise would have appealed to Servicemen, furthermore the presence of women on hand to clean their billets, serve their food and drink, and the chance to mix with the opposite sex in Salisbury would also have been alluring for some young men deprived of regular female company for prolonged periods.[506] The freedom which the film portrayed to potential volunteers should not be under estimated; Servicemen had to clean their own billets, perform fatigues and drills daily, and were not at liberty to leave their barracks without permission. Therefore the attractions offered by Porton, when compared to daily military life, made it appear more like a holiday camp than an establishment which conducted chemical warfare agent experiments.

The next section of the film focuses on the experiments. A number of tests are shown; these include card sorting and matching, which the audience is informed 'resemble parlour games'. A treadmill test is filmed with a scientist observing the results, before cutting to a man firing on the Porton ranges after exposure to tear gas. Scenes of an assault course are shown which simulate a contaminated area using 'harmless chemicals'. These are shown to demonstrate the types of tests that potential volunteers might be asked to participate in and,

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[505] See for example Lodge, *Ginger You're Barmy,* which gives an insight into the behaviour of the Regulars and their 'boisterous pranks', 'obscene conversation' of a sexual nature and consumption of alcohol from a National Serviceman's perspective.

[506] Hickman, *The Call-Up,* ch. 9 'It must be the uniform' recounts the tales of national servicemen and their responses to sex once 'removed from parental influence and emboldened by a sense of manliness', p. 192.

like the testing of gas masks, would have been familiar to Servicemen as part of military training. Obviously the card sorting tests would have been less well known; however, the reference to parlour games would have provided a common explanation for what was involved, and the viewing audience would have recognised the protective clothing worn during the treadmill test. Rather than 'baffling' the audience with science, the Porton film puts forward imagery to which Servicemen would be largely accustomed and therefore could be viewed as innocuous. In terms of transparency regarding the nature of Porton's research, the film provides more detail than the limited space of the DCIs permitted. However, the film remains guarded and does not reveal precise details of the tests.

Figure 4 Testing of NBC suit at Porton, undated (photograph donated by Gradon Carter, Dstl, Porton).

The final scenes are of the volunteers being addressed by a Porton military official, not the medical officer, who states:

> Before you go I want to say to you one or two things which I say to all the volunteers before they leave Porton. Firstly: security. This is of great

> concern to us. When you go away, don't talk to your pals or civilians about anything you have seen or heard about during your time here.

The volunteers were told not to discuss any aspect of what they had observed at Porton, and this underlined the secret nature of Porton's work. It also reflected Shephard's study which considered that more 'neurotic types' would be attracted to Porton for 'the glory of secret tests'.[507] Somewhat ambiguously, the officer went on to say:

> The second thing is, have you any complaints about your treatment or the amenities while you have been here? [Some men shake their heads, others look at each other bemused and grin]. We like to improve them where we can. And thirdly and lastly, when you get back to your units, please tell your pals about Porton. We'd like as many volunteers as we can get to help us with our work.

The ambiguity clearly arises from the volunteers being told, on the one hand, that they must not talk to their 'pals or civilians' about the work of Porton, but then on the other hand they are told to tell their 'pals' in their units about Porton. The dilemma for volunteers would be that if they were unable to discuss the tests they had taken part in, then it would be difficult for them to tell their 'pals' about Porton without disclosing something of their own experience. The fear of reprisal under the Official Secrets Act did apparently deter some volunteers from discussing their attendance at Porton.[508] However, given that Servicemen lived in close quarters it would not be unreasonable to imagine that some exchanges took place, especially when an absence of a week or more would be questioned. The Official Secrets Act would have greater sway in limiting disclosure to civilian rather than military colleagues.

It is interesting to note the expressions on the faces of the volunteers in the film when asked if they had any complaints regarding their treatment; all of the men looked somewhat bemused, if not amused, at this remark. Given that the person addressing them was a military officer, it highlights the difficult position that the Service volunteers were in. When confronted by a person in authority it was a part of military conditioning that such authority

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[507] WO195/ 1070, Porton note No. 73, December 1960.
[508] Evans, *Gassed,* pp. 289-90.

was not challenged, as with the presence of a 'Brigadier' arriving at the barracks in *The League of Gentlemen* and the exchange over the food in the Mess. For volunteers to complain about their treatment it would mean that they would have to challenge an authority figure, which routinely would amount to insubordination, and therefore would be a disciplinary offence. So while this part of the film served to demonstrate to an audience comprising of Service personnel that going to Porton as a volunteer was innocuous, nonetheless it raises questions as to the realities of the situation given the status of Servicemen. While the footage of an officer asking if the volunteers had any complaints was possibly included to demonstrate that the Porton tests were harmless, it appears to be an oversight on behalf of those responsible that such a scene in a military sense would be understood as being futile. Or perhaps there was a deliberate message hidden within this scene, a double-edged irony that both the film makers and the audience would appreciate in the shots of the faces of the volunteers and the words of the officer which accompanied the expressions shown.

The last scene showed the volunteers collecting their extra pay, 'usually £3', and was accompanied by the voice-over which stated that:

> At the end of his attachment to CDEE, the volunteer should return to his unit not only better off financially but also in the sure knowledge that by his work has made a definite, personal contribution to the defence of his country and the advancement of science.

As the volunteer studies had shown, financial reward was not given as the primary motive by the majority of volunteers sampled but it was recognised as strongly enforcing their primary motives. By referring to the payments at the end of the film, it gave the impression that the cash paid was a bonus, on top of the opportunities for relaxation and leisure pursuits. At a time when 'big' science was topical in the press and patriotism was indoctrinated into members of the Armed Services, the film used powerful wording to project the role of the volunteers as more than just subjects for tests. While the closing remarks of the film verbalised volunteering for Porton as a service to science, the majority of the film both visually and verbally portrayed it as an act of patriotism.

The film demonstrated that the process of recruitment was carefully considered, as the film took into account many of the findings of the earlier volunteer studies on the motives and attractions for volunteers who attended Porton, as well as a consideration of the 'types' of Servicemen who volunteered. The film appealed to the two types of volunteers identified in Shephard's study - the patriots and the glory-seekers- both of which were additionally attracted by the leisure facilities, the break from daily fatigues, passes off-site in the evenings and weekends, and the financial reward payable at the end of their secondment.[509] In the context of the military volunteer, there is the suggestion that they were considered to be selfishly-motivated rather than moved by some kind of altruistic notion of serving science. Unlike the representation of volunteering in the press which used the rhetoric of participatory citizenship, volunteers at Porton were offered material benefits alongside the invocation of notions of comradeship and patriotic duty. Limited by the need, or desire, for secrecy, Porton's recruitment methods relied upon attempting to 'know' the volunteers and using the information collated to highlight those aspects of volunteering which were deemed to be most appealing. However, with the increasingly negative media attention to which Porton was subjected in the 1960s, attempts to increase numbers of volunteers had little success. This no doubt affected the work of Porton in chemical warfare research since the work of the Microbiological Research Establishment and the Chemical Defence Experimental Establishment were, and continue to be, confused with each other because they were located on the same site. The media was no friend of Porton as activism against chemical and biological warfare grew and the media speculated on the nature of Porton's research.

ii. 'A holiday at government expense': Recruiting the Public at the Common Cold Research Unit

Publicity in the Press

In contrast to Porton, the CCRU made extensive use of the media in their efforts to maintain a regular supply of volunteers, issuing annual press releases initially in collaboration with and through the Ministry of Health and later through the MRC's Press Office. The first press release issued in May 1946 by H.S. Harding, the Ministry of

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[509] WO195/15070, Porton note No. 173, 11 November 1960.

Health's Press Officer, explained the difficulties with the study of the common cold in animals. It outlined the requirement for 'human volunteers' to test the 'cold-producing activities of materials' under examination in the laboratory, while researchers attempted to find a 'susceptible animal' to the cold virus which would enable 'progress' towards prevention of the cold.[510] It went on to describe the nature of the procedures that the selected students due to take part in the tests in July would undergo, which involved their noses being 'sprayed with material to see whether or not it contains a virus'. The need to keep volunteers 'out of contact with the outside world' was addressed but it was made clear that this did not mean a 'complete loss of freedom' as volunteers were at liberty to explore the surrounding countryside and 'live in restful and comfortable holiday conditions'.

This first press release provided information on the nature of the tests, the procedures which the volunteers would follow and the conditions in which they would reside, but it did not serve to recruit volunteers as they had already been selected. The information given to volunteers when they arrived was more detailed to give 'some idea of why their help is needed'.[511] It was explained that bacteriologists at the National Institute for Medical Research sent specimens of cold viruses as nasal washings to the CCRU which were then 'dropped up the noses of volunteers by Dr. Chalmers' (the medical superintendent) and the subsequent development of a cold would indicate the presence of an active virus. The description was detailed but not overly complicated and was written plainly, which meant it was comprehensible to most people and engaged volunteers in the science behind their participation. The information sheet ended with: 'We hope this explanation will show how, by falling in with the rather irksome restrictions for a few days, you can help to make it a success'; Andrewes' name was typed underneath the text.

As discussed in chapter IV, the national press featured stories of the CCRU from the outset and so too did the local press in the South of England. Following the first press release the *Western Gazette,* the *Wiltshire Gazette,* the *Salisbury Times,* the *Winchester Journal* and

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[510] FD1/ 3300, Press release, 21 May 1946.
[511] MH55/ 939, Information sheet given to volunteers upon arrival in 1946.

the *Southern Daily Echo* all featured stories on the setting up of the unit.[512] Further afield, news of the CCRU reached America when Bradley visited Boston with his wife. The *Boston Evening Globe* ran a headline on 22 July 1948:

Harvard Honeymoon House in Britain

Free Vacation

If You Promise

To Catch a Cold

1500 British Accept Odd Bid[513]

This article featured a photo of Bradley and explained that 'The Harvard Epidemic Unit' had been 'functioning for the past two years as a honeymoon house for newly-married British young people'.[514] Bradley was in the US visiting the Massachusetts Commissioner of Health but it appears that the CCRU was of more interest to the reporter, Frances Burns, who only inserted the purpose of his visit in the last paragraph. While this article did not serve to recruit volunteers, it does demonstrate how the unit captured the press' imagination as something 'odd'. The novelty of conducting science in a setting akin to a holiday camp appeared to make it newsworthy and therefore the publicity of the CCRU through the press also served to recruit volunteers.

Other photos taken in 1949 showed examinations of volunteers, which were likely to have been press photos, and clearly portrayed what was involved as a volunteer.[515] In 1950, The Associated Press was granted permission to attend the CCRU to take photos of the work of the unit. Leslie Priest, staff photographer of the Associate Press, produced a 'Picture Show' news feature for the Associated Press in January which depicted a husband and wife, Mr. and Mrs. Douglas Davidson, attending the unit.[516] Both the scientific procedures and aspects of the unit itself were captured in picture and the text opened with: 'The Harvard hospital at Salisbury, England, offers people a holiday with pay to come and catch cold.'

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[512] MH55/ 939, list of newspapers that ran story featuring the CCRU, June 1946.
[513] Science Museum, CCRU Collection, newspaper cuttings, 1948-1986.
[514] Andrewes had mentioned during a Press open day that the CCRU was ideal for honeymooners and it appears that Bradley took this message with him too, as the *Boston Globe* article demonstrated.
[515] www.topfoto.co.uk, an archive of pictures from numerous sources including the Press, contains two photos of volunteers Barbara Cooke and Hazel White having droplets put in their noses (file 0465013) and being examined by the medical superintendent (file 0465014), 22 January 1949.
[516] Science Museum CCRU Collection, Picture Show news feature 'Catching Cold for You', 7 January 1950.

Intended for American circulation as well British, the article informed that 'three shillings (42 cents)' were paid daily to the volunteers. The photos showed Dr. Thomas Somerville of the CCRU, equipped with a headlamp and stethoscope, examining the throat of Mr. Davidson, the volunteer, 'on his arrival at the Harvard Center.' Another photo shows the CCRU scientist Dr. James Porterfield in a white gown and face mask as he 'injects a cold virus' into the nose of Mrs. Davidson using a pipette. In another photo, Dr. Somerville is shown examining 'for germ-laden mucus'. The presence of a research scientist, Porterfield, with a volunteer carrying out the task of the medical superintendent was probably staged for the camera, just as there were various items assembled on the table in front of Somerville in the same photo which were probably 'props'.

The assemblage of scientific instrumentation gave the photos credibility and further photos showed science in practice. One demonstrated the dry-ice storage of nasal washings; another showed Dr. Keith Dumbell filling test tubes with nasal washings ready for administration; and the third depicted a technician injecting eggs with the cold virus surrounded by an array of vials, flasks and bottles. In contrast to this, the other photos were of the 'pre-fab huts' for the 'tenants'. A photo of the volunteer accommodation showed the layout of the flats connected by covered wooden walkways and was accompanied by another inside the volunteer 'apartment', of Mr. and Mrs. Davidson rug-making and knitting. In this shot were a radio set and a telephone, supporting the 'comfortable, well-equipped' description of the accommodation on offer. This article conveyed the sense that the CCRU was both an opportunity for rest and relaxation as well as a centre for serious scientific research. Furthermore, the emphasis on leisure suggested that the typical volunteer was from the middle-classes who had the time spare to engage in hobbies.

In January 1950 *Reveille,* a tabloid newspaper originally launched in 1940 for the Armed Services, ran an article on the CCRU.[517] It reported 'what they've found out about colds' and quoted the CCRU's medical superintendent, Sommerville, on the incidences of colds in 1949 which made it a 'moderately severe' year. It went on to detail 'some of the discoveries' made by the CCRU- how colds laid dormant in used handkerchiefs; that a

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[517] Science Museum, CCRU Collection, press cuttings, 1948-1986.

sneeze sent particles in the air for up to two hours; how cold winters did not affect the incidences of colds; and that 800 volunteers had already attended the unit since it was set up in 1947.[518]. The rest of the article focused on volunteers who 'have enjoyed themselves in this germ-infested atmosphere, having free holidays as a reward for helping the medical staff identify the virus and learn how colds are passed on.' In bold, the arrangements were summarised: 'The volunteers are put together in cosy bungalows with radio, books, and table games, and for ten days they become human guinea pigs'. Given the audience of *Reveille,* being put together in 'cosy bungalows' was very different to being put together in draughty, impersonal barracks.

Additionally, the article informed that volunteers were given three shillings and a bottle of beer daily, and could go for walks as long as they remained at least thirty feet away from other people to avoid contracting a cold from an outside source. In 1950, the average male wage was £15 7s per week so the total amount a CCRU volunteer could earn was 30s (or £1.10s).[519] Porton volunteers were paid at the rate of two shillings per test and therefore the amount that could be earned in a week was dependent on the number of tests an individual was willing to put themselves forward for,[520] although by 1959 the total amount was 'usually £1'.[521] 'If anybody fancies a good bout of sneezing-with-pay there is a good chance of having it', the article concluded, as the need for volunteers was mentioned and the address details of the CCRU given. The balance between reporting the science and the recreational opportunities the CCRU afforded potential volunteers was about equal. However, it is interesting that the large, bold type subheadings of the article were '800 volunteers' and 'Beer and money', especially as this newspaper was for the Armed Services. If, as it has been claimed, volunteering in the Services was seen as means of escaping the tedium of military life then the highlighted subheading had particular significance when accompanied by beer and cash. The incentive to attend in return for a holiday with free beer and pocket money appeared to be the message being conveyed,

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[518] The claim that the CCRU was set up in 1947 was wrong; the unit was first established in 1946.
[519] Hickman, *The Call Up,* p. xix.
[520] AIR20/12171, the payment was increased from one shilling in 1950.
[521] WO195/ 14846, Bramwell, History of the Service Volunteer Observer Scheme, 11 November 1959.

which would have appealed equally to poorly paid Regulars and even less well paid National Servicemen.

Alongside press releases which were transformed into news articles, volunteers were furnished with two postcards each which were intended to be passed on to friends who would be potential volunteers (see Fig. 5).[522] Therefore recruitment was not confined to mediation with the press; the volunteers who attended were used as recruiters through the distribution of postcards. CCRU 'merchandise' in the form of car stickers was proposed in 1969 but this was considered to be 'commercialism' and inappropriate so postcards continued to be handed out to volunteers.[523]

Figure 5 Official CCRU postcard, dated 1970 (Author's possession)

After the MRC took full financial responsibility for the CCRU, the MRC Press Office became responsible for the publicity of the unit and made periodical press releases in order to publicise the unit's work and the requirement for volunteers. Articles continued to be produced in various national and local newspapers emphasising its need for volunteers but additional incentives were also offered. In January 1969, The *Daily Telegraph* advertised

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[522] FD1/ 3300, Information given to volunteers during trials in 1946.
[523] FD9/ 2451, note in file, 1969; At a later point, although it is not clear when, T-shirts were given to volunteers bearing the words 'CCRU volunteer', Science museum, CCRU Collection.

the unit making available free flu vaccines to volunteers under the heading 'Free "flu 'jabs" attract few volunteers', but with the warning that 'the unit's research is in danger of coming to a halt because there are so few volunteer human "guinea pigs".'[524] The press releases issued throughout the period 1946 to 1970 remained consistent in the projection of volunteering for the CCRU as a free holiday as well as an opportunity to make a contribution to medical science. Whereas the press releases of the late 1940s and 1950s included a balance of scientific description to justify the need for volunteers, later press releases focused less on what the unit was concerned with but rather addressed how colds and flu affected individuals. There appears to be a shift from informing potential volunteers of the scientific work of the unit to highlighting how the work of the unit would benefit the individual in terms of personal gain.

Part of this can perhaps be viewed as a cultural shift from the immediate post-war years, when society was focused by the government through the press on the needs of the nation. to the late 1950s when a generation who were more detached from the war were being less influenced by the collectivist agenda. The science that many were in awe of in the early post-war period was gradually being challenged and some were becoming increasingly critical of it, notably in the area of human rights and environmental issues.[525] The scientific descriptions in early press releases served to give the unit authority and at the same time engaged potential volunteers in this somewhat esoteric knowledge. It offered volunteers a sense of shared knowledge in the 'wonders' of science that society was being exposed to at that time and the opportunity to be part of the process rather than just being subjected to it. The loss of the collectivist consensus can be seen in the changing representation of volunteering that was no longer newsworthy. By focusing on the potential benefits to the individual in the community, the CCRU was appealing to the 'new' generation who were more sceptical of science and less influenced by the needs of the nation, and who were perhaps selfishly motivated to take part for their own benefit with the continued enticement of free board and lodgings.

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[524] FD9/ 2451, *Daily Telegraph* press cutting, 12 January 1969.
[525] For example, see Taylor, *The Scientific Community* who linked the changing public attitudes about science with the decline in science education in schools and universities.

Sourcing Volunteers through Posters

Leaflets were also distributed, particularly among the student population, aimed at appealing to students who would benefit from peace and quiet to study and some extra money with no expenses. With the appointment of a new medical superintendent, Dr. Tom Hall, following the death of his predecessor in 1969, came a new enthusiasm for publicising the need for volunteers.[526] The previous medical superintendent, Dr. M.L. Bynoe who was in position from 1962 but had worked at the unit since 1957, had been less than enthusiastic in his engagement with the press, unless it was directly for the purpose of recruitment.[527] Dr. Hall exercised his creativity in devising posters which would encourage more volunteers to apply, and the unit was represented as a holiday rather than a research establishment. An outline draft for a poster with the heading 'The Germ of an Idea!' was sent to the MRC Press Office in 1970, suggesting that a picture used in Christopher Andrewes' publication *In Pursuit of the Common Cold* (1965) of a 'most glamorous girl' should be used for illustrative purposes.[528] Hall proposed that this be accompanied by the following:

> How would you enjoy a free 10 day holiday in comfortable surroundings, positively no expenses, 7/- a day pocket money, and free beer if you like it? And help forward Medical Research on the Respiratory Diseases that waste so much time and money?

Hall's accompanying letter to the poster draft explained that having canvassed librarians in London, most were happy to publicise the CCRU and the intention was for the poster to 'catch the eye'.[529] The use of the 'glamorous girl' and the catchphrase 'germ of an idea' was intended to be used together so as to 'attract the attention of the young', with the implication that attending the CCRU could also provide the opportunity for men to meet women and so therefore would be a good idea.

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[526] FD9/2451, letter from Dr. Tyrrell to Mrs. A. Sanderson of MRC press office, 9 October 1969.
[527] FD9/ 2451, MRC internal note, 1968.
[528] FD9/2451, outline draft of recruitment poster, 1970.
[529] FD9/2451, letter from Hall to Arnold White, CRC, 9 July 1970.

The poster which was eventually circulated in 1971 was somewhat different from the draft. Rather than portraying a 'glamorous girl', a line sketch of a female head reminiscent of a phrenologist's model was used with a thought bubble containing the words:

"THE GERM OF AN IDEA!"

HELP THE MEDICAL RESEARCH COUNCIL TO FIGHT COMMON COLD AND INFLUENZA

10 days Holiday – FREE

All expenses and 35p a day

Rather than appealing to the younger population, as envisaged by Hall, the poster contained little that made it particularly suited to a certain section of society. The pseudo-scientific image of a phrenologist's head was interesting especially as the CCRU had long used science combined with recreation as a tool in recruitment. The image was like a pictorial representation of the CCRU combining popular science with a hobby in the pursuit of volunteers for research purposes. Another form of pictorial representation used to recruit volunteers was the coverage of the CCRU in the news.

Enlisting Television for Publicity

Some of the earliest footage of the CCRU appears to be Pathé newsreel from 1947 when a short piece was filmed of volunteers arriving at the CCRU and settling into their 'new homes' at the unit.[530] Titled *Colds to Order*, the first shot showed two pairs of volunteers arriving at the unit driven there by car and the men and women unloading their luggage. The voice-over accompanied the scene with: 'These bright young people are starting a holiday at government expense. They answered the appeal for volunteers to enable scientists to find out more about the common cold.' As the volunteers were greeted by the matron, identifiable by her headwear, the commentator informed the viewer that 'They're welcomed and shown to their comfortable quarters at the Harvard Hospital', adding 'And there's room for more if you feel like it.' A close up shot of a sign with 'Harvard Hospital' on it was taken before cutting to the female volunteers settling into their flat. The commentator then announced 'These quarters are fine! Hello! A radio, that's good.' The

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[530] British Pathé News Archive, 1231.06, *Colds to Order,* 7 April 1947, www.britishpathe.com, first accessed 16 October 2005.

volunteers found that the radio was not working, so the telephone in the flat became the focus of the shot so an 'engineer' could be called.

The film was very much staged to demonstrate the positive aspects of being a volunteer. The 'fine' and 'comfortable' accommodation was furnished with radio and telephone which were luxury items for many at a time when Britain was still recovering economically from the war and rationing continued to be imposed on the population. The description of the volunteers as 'bright young people' suggested that these were the types of people who volunteered and that assisting scientists was secondary to the 'holiday at government expense'. Clearly the intended purpose of the film was to demonstrate what it was like to volunteer and to attract more volunteers, hence the 'room for more' reference. Although a pair of male volunteers arrived with the female pair, they were not featured and the camera followed the young attractive girls.

When the film then turned to the administration of nasal washings and showed the girls lying down having a pipette inserted just inside the nostril, the commentator stated, 'Ah, this isn't quite so much fun' but the image was short-lived as the next shot was of the food arriving at the flats in 'thermos containers' followed by the girls sitting down to a meal. Both girls sneezed in turn, 'Well it's what they came for' responded the commentator. The arrival of the telephone engineer demonstrated the need for isolation as he was filmed donning a 'protective hood' which the viewer was informed was worn by all visitors 'to keep the little germ in his place'. The film ended with the girls playing darts and the commentator's words 'Still, it's all good fun.'

Another Pathé newsreel without sound from 1950 portrayed volunteering in a similar manner.[531] This footage focused on two pairs of male volunteers and followed them as they arrived at the unit, were shown to their accommodation, and settled in. One of the volunteers was a member of the clergy, as a semi-close up shot of his head and shoulders brought his dog-collar to the viewers' attention, and he was filmed on three occasions studiously working on his type-writer while his flat mate read his newspaper and listened to

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[531] British Pathé News Archive, 2288.15, *Common Cold Research,* 1950.

the radio. The presence of a vicar, an exemplar of the upper-middle class, perhaps served to demonstrate the wide appeal that the unit had. Conversely, it may have been used to suggest the kind of clientele the unit preferred. This accorded with the representation of the CCRU in *The Times* which attempted to 'sell' the collective consensus to its largely upper middle-class readership. The scene of volunteers eating a meal included a close up shot of the food - pie, beans and potatoes - piled on the plate, which represented a sumptuous meal when rationing was still being imposed. There were more scenes of the experimental procedures in this film - one shot of two male volunteers laying on a bed side-by-side having drops administered, another showing the men having their throats examined and handkerchiefs inspected, and a subsequent scene of women in the CCRU's laboratory injecting eggs with cold viruses. The final scene showed the man with the dog-collar sneezing, which demonstrated that all volunteers were susceptible to succumbing to the common cold.

This film differed somewhat from the earlier one in that there was more focus on the scientific procedures rather than just on the leisure opportunity. The lack of sound means that the interpretation of the scenes is dependent on the subject material rather than the direction of a commentator; however, the focus of the film on male volunteers suggests that the subject matter of the film was targeted towards them. When compared to the earlier film that followed two female volunteers upon arrival at the unit, there is the suggestion that men were less interested in the leisure facilities than women. Instead, the scenes of experimental and laboratory procedures that were covered in the scenes of male volunteers (which were given so little 'airtime' in the film of female volunteers) suggest that it was considered that men would be more interested in this aspect than women. The close-up shot of the meals the men were consuming further suggest that this was something potential male volunteers might have found appealing. The orientation of the two films towards (stereo-typical?) gender-specific aspects of the CCRU appeared to be what was considered to appeal to potential male and female volunteers. With the support of the British press, the representation of volunteers in these news films were very much representative of the views of the CCRU which in turn embodied the government's collective agenda for participatory

citizens. Volunteers were represented as interested and intelligent, while taking advantage of the opportunity for rest, relaxation and quiet study time.

The presentation of volunteering as a holiday given in the films mirrored that of posters and press articles. The image of volunteers as intelligent individuals who volunteered to help medical science reflected the construction of the post-war citizen contributing to the benefit of the nation. However, for potential volunteers the additional message conveyed was that intelligent people volunteered to attend the CCRU for the opportunity of an all-expenses paid holiday. The administration of nasal washings occupied only one very brief scene in the first film, suggesting that this was but a minor inconvenience when accompanied by the home comforts afforded by the accommodation and the leisure time. Volunteering was not presented as altruistic but rather that there was more to be gained than merely a sense of well-being from making a contribution to science. Interestingly, neither of these films mentioned the 'pocket-money' given to volunteers although the press had frequently publicised this, as did the information given to applicants by the CCRU. The explanation for this is not obvious, although perhaps the money, three shillings per day, was not considered to be a strong enough incentive alone and therefore the portrayal of volunteers as a particular type of person who would benefit from contributing to science (if male) and having a period of rest and relaxation (if female) was considered to be more of an attraction. From the outset, the research agenda of the CCRU was very much in the public eye as its work was of public concern and therefore given to be of national importance. The transparency of the work of the unit conveyed through press conferences and media invitations to attend helped to attract volunteers who were 'sold' a free holiday in exchange for the loan of their nasal passages.

iii. Recruitment in Military and Civilian Contexts Compared

The recruitment of volunteers represented in films, the press and other printed material in the contexts of Porton and the CCRU differed in a number of ways. Whereas the CCRU was the focus of media attention that was deliberately courted as a means of recruitment, Porton's work on chemical warfare agents was secret and therefore did not enjoy the positive attention from the media that the CCRU did. By remaining secretive, Porton's

work gradually attracted negative media attention which Porton was slow to address.[532] The dilemma was that Porton knew some tests were 'unpleasant' but needed to obtain subjects. Secrecy provided an opportunity to misrepresent the nature of the tests and military authority and conditioning deterred service volunteers from challenging the lack of information given. The selection of volunteers influenced the ways in which volunteers were recruited and how the volunteer was represented. At the CCRU, volunteers were initially represented as intelligent participatory citizens. As time moved on and the economic imperatives of the nation struggling from the financial burden of the war faded, volunteers were increasingly represented as opportunists who could take advantage of a free holiday although the notion that they should be treated as intelligent human beings appeared to remain consistent.[533]

While the methods of recruitment by the two establishments differed, as did their selection of volunteers, there were aspects which were similar and are of particular significance when considering the representation of the volunteer. Both Porton and the CCRU represented volunteers in a particular way for a particular purpose. Through portraying volunteering with enthusiasm as an act of public-spirited goodwill, the CCRU was purposefully shaping the 'volunteer' to accord with a model that was given to be conducive to securing 'bodies' for tests. Likewise, Porton used the issue of secrecy to keep details of the nature of tests hidden and portrayed volunteering as a break from institutional life in the military. Elements of Porton's recruitment material also reinforced military culture, portraying volunteering as an altruism to their 'mates' as well as more broadly appealing to patriotism. Service to science as a motivation was more apparent in the CCRU literature, particularly up to the mid-1950s, but to a lesser extent it could also be detected in Porton's recruitment

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[532] As mentioned before, the Porton establishments - Microbiological Research Establishment and the Chemical Defence Experimental Establishment - held open days in 1968 and 1969 but this was perhaps too little too late to quell the campaigners or squash the media speculation into the nature of Porton's research that had been growing since the late 1950s. See Carter, *Chemical and Biological Defence*, 'Opprobrium', pp. 117-131, for an account of the negative reception of aspects of Porton's work particularly in relation to biological warfare agents.

[533] FD9/ 3661, Consent forms and literature given to volunteers prior to their attendance at the CCRU from 1975 followed the same form as those issued in 1947. A leaflet composed by the second director, David Tyrrell, 'What's it all about?' provided details of the work of the unit over the years and how volunteers had contributed, as well as what volunteers should expect when they arrived. This was the same approach used in 1947 when the unit's first director, Christopher Andrewes, penned the original leaflet 'What's it all about?'.

methods. Both establishments used personal benefits and financial gain, such as cash incentives, use of amenities, and a change of scenery, to underpin the motives for volunteering as expressed through their recruitment material. The intended outcomes of recruiting volunteers were the same for Porton and the CCRU. It was critical to the research imperatives of both establishments that volunteers were secured and it was not in the interests of either Porton or the CCRU to portray volunteering in a manner which would be detrimental to their research needs. In terms of hierarchy of importance, recruiters for both establishments portrayed citizenship and patriotism as the prime motivation for volunteering. Personal gain, altruism, and service to science were not, however, secondary but rather supplementary. Both Porton and the CCRU used these aspects of volunteering to increase their appeal.

The CCRU appeared to make a perceptive decision from the outset that, because the recruitment of volunteers would be channelled through the press, it needed to appeal to the general public. Consideration of the sensitivity of the issue of using human subjects in tests was overcome by casting it as a social enterprise for collective goodwill, which accorded with notions of citizenship. This seemed to be a conscious decision to appeal to the higher motive but it did not in itself secure volunteers. Additional enticements of money and beer, as well as the amenities, were considered to be important factors which helped to maintain a pool of volunteers. The initial focus on the student body as research subjects would explain these additional enticement; however, when the decision was taken to recruit from the general public these incentives remained. There is a sense that the CCRU was trying to cover all possibilities through offering a range of additional enticements, to make volunteering more than merely an act of goodwill. Extra money might have appealed equally to students, housewives, or the unemployed. Likewise, the leisure facilities and the location of the unit near to Salisbury Plain had a wide appeal. This formula appeared to work well until the collective consensus that dominated most of the period of this study lost its support from the press by the late 1950s. However, volunteers continued to come forward even without the enthusiastic press attention. This was perhaps because the CCRU was able to circumvent the growing negativity towards science by distinguishing itself as medical science.

Volunteers for both establishments continued to be secured, although numbers at Porton significantly declined, but it is not altogether clear what recruiters believed to be the true reason(s) for volunteers coming forward. Porton's psychological studies produced a number of reasons which volunteers claimed motivated them to attend. However, the reliability of such data collected from Service personnel by an officer is in dispute. Yet, there is a sense that Porton accepted the given reasons for volunteering as was evident in the construction of the recruitment film *Volunteers for Porton.* Much of the recruitment material used by Porton conformed to the ethos of military culture. DCIs followed the typically brief form of administrative instructions and the recruitment film reified patriotism and altruism to fellow Servicemen.

Transparency at the CCRU contrasted with secrecy at Porton, but both were used for the purpose of achieving the goal of attracting volunteers. The success of transparency was evident from the on-going willingness of volunteers to attend year after year, even after the commencement of drug trials at the CCRU. It is difficult to quantify the success of secrecy because it is difficult to envisage how Porton could ever have secured volunteers had it operated a policy of absolute transparency. Transparency in the work of Porton would have been at odds with the very nature of the research which sought to develop knowledge of potential threats in the climate of the Cold War. What becomes clear is that the context of research was the foundation upon which the identity of the volunteer was constructed, regardless of the risks or the benefits (direct or indirect) to the subject, and how the volunteer was constructed by Porton and the CCRU was directly influenced by the establishments' agendas. However, the CCRU appeared to read the mood of the British public and the construction of the volunteer very much accorded with the ideals of citizenship put forward by the government. This helped to gain press support and sustained the momentum. Not needing to have the same considerations, Porton was able to construct the volunteer only within the parameters of military life and the scientific imperatives.

Chapter VIII: Conclusion

'Why is it better to be a doctor than a patient? You're one of the few people who can actually give *Informed Consent* (not that you ever would)', Anne Eva Ricks, MD.[534]

In its simplest form, this study sought to ask, 'What was a volunteer in human experimentation?' The complex question was to analyse the extent to which the medico-scientific model, that situated a volunteer as a consensual participant in an experimental programme, was an adequate description. This study has demonstrated that it was inadequate, and, furthermore, that it distorts the historical perspective of how volunteering was perceived and represented. The temptation to define 'the volunteer' through prescriptive definitions embodied in medical ethics codes has, for some academics, been overwhelming. However, this position fails to take into account a number of factors. In particular, despite the medico-scientific definition, the profession remained self-regulating in their use of human subjects until increased bureaucracy in the 1960s enforced greater control over individuals' practices. Even so, the particular problem of the issue of consent remains contentious.

On 27th June 2006, I was invited to attend a Wellcome Trust funded workshop entitled 'Volunteers in Biomedical Research: Social Science Perspectives' at University College, London, to offer an historical perspective of volunteering through my paper, 'Where it is the habit of the scientist to question, it is that of the soldier to obey.'[535] An Historical Perspective of Volunteering for Human Experimentation in Military and Civilian Contexts, post-WWII'. The workshop consisted of academics presenting case studies of the use of volunteers in various medical contexts and some discussions centred on how consent was obtained and understood. Both researchers' and subjects' perspectives were explored, as well as the contexts within which the research was undertaken. This put my research into a wider perspective because it highlighted how contemporary research practices in the use of volunteers and obtaining consent remain problematic. The practice of obtaining consent in

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[534] H. Bennett, (ed.), *The Doctor's Book of Humorous Quotations* (Hanley & Belfus Inc, Philadelphia, 2001), p. 130.
[535] S. Zuckerman, *Scientists and War* (Hamish Hamilton Ltd, London, 1966), p. 9.

contemporary research is a pre-requisite to any invasive medical procedure, yet the quality of the consent given continues to be an area of concern. The factors which affect the individual's consent, or proxy consent in the case of a minor, which can be emotional, psychological, intellectual and practical, mean that the notion of truly informed consent continues to be challenged. Just as defining a volunteer by the principle of consent is historically inadequate, so in contemporary research the consent principle requires greater sensitivity to the cultural frameworks in which it is applied.

The process of obtaining and giving consent, according to the principles of ethic codes, and particularly the Nuremberg Code which set out that there should be no inducement, coercion or threat, are as unrealistic today as they were during the period under study here. This is further demonstrated by the events at Northwick Park in March 2006 when clinical trials on six volunteers resulted in severe adverse reactions to the drug TGN1412, designed to treat rheumatoid arthritis, multiple sclerosis and leukaemia. While the consent of the volunteers was obtained, it was reported that each participant received upwards of £1,000 which represents a strong inducement to take part. The website that advertised for volunteers on behalf of the drug company used images of leisure facilities and the prospect of extra money to attract potential volunteers. Personal gain in participating in drug trials was the main focus of the website and this very much accorded with the image of the CCRU, and to a lesser extent Porton, which similarly used the prospect of leisure time and payment.

The codification of medical ethics and consent in the Nuremberg Code served a specific purpose at a pivotal moment when standards of ethical practice needed to be set down against which to judge the Nazi doctors. Its wider application to the field of medical science has created an 'empty ethics' model that has denied the role of the cultural framework in shaping the volunteer. The discussions concerning the use of human subjects arising from the MRC headquarters demonstrated that researchers tended to define volunteers according to their own practices. For some experimenters, a patient-volunteer was distinguished from a volunteer drawn from the general public. For others, there were no differences. The subject of consent further conveyed the range of attitudes towards patients as volunteers.

Some researchers considered consent to be detrimental to the integrity of the researcher, while others expressed concerns that consent was detrimental to the rights of the subjects. Resistance to consent forms was grounded in notions of professional autonomy and authority, that the researcher was the best judge of the ethics of practice and that consent forms were detrimental to trust between patient/ volunteer and the researcher/ physician. Clinicians who undertook experimental procedures defined volunteers according to their patient status, which differed from researchers engaged in non-therapeutic research on otherwise healthy subjects that was based on a more contractual relationship.

When the Nuremberg Code was discussed by the MRC in 1955, apparently for the first time, although its general principles on informed consent were acknowledged, it remained discretionary as to how consent was sought. Rules that would govern research were rejected because of the specificity of research in various contexts with a range of subjects. It was not until 1968 that measures were implemented in the internal regulation of experimentation with the formation of the MRC's Committee on Human Investigations. However, this initially remained advisory and the position of internal members on the committee, rather than external membership, ensured that the MRC were being seen to be doing the right thing, even though the committee was neither neutral nor impartial. In 1969, more stringent rules were being dictated. MRC directives to their units on the requirement that all investigations with human subjects be approved by the ethics committee marked a significant shift away from the reliance on researchers' autonomy. The medico-scientific model of the volunteer given in medical ethics codes was, therefore, an idealised concept. The primacy of consent, informed or otherwise, has been treated as an absolute principle which has reduced the definition of a volunteer to a one dimensional entity. Moral ethics have apparently influenced the historical construction of medical ethics, creating a detachment from the cultural framework in which the volunteer originated. The MRC discussions demonstrated that the construction of the volunteer was dependent on the outlook of the researcher, which differed according to the nature of their research, and the context in which volunteers were used. Therefore, for a more nuanced understanding of what it meant to be a volunteer an examination of the broader cultural framework was required.

Science and citizenship were important features that shaped the society from which volunteers were drawn after World War Two. The government's agenda for collectivism. supported by the press, endorsed volunteering as an act of citizenship. The image of science, as a motivational focus of patriotic pride for the collective agenda of citizenship, was transformed by the press from its destructive image during WWII to a positive one that upheld the collectivist consensus. The identity of the volunteer was constructed in the rhetoric of citizenship and the representation of volunteering, in a general sense, by the press demonstrated this. When examining the construction of the volunteer in experimentation by the press, it appeared that the ideology of citizenship superseded the sway of science. The enthusiasm with which the press took up the CCRU's calls for volunteers from 1947 demonstrated its appeal to the collectivist agenda. The CCRU volunteers were cast as (aspiring) middle-class, intelligent people who were participating in a collective enterprise for the benefit of the nation. In contrast to this, news reports of military experiments did not use the same language.

The term 'volunteer' was dropped from the limited news reports of military experiments because evidently the use of Service personnel as experimental subjects did not form part of the collectivist agenda and therefore was not newsworthy. Volunteering in a military context evaded press attention as it made little contribution to the socio-political agenda the press were clearly supporting. Even though Porton had used Service personnel as experimental subjects throughout this period, it was not a story that had prominence. When attention did turn to Porton's activities, however, the press reflected the public's concerns regarding the potential use of biological agents of warfare and the environmental impact. Concern over the wellbeing of its Service volunteers was not a subject for press attention. Therefore, the volunteer that the press constructed was a public spirited individual who aspired to be part of the community in performing worthwhile acts of citizenship.

The influence of science on the public construction of the volunteer was limited. However, the scientific profession had the freedom to mould the identity of the volunteer as it suited. Scientists found greater autonomy despite the scale of government and corporate research

because their status in society had improved following the increase in the military application of science during WWII. Therefore, scientists could negotiate through their authoritative knowledge to shape the volunteer according to their research agenda. Discussions between government ministers, military representatives and Porton scientists demonstrated that the internal and external relationships between the government (as employer) and Porton (as employee) were not based primarily on hierarchy of positions. The Porton scientists were their own experts in the use of human subjects in experiments and outsiders who did not have the same knowledge or experience lacked influence over their research practices. Prior consent from Service personnel who attended Porton was not considered necessary and consent forms were dismissed on the grounds that they deterred volunteers, yet Service personnel who underwent tests at Porton were still considered to be volunteers. The organisational structure at the CCRU was far less complex and therefore conflicts appeared to be minimised with little competing interests. The significance of institutional authority and autonomy at Porton and the CCRU emerged more clearly in the study of volunteer recruitment methods.

The institutional shaping of the volunteer by the CCRU, in contrast to the secrecy of Porton, was dictated by the need for transparency in the recruitment of the general public. From the outset, it was recognised that there was a need to secure the 'goodwill' and 'enthusiasm' of volunteers. Information was imparted to each and every potential volunteer upon application, which explained the unit's research and the volunteer's contribution. The CCRU were sensitive to the issue of using human subjects and were careful to ensure that volunteers were willing to take part. The broad aims of the CCRU, to find out more about the transmission of the common cold, claimed a shared ideology with the government's socio-political agenda. The collective participation of British citizens in common cold trials mirrored the call for active citizenship in the post-WWII period to revive the nation's economy and status. The press support for the collective consensus ensured that the CCRU enjoyed favourable coverage and when that waned, the quirky appeal of the unit carried it forward. The Porton volunteer was conceived of in different ways because of the involvement of military representatives, government officials and the Porton staff.

From the more external perspective of the government, the Porton volunteer should have been 'genuine' in the sense that consent was obtained and the voluntary nature of participation in Porton tests was made transparent beforehand. This definition did not work in practice, as military representatives asserted, because full details of the nature of the tests could not be disclosed until the Service personnel arrived at Porton. Discussions concluded that greater disclosure had the reverse effect because it dissuaded potential volunteers. Therefore, while the Ministry of Supply voiced its opinion on the nature of volunteers, it was Porton and the military representatives within the establishment who decided the terms by which Service personnel were defined as volunteers. Just as the authority of Porton had taken priority in determining the research with human subjects, so Porton had the authoritative viewpoint on determining the nature of the volunteer. The use of military personnel in experiments, other than Porton tests, suggests that defining a military volunteer was dependent on the nature of the investigation and the research establishment. However, it was recognised that inducement or threat used to coerce a Serviceman to volunteer meant that should an accident occur, the individual who induced or threatened the volunteer would be responsible and not the State.

Porton was able to circumvent this position because, as a government establishment, volunteers who attended were indemnified against accidents whether threats or inducements were used or not. Therefore, the definition of a military volunteer was not singular. In general, the view was that military volunteers were only 'true' if they were aware of the nature of the tests and were not coerced. This rule, however, did not apply to Porton military volunteers who were, through the payment for tests, coerced to attend. The primary difference between the representation of military volunteers for Porton and those for other experiments seemed to rest on the issue of responsibility. Servicemen who took part in non-military, external tests were expected to sign that they were not induced to take part and that in doing so the military freed themselves from responsibility. For Servicemen who attended Porton, there was no such requirement because they remained the responsibility of the military. Moreover, the secret nature of the research at Porton meant that potential volunteers could not be given details of the nature of the tests prior to

attending and therefore the procedures that emerged by 1967 for the Army Medical Services could not be implemented in the context of Porton.

The definition of a volunteer became a research question in itself at Porton, such was the importance of recruiting volunteers for tests. Part of these studies examined the motivations given for volunteering and these findings were strongly evident in the recruitment film *Volunteers for Porton* subsequently produced, even though there is no evidence that these directly and intentionally fed in to the film's construction. The psychological studies also highlighted another category of the military volunteer that differed from the 'true' volunteer and the 'volunteer after threat or inducement'; this was the 'volunteered' volunteer. In the first volunteer study it was explicitly acknowledged that Service personnel who attended Porton were possibly subjected to a degree of selection by their Commanding Officers and therefore were not volunteers in the sense that their attendance was voluntary. This was also an area of discussion in the second study which considered that the role of Commanding Officers in permitting or refusing Service personnel to attending Porton was a factor in recruitment.

Recruitment material used to attract volunteers to Porton betrayed the necessity of acquiring subjects over the need to conform to any such medico-scientific definition of what a volunteer was. Written instructions represented volunteering as an opportunity for a break from military routine, a chance to earn extra cash and the opportunity for increased leisure time. With scant detail of the nature of the tests, the volunteer was defined through written instructions as a Serviceman who was generally bored with Service life. The recruitment film *Volunteers for Porton* visually represented the volunteer as a compilation of the observed characteristics that emerged from the volunteer studies carried out. An act of patriotic duty as well as personal gain, the film portrayed volunteering in the context of the military ethos of camaraderie and duty. A similar sense of duty was conveyed in the recruitment of volunteers for the CCRU, which portrayed volunteering as a duty of citizenship. At the CCRU, there appeared to be a focus on attracting volunteers from the middle-classes, as evident from certain news and press coverage, although it may have been

an angle the media chose to take in attempting to persuade the middle-classes to take up the collectivist agenda. Clearly, the CCRU embodied many of the features of collectivism because it called for active participation from the general public to volunteer for research that was of collective benefit. Moreover, the focus of the unit on medical science validated its research even after the collectivist consensus declined. While the shift in attitudes towards science in the public mind rendered the CCRU less popular in the press than it had been, it did not incur any negative attention but, rather, became absorbed as an almost British eccentricity.

The socio-medical definition of a volunteer, according to medical ethics codes, as an individual who voluntarily took part in experiments without inducement or coercion is wholly inadequate, because it fails to take account of the particular institutional settings in which volunteers are used. This study had demonstrated that 'the volunteer' was socially constructed through negotiation between the physical environment, the researchers and interested parties, and the climate of research, which determined the extent to which volunteers conformed to the socio-medical definition. Where consent was obtained, it was not to satisfy the criteria of medical ethics codes but rather for the protection of the researchers or the establishment from potential legal action. The identity of the volunteer as defined by medical ethics codes was an ideal rather than an actuality, until the 1960s when it was evident that the autonomy of the individual researcher to determine his own practices was being challenged. By 1967, the MRC acknowledged that there needed to be measures in place to monitor the ethics of human experimentation; likewise, Porton set up its Human Safety Committee in the same decade. The decline in support for collectivism advocated by the government since the end of WWII appeared to give way to greater suspicion of science. The measures taken by Porton and the MRC can be seen as an outward sign of propriety, that they were mitigating negativity through being seen to be taking precautions. The extent to which this impacted upon practices in the use of human subjects post-1970 requires additional research.

Through unpacking the various aspects of volunteering: society's understanding of volunteering; the military use of volunteers; scientists' perspectives of volunteers;

recruitment methods; it is evident that the nature of the volunteer differed according to the cultural framework in which it was situated. In a civilian setting, a volunteer could be a good citizen, a patient, or an opportunist taking advantage of the offers of payment and leisure facilities. In a military context, the 'induced or threatened' volunteer could be discerned alongside the 'free' volunteer and the 'volunteered' volunteer. The place of consent in the construction of the volunteer, therefore, was not absolute. The construction of the volunteer was transient, as was the process and place of consent, and it needs to be acknowledged that judging ethical propriety in the past cannot ignore the cultural elements which influenced how the volunteer was understood. By privileging the cultural perspective over the legal (and moral, in a judgemental sense), this study provides a richer understanding of research on human subjects in practice.

Future Directions

This study has flagged up a number of directions for future academic research. The field of human experimentation in Britain is grossly under-studied and clinical research practices in universities would be one area to explore. The use of universities for government extra-mural contracts would be a fascinating site of historical research to better understand the relationships between the researchers, the universities and the government. Likewise, the use of students and patients as research subjects in universities would provide a richer historical understanding into the negotiation of the position of the volunteer. More research remains to be undertaken into volunteering from the volunteers' perspectives and Professor Ulf Schmidt's Wellcome funded project will help to close the gap in relation to the Porton volunteers and the legal dimension of medical ethics in military research on human subjects. However, there remains work to be done in other institutional settings, both military and civilian.

In the field of the military, other than the lack of literature that explores social and cultural aspects of military life, there are many potential avenues for future research. The Naval Experimental Diving Unit at Portsmouth and the Army Personnel Research Establishment (APRE) at Farnborough both used Service personnel in tests and their research practices in comparison to Porton would help to develop an enhanced understanding of the use of

human subjects in the military context. A related area that was common to Porton, the diving unit and the APRE was the field of ergonomics and cybernetics. The relationship between man and his environment and their biological effects assumed greater importance with the development of military technology. This is an exciting area for future research because the foundation of ergonomics in Britain was relatively recent, occurring in 1944, and has had limited academic attention.[536] Therefore, the historical study of ergonomics from a cultural perspective has the potential to be developed into a research project that could draw on the findings relating to volunteering in this study and expand upon them. The examination of scientific thought in the area of human factors and environment, and how Service personnel were used to trial technological developments, would be an interesting area to explore. This would also facilitate an opportunity to look in more depth at the role of psychology in the military, upon which this study has only briefly touched.[537]

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[536] There are a number of publications on the history of ergonomics but the majority appear to be authored by members of the Ergonomics Society. Some references to the APRE are made in J. Ernsting, 'Defence Physiology' Bud & Gummett, (eds.), *Cold War, Hot Science.*

[537] See P. Watson, *War on the Mind: The Military Uses and Abuses of Psychology* (Hutchinson & Co, London, 1978), for an account of the use of military psychology primarily in the US but also in Israel and the UK. The sources used by Watson were mainly published research papers but there are now unpublished research reports available.

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