

Cold War Nonconsensual Experiments: The Threat of Neuroweapons and the Danger it will happen again

CHERYL WELSH, J.D.*

Abstract

During the Cold War, the U.S. government experimented on American citizens without their permission. Although nonconsensual experiments are prohibited under the U. S. Constitution, U.S. law allows for waivers and exemptions of informed consent in U.S. government research. This paper examines how and why all major reforms efforts to ban nonconsensual experiments have failed. It examines emerging evidence of secret neuroweapons; neuroscience-based weapons that may be comparable to the atomic bomb and the significant danger of further nonconsensual experiments being carried out today. The paper also reviews the current debate on the persistent allegations that on-going nonconsensual government experiments are happening again and gives recommendations for future reform efforts.

Keywords: nonconsensual experiments, U.S. experimentation law, ethics, secrecy, neuroweapons

1. Introduction

During the Cold War, the U.S. government experimented on American citizens without their permission.

'The vastness of the human experimentation became clear only in 1994, when the U.S. General Accounting Office reported that hundreds of thousands of Americans were used in military-related experiments involving radiation, blister and nerve agents, biological agents, and LSD between 1940 and 1974.'¹

The 1995 Advisory Committee for Human Radiation Experiments (ACHRE) Final Report called for regulations to halt such human subject experimentation without informed consent.² Top U.S. government officials - including Hazel O'Leary, Secretary of the U.S. Department of Energy - stated that such experiments should never happen again.³ Yet today, some officials still have the power to waive regulations requiring informed consent in classified government experiments.⁴ This paper examines how and

*Cheryl Welsh JD. is director of a small non-profit human rights group located in Davis, California, U.S. She authored the opinion-editorial, 'Outlaw Nonconsensual Human Experiments Now' in The Bulletin of the Atomic Scientists, Web Edition, 16 June 2009. Available at <http://thebulletin.org/web-edition/op-eds/outlaw-nonconsensual-human-experiments-now>. This paper provides background information on the Bulletin opinion-editorial.

¹ Eileen Welsome, *Plutonium Files: America's secret medical experiments in the Cold War* (New York, NY: Dial Press, 1999), 211.

² United States Advisory Committee on Human Radiation Experiments (ACHRE), Final Report, (Washington: U.S. GPO, 1995), 828. Available at <http://www.hss.energy.gov/HealthSafety/ohre/roadmap/achre/index.html>. Last accessed 3 March 2012.

³ Project MKULTRA, the CIA's Program of Research in Behavioral Modification before the Select Committee on Intelligence and the Subcommittee on Health and Scientific Research of the Committee on Human Resources United States Senate, 95th Congress. p.1 (Washington: U.S. GPO, 1977). See also Welsome, *Plutonium Files*, 474. n.1 above.

⁴ 45 U.S. Code of Federal Regulations (CFR) Protection of Human Subjects, 46.101(i), (Effective 19 August, 1991). 46.101(i) states in part: Unless otherwise required by law, department or agency heads may waive the applicability of some or all of the provisions of this policy to specific research activities or classes or research activities otherwise covered by this policy.' See also EO No 13,470, Further Amendments to

why U.S. reform efforts to ban nonconsensual experiments in classified experiments continue to fail despite the strong ethical and constitutional basis for a consent requirement.

This paper also examines the emerging development of new secret weapons, called neuroweapons, and the need for research involving human subjects. Neuroweapons, which are based on neuroscience,⁵ are 'weapons of selective deception and manipulation'.⁶ They 'affect the brain and nervous system and provide some advantage in a conflict'.⁷ Neuroweapons research includes 'mind-machine interfaces ("neural prosthetics") that will enable pilots and soldiers to control high-tech weapons by thought alone'.⁸ Several experts have argued that such weapons could have far-reaching and transformative implications similar to the societal impact of the atomic bomb; therefore nonconsensual experiments for national security research will continue to be a significant contemporary problem.⁹ This paper focuses on U.S. neuroweapons research because the U.S. is conducting more neuroscience research than any other major country and U.S. experts believe it is time for public discourse on the emerging development of neuroweapons.¹⁰ Neuroweapons and the older term, mind control weapons, (which were being explored in the CIA's Cold War mind control programs) are used interchangeably in this paper.

Section 2 presents a summary of the Cold War nonconsensual experiments. Section 3 discusses the ethical basis for a consent requirement in U.S. research and the U.S. government's reliance on ethics for preventing nonconsensual experiments during the Cold War. It briefly presents the new field of neuroethics as applied to neuroweapons. With a focus on the consent requirement, section 4 briefly discusses international experimentation law and its influence on U.S. law while section 5 examines U.S. experimentation law. Section 6 addresses obstacles to a consent requirement in secret research, including the influence of powerful lobbies, concentration of power in the executive branch, excessive secrecy, and misleading rhetoric. It analyses the government's post 9-11 emphasis on ethics to prevent further nonconsensual experiments. Section 7 discusses the reform efforts resulting from the public exposure of Cold War experiments and the failure to ban nonconsensual experiments. Section 8 reviews the current debate over whether neuroweapons could be developed and whether the persistent allegations of nonconsensual experiments for the development of neuroweapons could be true. Section 9 presents some concluding remarks and recommendations for future reforms.

Executive Order 12333, United States Intelligence Activities, 73 FR 45,325 (4 August 2008), p.45,339. Available at <http://www.archives.gov/federal-register/executive-orders/2008.html>. Last accessed 3 March 2012.

⁵ Neuroscience consists of 'the multidisciplinary sciences that analyse the nervous system to understand the biological basis for behavior.' Larry Squire, ed., *Fundamental Neuroscience*, (Boston, Mass: Academic Press/Elsevier, 2008), 3.

⁶Jonathan Moreno, *Mind Wars: Brain research and national defense*, (New York, NY: Dana Press, 2006), 171.

⁷Ibid.

⁸ Hugh Gusterson, 'The Militarization of Neuroscience', *Bulletin of the Atomic Scientists (Online)* 10 April 2007. Available at <http://www.thebulletin.org/web-edition/columnists/hugh-gusterson/the-militarization-neuroscience>. Last accessed 3 March 2012.

⁹ Jason Koebler, 'Scientists Warn of Ethical Battle Concerning Military Mind Control', *U.S. News*, 20 March 2012. Available at http://www.usnews.com/news/articles/2012/03/20/scientists-warn-of-ethical-battle-concerning-military-mind-control?google_editors_picks=true. Last accessed 21 March 2012.

¹⁰Dana Foundation, 'Neuroscience at War: Mind Wars trans-Atlantic discussion ', (Dana Center, Washington, DC and Dana Centre, London, 26 September 2007). Available at <http://www.dana.org/events/detail.aspx?id=9244>. Last accessed 3 March 2012.

2. The Cold War experiments

The personal stories of human subjects in Cold War experiments illustrate the devastating human toll of a government policy allowing secret nonconsensual experiments. The first of two major Cold War experimentation efforts occurred as a result of the development of the atomic bomb by the U.S. in the mid-1940s. A newspaper series in the early 1990s described secret radiation experiments on 18 Americans who were injected with plutonium between 1945 and 1947.¹¹ Their lives dramatically changed for the worse: for example Elmer Allen, a railroad porter, was never able to work enough to support his family after the injection.¹² 'He would suffer epileptic seizures, alcoholism and eventually be diagnosed as paranoid schizophrenic - a mental illness his family doctor said cantered partly on his feelings about how he had been used.'¹³ The shocking personal accounts led to the public exposure of a wide variety of government programs involving radiation experiments.¹⁴ Many of the experiments were poorly designed and researchers feared publicity and lawsuits.¹⁵ The variety of radiation experiments included boys at the Walter E. Fernald State School being fed radioactive oatmeal; pregnant women being given 'radioactive iron cocktails' along with their prenatal vitamins without their knowledge at Vanderbilt University¹⁶ and prisoners in Oregon and Washington State having their 'testicles irradiated.'¹⁷ The Army, Navy, and Air Force exposed soldiers to atomic bomb detonations in experiments to improve fighting capabilities for nuclear wars.¹⁸ Army private, James Gates (who was 18 years old in 1955) was told he would be in 'special training in chemical and biological warfare' but instead was sent to Nevada for atomic bomb testing.¹⁹ He was told 'being only a half-mile from the explosions was harmless', but later 'saw the flesh torn from his left arm and leg.'²⁰

The second major Cold War experimentation effort involved the CIA's 25-year secret program of mind control experiments conducted in response to the 1940s and 1950s Soviet and Chinese communist brainwashing scare.²¹ The massive experimentation program involved several thousand human subjects in several countries and resulted in deaths, injuries, and violations of human rights and civil liberties.²² CIA mind control research took place in more than 80 institutions.²³ The secret experimentation program investigated a long list of mind control techniques including lobotomies, electric shock therapy, hypnosis, brain implants, drugs and torture.²⁴ The 1957 report of a CIA inspector general concluded that the mind manipulation programs were unethical and illegal, but should be continued and kept secret not only from the

¹¹ Radiation Testing on Humans Before the Subcommittee on Energy and Power of the Committee on Energy and Commerce House of Representatives, 103rd Congress, (Washington: U.S. GPO, 1994), 24.

¹² Welsome, *Plutonium Files*, 160. n.1 above.

¹³ Eileen Welsome, 'The Plutonium Experiment, Part I' *Albuquerque Tribune*, 15 November 1993, D10.

¹⁴ Radiation Testing on Humans, Subcommittee on Energy and Power, 25. n.11 above.

¹⁵ Welsome, *Plutonium Files*, 9-10. n.1 above.

¹⁶ *Ibid.* at 475.

¹⁷ *Ibid.* at 476.

¹⁸ *Ibid.* at 9.

¹⁹ Nancy Hogan, 'Shielded from Liability', *American Bar Association Journal*, May 1994, 56.

²⁰ *Ibid.*

²¹ Schefflin, 'Freedom of the Mind as an International Human Rights Issue', (1982) 3 No 1-4, *Human Rights Law Journal*, 49.

²² *Ibid.* at 58.

²³ Project MKULTRA; .1-4. n.3 above.

²⁴ Schefflin, 'Freedom of the Mind', 60. n.21 above.

enemy but also from the American public to avoid public and international outcry.²⁵

Most of the documents about the mind control experiments were destroyed in 1973 on orders from CIA director Richard Helms but some documents were overlooked and later became public.²⁶ One of the infamous CIA mind control programs with the code name 'MKULTRA' became known to the public through a 1975 executive branch report known as the Rockefeller Commission Report. MKULTRA was an extensive program that included 149 sub-projects.²⁷ It began in 1953 'with funding hidden to all except the top CIA echelon'.²⁸ The military also tested drugs on non-consenting military personnel. One victim was a U.S. Air Force officer, Lloyd Gamble, who in 1957 volunteered for 'testing gas masks', but who learned in 1975, 'he and 1,000 other soldiers were actually given LSD'.²⁹ Gamble subsequently suffered 'blackouts, periods of deep depression, acute anxiety and violent behaviour'.³⁰ In order to understand how Cold War experiments went so terribly wrong for so many victims, the next section begins with an examination of Cold War ethical standards and practices for secret U.S. government research involving human subjects.

3. The ethical basis for informed consent of human subjects in research

The Nuremberg Code is a widely known ethics code formulated after World War II as a consequence of the Nuremberg Trials; a series of military tribunals held by the victorious Allied forces.³¹ The Doctors' Trial which took place from 1946 to 1947 involved charges against twenty German doctors and included war crimes and crimes against humanity for the infamous Nazi concentration camp experiments on prisoners during World War II.³² The human experiments were designed to advance the Nazi war effort and included prisoners suffering tremendously while suffocating to death from the low oxygen levels simulating high altitude flying by German Air Force pilots.³³ The revelation of the Nazi experiments made headline news around the world. For example, in 1946, the American Medical Association (AMA) responded by stating that human subjects must give voluntary consent in scientific research.³⁴ The Nuremberg Code consists of 10 principles that are listed in the final judgment of the Doctor's Trial.³⁵ Most U.S. doctors and researchers who are involved with research involving human subjects should know of the Nuremberg Code and its first rule: 'The voluntary consent of the human subject is absolutely essential'.³⁶

Leo Alexander and Andrew Ivy were the main medical expert witnesses for the prosecution in the Nuremberg medical trials and 'the primary sources of the principles

²⁵ Alan Schefflin, Edward Opton, *Mind Manipulators*, (New York: Paddington Press, 1978), 45.

²⁶ Schefflin, *Mind Manipulators*, 152. n.25 above.

²⁷ Schefflin, *Mind Manipulators*. 142. n.25 above.

²⁸ Ibid. at 131. See also Project MKULTRA, Committee on Human Resources United States Senate.1-4. n.3.

²⁹ Stephen Budiansky, Erica Goode, et al., 'Special Report, The Cold War Experiments', *U.S. News and World Report*, 24 January 1994. 32.

³⁰ Ibid.

³¹ George Annas, Michael Grodin ed., 'Introduction' in George Annas, Michael Grodin ed., *The Nazi Doctors and the Nuremberg Code: Human rights in human experimentation*, (New York, NY: Oxford University Press, 1992), 2-4.

³² Ulf Schmidt, *Justice at Nuremberg: Leo Alexander and the Nazi Doctors' Trial*, (New York, NY: Palgrave Macmillan, 2004), 3.

³³ Telford Taylor 'Opening Statement of the Prosecution December 9, 1946', in Annas, 72. n.31 above.

³⁴ ACHRE, 'Research Ethics and the Medical Profession, Report of the Advisory Committee on Human Radiation Experiments', (7 August 1996), 276, No 5, *Journal of the American Medical Association*, (JAMA). 405.

³⁵ Annas, 'Introduction', 2. n.31 above.

³⁶ Ibid.

upon which the Nuremberg Code is based.³⁷ In the Nuremberg trials, Alexander submitted that in experiments involving human subjects, a physician must follow the Hippocratic Oath.³⁸ The Hippocratic Oath describes the physician's duty to treat the patient and to do no harm. Ivy testified at the Nuremberg trials that the AMA standard of voluntary consent was the common practice before 1946.³⁹ However, Ivy was wrong: before the Nuremberg Trials, U.S. research practices did not adhere to an absolute consent requirement and this did not change after the Nuremberg Code.⁴⁰

3.1 Ethical standards for informed consent

Federal funding for U.S. biomedical research expanded enormously during and after World War II.⁴¹ The Nuremberg Code was largely ignored during the Cold War and, in most cases; national security outweighed the patient's rights.⁴² The misguided belief about the Nuremberg Code held by most Cold War researchers was that it was 'a good code for barbarians but an unnecessary code for ordinary physician-scientists.'⁴³ Several prominent researchers were interviewed about their Cold War research⁴⁴ with some admitting ethical rules and obtaining informed consent were too cumbersome, interfered with publishing research and having a successful career. Patients were not told that their medical treatment was actually experimental research. Moreover, the highest levels of government condoned the practice of nonconsensual unethical experiments: CIA director Helms, mentioned above, for example answered 'we have no moral answer' to the question of national security experiments on unwitting subjects.⁴⁵

ACHRE members authored an AMA article, the abstract of which stated:

'Today, consensus exists that duties to obtain informed consent apply to *all* human subjects, whether healthy or sick, regardless of the risk or potential for medical benefit from participation in the research and regardless of the nature of sponsorship or funding (e.g., federal, military, or private).'⁴⁶

Nearly half a century after the Nuremberg Trials, the Nuremberg Code's absolute consent requirement has been further clarified for U.S. medical researchers and an absolute consent requirement is again officially considered a fundamental ethical principle in the U.S. The ethical response to the Cold War moral viewpoint is that today, even national security experiments can be carried out ethically.⁴⁷ The Cold War governments conducted nonconsensual experiments on a vast scale despite the 1946 AMA public statement and other ethical mandates requiring informed consent. The fundamental weakness of ethics codes, such as the Nuremberg Code, is that they provide voluntary guidelines only. When researchers violate the Nuremberg Code, victims have no legal recourse. As U.S. officials have stated, the goal of reforms after the Cold War experiments was to prevent such experiments from happening again. Therefore a legally

³⁷ Michael Grodin, 'Historical Origins of the Nuremberg Code', in Annas, ed., et al., *The Nazi Doctors and the Nuremberg Code*, 122. n.31 above.

³⁸ Ibid. at 123.

³⁹ ACHRE, 'Research Ethics and the Medical Profession' *JAMA*, 405. n.34 above.

⁴⁰ Jay Katz, 'The Consent Principle of the Nuremberg Code: Its significance then and now', in Annas, ed. et al., 228. n.31 above.

⁴¹ Carl Coleman, Jerry Menikoff ed., et al., *The Ethics and Regulation of Research with Human Subjects*, (Newark, NJ: Lexis Nexis, 2005), 33.

⁴² Annas et al., 'The Nuremberg Code in U.S. Courts: Ethics versus expediency', in Annas ed., et al., *The Nazi Doctors and the Nuremberg Code: Human rights in human experimentation*, 219. n.31 above.

⁴³ Katz, 'The Consent Principle of the Nuremberg Code', 228. n.40 above.

⁴⁴ Welsome, *Plutonium Files*, 212. n.1 above.

⁴⁵ Final Report. Book 1, Foreign and Military Intelligence. Senate Select Committee to Study Government Operations with Respect to Intelligence Activities, 94th Congress, 2nd Session, 26 April 1976, Special Report No. 94-755 (Church Committee Report). 400-402.

⁴⁶ ACHRE, 'Research Ethics and the Medical Profession', *JAMA*, 403. n.34 above.

⁴⁷ Jonathan Moreno, *Undue Risk: Secret state experiments on humans*, (New York, NY: Routledge, 1999), 294.

binding absolute consent requirement for classified research seems essential for adequate human subject protections.

3.2 The new neuroethics and neuroweapons

When the CIA mind control experiments became public in the mid-1970s, the serious threat to fundamental human rights posed by mind control research became apparent⁴⁸ and some legal experts argued that international laws should be 'substantially strengthened to include protection for the mind against the new science of control.'⁴⁹ However, this did not happen and now, more than 25 years later, there is a similar warning from a short but influential book describing the need for neuroethics and public discussions about neuroweapons.⁵⁰ A wide variety of experts agree on the requirement of 'vigorous protection of at least one non-negotiable premise when considering the appropriate security applications of neuroscience. . . . no-one else should be able to decide what goes into my brain or who "reads" it.'⁵¹ The ethical concept of the inviolability of one's body is a widely accepted principle in medicine and law. One's body now also specifically includes one's brain, mind and personality. With the tremendous growth in neuroscience research and the possibility of related developments leading to neuroweapons; academic participants in a recent discussion agreed that it was time to develop 'a law of the brain treaty.'⁵²

The U.S. government continues to emphasise ethics as fundamental for human subject protections; although it can be argued that legally binding protection of human subjects are needed. The next section examines how the Nuremberg Code became a part of international law prohibiting nonconsensual experimentation.

4. International Experimentation Law

The Nuremberg Code's consent principle became part of international law to ensure that the inhumane experiments carried out by the Nazi regime mentioned earlier never happened again.⁵³ The United Nations General Assembly adopted the International Covenant on Civil and Political Rights (ICCPR) in 1966, whose Article 7 provides: 'No one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment. In particular, no one shall be subjected without his free consent to medical or scientific experimentation.' The United States ratified the ICCPR in 1992 and submitted the U.S. government initial compliance report as required by the treaty.⁵⁴ The report stated that some Cold War radiation experiments would have amounted to a violation of the ICCPR.⁵⁵ Because the 'Covenant is hobbled by weak implementation provisions',⁵⁶ Article 7 ICCPR is inaccessible and therefore, in effect, a legal right

⁴⁸ Schefflin et al., *Mind Manipulators*, 9. n.25 above.

⁴⁹ Schefflin, 'Freedom of the Mind', 2. n.21 above.

⁵⁰ Joseph Fins, 'Book review: Mind Wars: Brain research and national defense', 297 No 12 *JAMA* 38 March 2007, 1383; Charles Jennings, 'Battlefield Between the Ears', 443 *Nature*, 26 October 2006, 911.

⁵¹ Moreno, *Mind Wars*, 176. n.6 above.

⁵² Dana Foundation, 'Mind Wars, Edited Transcript'. n.10 above.

⁵³ Sharon Perley, Sev Fluss, et al., 'The Nuremberg Code: An international overview', in Annas, ed., et al., *The Nazi Doctors and the Nuremberg Code*, 153. n.31 above.

⁵⁴ Morton Sklar, ed., *The Status of Human Rights in the United States: An analysis of the initial U.S. government report to the Human Rights Committee of the United Nations under the International Covenant on Civil and Political Rights*, (Science and Human Rights Program, American Association for the Advancement of Science, (AAAS), 2 March 1995), i.

⁵⁵ Guy Stevens, Amy McCoy, 'Human Scientific Experimentation', in Sklar, ed., *The Status of Human Rights in the United States*, (AAAS, 2 March 1995), 101. n.54 above.

⁵⁶ Cherif Bassiouni, Thomas Baffes, et al., 'An Appraisal of Human Experimentation in International Law and Practice: The need for international regulation of human experimentation', 72 No 4, *Journal of Criminal Law and Criminology*, 1981, 1657.

without a remedy. International experimentation law has significant gaps in its coverage because there is no international law banning nonconsensual experiments that are conducted in times of peace.⁵⁷ 'Unlawful medical experimentation is subsumed in crimes against humanity and in war crimes, . . . [but not] in time of peace, . . . [unless it] rises to the level of genocide or crimes against humanity. . . . It also falls within the meaning of torture.'⁵⁸ International experimentation law has significant gaps in its coverage because it is 'not yet specifically recognized as an international crime when committed in peace-time.'⁵⁹ Nevertheless, unlawful human experimentation is in principle a crime.⁶⁰ To close the legal gaps, a UN convention prohibiting nonconsensual experiments was proposed⁶¹ but was never adopted.⁶² The serious gaps in international experimentation law remain unchanged today.

However, a recent positive development is the adoption in 1998 of the Rome Statute establishing the International Criminal Court (ICC). Article 7 of the Statute, which defines 'crimes against humanity', includes the heading 'other inhumane acts.'⁶³ Significantly, the delegations agreed that: 'Unlawful human experimentation and particularly violent assaults were two possibilities considered likely to fall within this heading [other inhumane acts].'⁶⁴ The legacy of the Nuremberg Code is continuing; although weakly, as unlawful human experimentation is not specifically listed as a crime in the ICC's Statute. For the first time, however, Article 7(1)(k) of the Rome Statute provides a fundamental legal right with a legal remedy for victims of nonconsensual experiments.⁶⁵ So far, 121 countries are parties to the Statute,⁶⁶ but the United States and several other major countries have not ratified the Statute and do not fall under the ICC's jurisdiction. Consequently, Article 7(1)(k) of the Rome Statute does not provide a legal right or remedy for victims of U.S. nonconsensual experiments. Nevertheless, for the first time an international law banning nonconsensual experiments is enforceable in some cases and it can therefore serve as a significant legal standard for a U.S. criminal statute banning nonconsensual experiments.

In conclusion, it can be said that international experimentation law has led the way through its ground-breaking legal protections; although even international protections themselves remain weak because the gaps in coverage still remain.

5. U.S. experimentation law

The norm for human subject protections in classified research remains a utilitarian approach to the Nuremberg Code's absolute informed consent requirement. For example, in the 1950s U.S. Secretary of Defense Charles Wilson signed a top-secret

⁵⁷ Cherif Bassiouni, *Introduction to International Criminal Law*, (Ardsley, New York: Transnational Publishers, 2003), 129.

⁵⁸ Ibid. at 148.

⁵⁹ Bassiouni, *Introduction to International Criminal Law*, 129. n.57 above.

⁶⁰ Cherif Bassiouni, Thomas Baffes, et al., 'Draft Principles for the International Regulation of Human Experimentation. Draft and Commentary', 51 *Revue Internationale De Droit Penal*, (1980), 452.

⁶¹ U.N. Doc. E/CN.4/Sub.2/NGO/80 (1980).

⁶² Perley, et al., 'The Nuremberg Code: An international overview', 166. n.53 above.

⁶³ Darryl Robinson, 'Defining "Crimes Against Humanity"' at the Rome Conference', 93:43 *The American Journal of International Law* (1999), 52.

⁶⁴ Robinson, 'Defining "Crimes Against Humanity"', 56. n.63 above. See also the International Criminal Court, (ICC) website, Rome Statute. Available at <http://www.icc-cpi.int/Menus/ICC/Legal+Texts+and+Tools/Official+Journal/Rome+Statute.htm>. Last accessed 3 March 2012.

⁶⁵ ICC website, See Rome Statute, 4. n.64 above.

⁶⁶ ICC website. Available at <http://www.icc-cpi.int/Menus/ASP/states+parties/>. Last accessed 14 April 2012. n.63 above.

Department of Defense (DOD) memorandum, known as the Wilson memorandum. Although the memorandum (a policy for human military experiments relating to atomic, biological and chemical warfare) included 'the principles of the Nuremberg Code,'⁶⁷ it remained secret until 1975 and was widely disregarded.⁶⁸ Despite this utilitarian approach, nonconsensual human experimentation is a violation of the U.S. Constitution: 'Fourth Amendment proscription against unreasonable searches and seizures (including seizing a person's body), the Fifth Amendment's proscription against depriving one of life, liberty or property without due process, and the Eighth Amendment's prohibition against the infliction of cruel and unusual punishment.'⁶⁹

Furthermore, U.S. courts have consistently ruled that nonconsensual experiments violate the U.S. Constitution:

'no right is held more sacred, or is more carefully guarded, by the common law, than the right of every individual to the possession and control of his own person, free from all restraint or interference of others, unless by clear and unquestionable authority of law.'⁷⁰

Nevertheless, the limited number of U.S. court decisions involving human experiments from the 1940s to the 1990s reflect society's acceptance of medical advances, national security and fewer regulations at the expense of human subject protections.⁷¹ One expert provided two reasons for the lack of court cases and their decisions that reflect an acceptance of nonconsensual experiments; first, U.S. researchers did not consider the Nazi experiments and the Nuremberg Code's absolute consent requirement as applicable to U.S. research involving human subjects; and second, the ethics in practice at the time were utilitarian.⁷² Throughout the 1990s and to the present time, this trend of limited numbers of U.S. court cases and their decisions allowing for nonconsensual experiments has continued.

Several U.S. federal court cases dated after the mid-1990s made clear that the specific act of conducting nonconsensual experiments violated the U.S. Constitution. 'The Constitution and more specifically, the Due Process Clause of the Fifth Amendment clearly established a right to be free from non-consensual, governmental experimentation on one's body'.⁷³ Because of the huge legal and governmental obstacles, the U.S. court system provided access to legal liability or compensation to only a very few of the hundreds of thousands of Cold War victims.⁷⁴ Legal experts explained that most Cold War victims were unable to overcome government secrecy and rules that consistently favoured national security. As a result, legal justice for the radiation victims was possible only through acts of compensation by President Clinton or Congress.⁷⁵ However, one can argue that compensation for violations of the U.S. Constitution

⁶⁷ ACHRE, Final Report, 107. n.2 above.

⁶⁸ Moreno, *Undue Risk*, 180. n.47 above. See also ACHRE Final Report, 107-112. See n.2 above.

⁶⁹ John Shattuck, United States Department of State Civil and Political Rights in the United States Initial Report of the United States of America to the U.N. Human Rights Committee Under the International Covenant on Civil and Political Rights (ICCPR), (1994), 73.

⁷⁰ Daniel Pines, 'The Central Intelligence Agency's "Family Jewels": Legal then? legal now?' *Indiana Law Journal*, Spring 2009, 645; *Union Pacific Railroad Co. v Botsford*, 11 Supreme Court 1000, 1001. in *Stadt v. University of Rochester*, 1027. Available at: http://scholar.google.com/scholar_case?case=9122830026397958348&q=Stadt+v+Univ.+of+Rochester,+921+F.+Supp.+1023&hl=en&as_sdt=2,5. Last accessed 3 March 2012; *Schloendorff v. the Society of New York Hospital*, (1914) 211 N.Y. 125, 129-130. Available at <http://biotech.law.lsu.edu/cases/consent/Schoendorff.htm>. Last accessed 22 July 2011.

⁷¹ Annas, ed., et al., 'The Nuremberg Code in U.S. Courts', 204 & 219. n.42 above.

⁷² Ibid.

⁷³ Pines, 'The Central Intelligence Agency's "Family Jewels"', at footnote 62 referencing *Stadt v. University of Rochester*, 1027. n.71 above.

⁷⁴ Hogan, 'Shielded from Liability', 56. n.19 above.

⁷⁵ Budiansky et al., 'The Cold War Experiments', 32. n.29 above.

provided only through two branches of government easily swayed by political concerns is not justice.

Likewise, a 1975 presidential commission judged the CIA's LSD experiments on unwitting persons were illegal under U.S. law.⁷⁶ However, most lawsuits involving the second major Cold war program have also ended in failure for the victims. For example, the U.S. government only notified a few of the unwitting victims of the MKULTRA program. A 1980s lawsuit included documents showing that for the victims of the MKULTRA program, 'only 14 were ever notified and only one was compensated - for \$15,000.'⁷⁷ In 2010, military veterans sued the CIA over experiments involving brain implants 'to turn humans into robot-like assassins.'⁷⁸ The lawsuit included a request for the CIA to produce further information on a 1961 CIA document written by a top scientist who described successful remote control animal experiments and plans for experiments to determine if the same could be done on humans.⁷⁹ The CIA responded that any related CIA documents must remain classified to protect national security. This on-going case illustrates that the CIA's national security policy can have the effect of hindering and preventing many lawsuits from moving forward for lack of evidence.

A more recent major government program involved the waiver of informed consent by U.S. troops required to take investigational drugs, (which are drugs that have not been approved for general use by the Federal Drug Administration (FDA) but are undergoing clinical testing on human subjects)⁸⁰ during the military's Desert Shield operation of the Gulf War in the early 1990s.⁸¹ The FDA granted the waiver to the DOD for drugs to protect soldiers from possible biological warfare.⁸² The drugs have been cited as a cause of Gulf War Syndrome by a significant number of Gulf War veterans. In a federal court case, a U.S. district judge found that the need for successful military missions was 'sufficient to justify the exception to informed consent' and the waiver of informed consent did not violate 'the Fifth Amendment liberty interest of servicemen.'⁸³

Today, the U.S. justice system for experimentation law is so inaccessible or unworkable that an individual's right to be free of nonconsensual experimentation can be considered a right without a remedy in the courts. The U.S. Constitution provides an individual the right to be free from nonconsensual experiments, but in practice a statute is necessary to enforce one's constitutional rights. A statute can provide enforceable human subject protections that can compensate individuals for nonconsensual experiments, punish the criminal acts of researchers, and deter further nonconsensual experiments. The next section provides an explanation as to why a criminal statute banning nonconsensual experiments is essential for ensuring adequate human subject protections.

⁷⁶ Commission on CIA Activities within the United States, Report to the President (Rockefeller Commission Report), (Washington, U.S. GPO, June 1975), 37. Available at <http://www.maryferrell.org/mffweb/archive/viewer/showDoc.do?docId=930&relPageId=49>. Last accessed 3 March 2012.

⁷⁷ Budiansky et al., 'The Cold War Experiments'. n.29 above.

⁷⁸ Jeff Stein, 'CIA Brain Experiments Pursued in Veterans' Suit', *Washington Post*, 24 November 2010, Available at http://voices.washingtonpost.com/spy-talk/2010/11/cia_brain_experiments_pursued.html. Last accessed 3 March 2012.

⁷⁹ Stein, 'CIA Brain Experiments Pursued in Veterans' Suit'. n.79 above.

⁸⁰ Merriam Webster Dictionary. Available at <http://www.merriam-webster.com/medical/investigational%20new%20drug>. Last accessed 21 April 2012.

⁸¹ Annas, ed., et al., 'The Nuremberg Code in U.S. Courts', 216. n.42 above.

⁸² Pat Hammond, 'Sick Vets Angered by Drug Order', *New Hampshire Sunday News*, 21 November 1999. A1.

⁸³ Annas, ed., et al., 'The Nuremberg Code in U.S. Courts', 216- 217. n.42 above.

5.1 Human subject protections through Congress

Under U.S. law, a combination of two main legal processes is required to provide for human subject protections in classified research. The first process is passing a bill through Congress, which has the legal authority to legislate human subject protections and oversight for classified research. Under the U.S. Constitution, Congress can pass legislation defining CIA activities (including a ban on nonconsensual experiments):

‘The CIA like every other agency of the federal government possesses only that authority which the Constitution or duly enacted statutes confer on it. And like every other agency, it is subject to any prohibitions or restraints which the Constitution and applicable statutes impose on it.’⁸⁴

Since 2005, the Office for the Director of National Intelligence (ODNI), not the CIA director, is in charge of the Intelligence Community (IC) and must ‘effectively integrate foreign, military and domestic intelligence in defence of the homeland and of United States interests abroad.’⁸⁵ However this has not changed the principle described above.

Statutes known as implementing statutes can direct federal agencies to establish and administer federal rules for human subject protections.⁸⁶ For example, Senator Edward Kennedy's National Research Act of 1974 enabled the Department of Health Education and Welfare (HEW), now called the Department of Health and Human Services (HHS), to issue the 1974 federal regulations, which addressed inter alia informed consent of the research participant and other human subject protections.⁸⁷ However, several bills with more substantial human subjects’ protections did not pass, including legislation that would have established a national board for independent oversight of government-funded research involving human subjects.⁸⁸ Instead, compromise legislation established the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (National Commission).⁸⁹ The National Commission (which has since been replaced by several subsequent commissions,) provided weak human subject protections because it was an advisory board whose recommendations were voluntary and its report topics focused on ethical guidelines rather than legal rights.

The 1974 federal regulations were revised twice and the current federal regulation on human subject protections is the 1991 Federal Policy for the Protection of Human Subjects, known as the Common Rule.⁹⁰ It was adopted by 18 federal departments including the military and the IC.⁹¹ A presidential executive order (EO) requires the IC to follow the Common Rule for both classified and unclassified experiments. The

⁸⁴ Rockefeller Commission Report, 58. n.77 above.

⁸⁵ Office for the Director of National Intelligence Website. Available at <http://www.dni.gov/who.htm>. Last accessed 3 March 2012.

⁸⁶ University of New Hampshire School of Law, Administrative Law Research Guide, UNH Law Library Available at <http://library.law.unh.edu/AdminLaw>. Last accessed 3 March 2012. ‘Regulations, or administrative rules, are primary authority and exist on both the federal and state levels. They are delegated legislation since Congress or the state legislature delegate rulemaking and/or adjudication authority in a statute to executive agencies to implement the statute.’

⁸⁷ ACHRE, Final Report, 676. n.2 above. See also National Institute of Health (NIH) Office of Human Subject Research (OHSR) Available at <http://ohsr.od.nih.gov/info/sheet8.html>. Last accessed 3 March 2012. See also *Protection of Human Subjects*, 39 Fed. Reg. 105, 18914-18920 (1974).

⁸⁸ ACHRE, Final Report, 180. n.2 above.

⁸⁹ Ibid. at 180-1.

⁹⁰ Ibid. at 675-676. See also Federal Policy for the Protection of Human Subjects, 56 FR 28002-28032 (1991). Available at <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.101> Last accessed 3 March 2012.

⁹¹ Presidential Commission for the Study of Bioethical Issues, *Moral Science: Protecting Participants in Human Subjects Research*, Washington, DC, December 2011. 42. Available at <http://bioethics.gov/cms/node/558>. Last Accessed 3 March 2012.

Common Rule includes a provision allowing federal agency heads and directors to waive 'any requirement of the Common Rule' - including the informed consent requirement - 'for any kind of human subject research'.⁹² Since the Common Rule also includes a section allowing a statute or executive order to override the notification and publication requirements, the waiver can take place in secret.⁹³ The waiver and secrecy provisions in effect condone and legalise further nonconsensual experiments similar to those which occurred during the Cold War.

5.2 Human subject protections through presidential directives

The second legal process relating to human subject protections in classified research involves presidential directives; such as the current EO directing the IC to follow the Common Rule. 'For over a century the Supreme Court has held that executive orders, when based upon legitimate constitutional or statutory grants of power to the President, are equivalent to laws.'⁹⁴ In 1976, as a result of the public exposure of CIA nonconsensual experiments, President Gerald Ford issued an EO that required intelligence agencies to follow the HEW experimentation regulations.⁹⁵ Several similar EOs have been issued, the most recent being the 2008 George W. Bush EO which included a section on human experimentation requiring intelligence agencies to follow the HHS regulations, namely the Common Rule:

'2.10 Human Experimentation. No element of the Intelligence Community shall sponsor, contract for, or conduct research on human subjects except in accordance with guidelines issued by the Department of Health and Human Services. The subject's informed consent shall be documented as required by those guidelines.'⁹⁶

The Bush EO sounds like a ban on nonconsensual experiments but the waiver provision of the Common Rule in effect legally nullifies any ban. Likewise, a presidential memorandum (which is another type of presidential directive) was issued by President Clinton which banned nonconsensual experiments.⁹⁷ However, EOs and memorandums must meet two requirements before courts will enforce them: first, the EO must have been issued per a congressional authorisation; second, the EO must clearly state intent 'to create a private right of action.'⁹⁸ Neither the Clinton memorandum nor the Bush EO meet the second criteria. A general statement is routinely included in presidential directives so that the directives are 'not judicially enforceable'⁹⁹ but merely a legal right without a remedy. In the case of experimentation law, presidential directives offer human subject protections an empty legal promise.

Presidential directives have another inherent serious legal weakness: any Presidential EO and memorandum can be modified or rescinded at any point in the

⁹² ACHRE, Final Report, 687. n.2 above. See also 56 U.S. FR 28002-28032 (1991). See n.87. See also 45 CFR 46.101(i). n.4 above.

⁹³ 45 CFR 46.101(i). n.4 above.

⁹⁴ Kenneth Mayer, *With the Stroke of a Pen: Executive orders and presidential power*, (Princeton, NJ and Oxford: Princeton University Press, 2001). 35.

⁹⁵ Executive Order (EO) No 11,905, 41 Federal Register (FR) 7703 (1976).

⁹⁶ EO No 13,470.45; 339. n.4 above.

⁹⁷ Memorandum on Protections for Human Subjects of Classified Research, 62 FR 26369 (1997), at 26370. Available at <http://www.fas.org/sgp/clinton/humexp.html>. Last accessed 3 March 2012. The memorandum states that 'no agency shall conduct or support classified human research without having proposed and promulgated the Common Rule, including the changes set forth in this memorandum and any subsequent amendments.'

⁹⁸ Ibid. at 26371. The Clinton memorandum expressly states: 'This memorandum is not intended to create any right or benefit, substantive or procedural, enforceable at law by any party against the United States, its departments, agencies, its officers, or any other persons.'

⁹⁹ Pines, 'The Central Intelligence Agency's "Family Jewels"', 654-655. n.70 above.

future at the incumbent President's discretion.¹⁰⁰ As a result, even if the President banned nonconsensual experiments through an EO; the ban would remain in effect only until a future President decided to rescind the ban. By contrast, a statute could provide much stronger human subject protections, as statutes remain in effect until repealed by Congress and the executive branch is unable to alter or influence them. In addition, 'longstanding judicial doctrine holds that when an executive order conflicts with a statute enacted pursuant to Congress's constitutional authority, the statute takes precedence.'¹⁰¹

Another argument for a federal statute providing the best opportunity to ensure lasting human subject protections is that it could include sanctions: as unlawful experimentation is a criminal act, legal sanctions are vital.¹⁰² To summarise, a statute offering protections with substance and meaning for the human subjects of government research should include the following components: i) a uniform system allowing for the private right to sue; ii) criminal penalties for conducting illegal research on human subjects; and iii) compensation for the human subjects of illegal research. The next section describes the obstacles that have prevented the implementation of a legal ban on nonconsensual experiments.

6. Obstacles to reform

Today, the current system of EOs allowing for waivers of consent reveals a continuing pattern of utilitarian human subject protections that are in name only. By contrast, a criminal statute would go far in preventing the lack of justice or compensation that most Cold War victims subsequently endured and in preventing further nonconsensual experiments. However, there are many obstacles to the implementation of such a statute, which are discussed in turn below. They include the influence of powerful lobbies, concentration of power in the executive branch, excessive secrecy, and misleading rhetoric.

6.1 The influence of powerful lobbies

The influence of powerful lobbies is one key obstacle to reform. Indeed, national security interests played a part in establishing exceptions and exemptions to the consent requirement in experimentation rules and regulations. The military branches enacted rules for human experimentation in the early 1960s which included a consent requirement with exemptions allowing for nonconsensual experiments in some cases. The exemptions allowing for nonconsensual experiments seem to provide an explanation for the lack of opposition to the consent requirement at the time.¹⁰³ The military rules stated that the written consent requirement did not apply if the intent was to benefit the patient, if the studies were training exercises, and 'when deception is involved and consent would compromise the value of the data.'¹⁰⁴ 'Deployment of over 200,000 men to atomic test shots from 1953 to 1962, and involving medical monitoring, were often not called human experiments but training exercises.'¹⁰⁵

A 1987 Supreme Court case debated this question of whether such military activity was a training exercise or an experiment. James Stanley had been given LSD

¹⁰⁰ Phillip Cooper, *By Order of the President: The Use and abuse of executive direct action*, (University Press of Kansas, 2002). 77-78. See also Mayer, *With the Stroke of a Pen*, 181. n.95 above.

¹⁰¹ Mayer, *With the Stroke of a Pen*, 35-36 referencing *Little v. Barreme*, 2 Cranch 170 (1804). n.95 above.

¹⁰² Delores Kong, 'Oversight Board Eyed on Medical Research', *Boston Globe*, 22 November 1998, Metro section.

¹⁰³ Jonathan Moreno, 'Bioethics and the National Security State', (2004), *Journal of Law Medicine and Ethics*, 203.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

without his consent as part of an army program¹⁰⁶ and 'suffered severe personality changes'.¹⁰⁷ The army denied any compensation and Stanley filed a lawsuit, 'alleging negligence in the administration, supervision, and follow-up monitoring of the drug research program'.¹⁰⁸ Justice Scalia, who wrote the majority opinion of the divided 5-4 decision, ruled against Stanley's claim for recovery. Scalia held that the Feres doctrine applied: members of the military are barred from recovering damages from the U.S. government under the Federal Tort Claims Act for injuries that 'arise out of or are in the course of activity incident to service'.¹⁰⁹ The Feres doctrine originated from a prior Supreme Court ruling and remains one of the major roadblocks to justice and compensation for injurious government acts, including nonconsensual human experiments, in U.S. courts today.¹¹⁰ This doctrine and the multitude of similar governmental and judicial rules have the effect of re-enforcing the message that secret nonconsensual government experiments can be conducted with impunity. Dissenting Justice O'Connor, on the other hand, cited the Nuremberg Code's first rule that voluntary consent was absolutely essential. According to O'Connor, the U.S. government should face liability despite the Feres doctrine and the unwitting victims of such egregious government acts should be compensated according to the U.S. Constitution's Fifth Amendment.¹¹¹

The Stanley case illustrates the stark contrast of positions regarding human experiments and national security at the highest levels of the U.S. government. Although this on-going legal debate is closely divided; national security concerns have nearly always won at the expense of constitutionally protected human rights.

Public response to unethical and nonconsensual human experiments in the 1960s forced some changes in federal rules and regulations.¹¹² Since then, medical and pharmaceutical interests - as well as national security interests - have blocked any reform efforts. Drug companies in the U.S., Europe and Canada distributed thalidomide - an investigational drug with sedative effects on humans - to physicians, who prescribed the drug to pregnant women who subsequently gave birth to infants with missing or deformed limbs. In response, 'the 1962 Kefauver-Harris amendments to the Food, Drug, and Cosmetic Act were passed, and required that informed consent be obtained in the testing of investigational drugs'.¹¹³ 'Massive criticism from organized medicine and individual practitioners of high stature, as well as from the drug industry'¹¹⁴ led to the amendments that included an exception to the requirement of informed consent if researchers 'deem it not feasible or, in their best professional judgment, contrary to the best interests of such human beings'.¹¹⁵ Commenting on the waiver, the ACHRE Final

¹⁰⁶ *United States et al. v. Stanley*, 483 U.S. 669 (U.S. Supreme Court, 1987) at 669. Available at <http://www.law.cornell.edu/supremecourt/text/483/669>. Last accessed 3 March 2012.

¹⁰⁷ *Ibid.* at 669-672.

¹⁰⁸ *Ibid.* at 672.

¹⁰⁹ *Ibid.* at 670, 684. See also *Feres v. United States*, 340 U.S. 135 (1950).

¹¹⁰ Emily Mapp Brannon, 'Supreme Court Fails to Tackle Doctrine that Protects Military Hospitals' *Virginia Beach Injuryboard Blog*, 1 July 2011. Available at LexisNexis. See also Hogan, 'Shielded from Liability', 57. n.19 above.

¹¹¹ *Stanley*, 483 U.S., 709-710. n.107 above.

¹¹² Moreno, *Undue Risk*, 188. n.47 above.

¹¹³ ACHRE, Final Report, 173 & 189. n.2 above. Food, Drug, and Cosmetic Act Amendments, 21 United States Code (USC) section 355 (1962). Available at http://www.hss.energy.gov/HealthSafety/ohre/roadmap/achre/chap3_2.html. Last accessed 3 March 2012.

¹¹⁴ Paul Rheingold, 'Products Liability: The ethical drug manufacturer's liability', 13 *Rutgers Law Review*, No 4, (1964). 1012.

¹¹⁵ Robert Mulford, 'Human Experimentation', (1967), 20 *Stanford Law Review*, 103.

report stated: 'Congress carefully avoided interfering in the doctor-patient relationship and in the process severely reduced the effectiveness of the requirement.'¹¹⁶ This exception to informed consent was likely to be the precedent for establishing the loophole allowing a waiver of consent in the current federal regulations on human experiments. From the 1960s through the 1980s, experimentation reforms maintained the status quo allowing for nonconsensual experiments.

In the past few decades, the medical community and pharmaceutical industry lobbying efforts have been highly successful in blocking human experimentation reform legislation. Since the ACHRE final report was released, several congressional bills were proposed but never passed. For example, Ohio Senator John Glenn's congressional bill, the Human Research Subject Protection Act of 1997, promised to include the nation's first criminal sanctions for a medical researcher's failure to obtain consent from people participating in experiments.¹¹⁷ Glenn's bill included penalties for violators, who 'on conviction thereof, shall be fined not more than \$10,000, or imprisoned not more than 3 years, or both'¹¹⁸ but these provisions were criticised by the Pharmaceutical Research and Manufacturers Association of America, the bill had little support and did not pass.¹¹⁹ Since 2000, Representative Diane Degette of Colorado has introduced several bills on human experimentation, including a 2009 bill.¹²⁰ However, Degette's Human Research Subject Protections Act of 2000 'did not have the immediate endorsement of either the drug industry or the American Medical Association, two major players on any health care legislation before Congress.'¹²¹ Furthermore, as discussed above, a waiver of consent was issued during the Gulf War.¹²² It was widely criticised and in response Congress passed legislation so that 'the President may waive the informed consent requirement for military personnel engaged in a particular military operation in certain situations.'¹²³

Congress has passed legislation allowing for waivers of consent during the Gulf War but not one statute has passed that would prevent nonconsensual experiments from happening again; including the most egregious and unconstitutional Cold War experiments. In practice, Congress is gridlocked on experimentation reforms by the combination of lobbying interests that favour less oversight and regulation at the expense of human subject protections. Most importantly for future reform efforts, the struggle between Congress and the executive branch over national security legislation is

¹¹⁶ ACHRE, Final Report, 173. n.2 above.

¹¹⁷ Senator John Glenn, Statements on Introduced Bills and Joint Resolutions, Senate, (22 January 1997), Senate Bill 198, 105th Congress. Available at <http://www.icomw.org/archives/glenn.asp>. Last accessed 3 March 2012.

¹¹⁸ Ibid.

¹¹⁹ Sheryl Gay Stolberg, "'Unchecked" Experiments on People Raise Concern', *New York Times*, 14 May 1997, A1.

¹²⁰ To Amend the Public Health Service Act With Respect to the Protection of Human Subjects in Research, House of Representatives (HR) 3594, 108th Congress. (Washington: U.S. GPO, 2003). Protection for Participants in Research Act of 2009, H.R.1715, 111th Congress, (Washington: U.S. GPO, 2009).

¹²¹ Bill McAllister, 'Degette Seeks Better Information for Research Patients', *Denver Post*, 9 June 2000, A14.

¹²² Hammond, 'Sick Vets Angered by Drug Order'. n.83 above.

¹²³ Force Protection, Improving Safeguards for Administration of Investigational New Drugs to Members of the Armed Forces Hearing before the Subcommittee on National Security, Veterans Affairs, and International Relations of the Committee on Government Reform House of Representatives 106th Congress 9 November 1999 (Washington: U.S. GPO, 2000). 36-37 citing 'section 731 of the Defense Authorization Act, [10 USC 1107] amending 10 USC 1107(f), became effective on October 17, 1998.' Available at

http://www.law.cornell.edu/uscode/search/display.html?terms=informed%2520consent&url=/uscode/html/uscode10/usc_sec_10_00001107---000-notes.html. Last accessed 3 March 2012.

continuing:¹²⁴

6.2 Concentration of power in the executive branch

The concentration of power in the executive branch is another major obstacle to reform. Since World War II, classified human experiments have been considered an intelligence matter and experimentation law is best understood by examining how Congress and the President have legislated national security policy. A fundamental pattern of congressional acquiescence and presidential pre-emption is found in most national security legislation. This pattern is critical for understanding the continuing legal weaknesses inherent in experimentation law for classified research.

Nothing in the U.S. Constitution unambiguously gives a President control over intelligence matters at the expense of congressional control. However, Presidents have historically pre-empted congressional efforts to gain control over intelligence matters and Congress has acquiesced. For example, the 1970s Senate Church Committee hearings on the CIA's MKULTRA experiments included the argument that 'intelligence should be governed by both Congress and the president with the same system of checks and balances that applied to any other policy area.' However, this did not happen. As a result of a fundamental pattern of 'executive institutional power, Presidents have moved to fill in the gaps in authorising legislation with their own interpretations, outflank congressional efforts to impose more substantive restrictions, and maintain the initiative in important policy areas.'¹²⁵

After the CIA's mind control experiments were exposed, President Ford issued a 1976 EO for intelligence agencies including human subject protections that pre-empted Edward Kennedy's legislative attempts at reform.¹²⁶ Since then, initiating and developing policy by presidential directives has been an easier political task than the legislative compromises and failed attempts to pass a bill through Congress. The pattern of congressional acquiescence and presidential pre-emption provides an explanation for today's EO that directs the IC to follow the Common Rule, rather than a statute that bans nonconsensual experiments. Thus, human subject protections for classified research are inherently weak and inadequate.

The pattern of presidential pre-emption and congressional acquiescence has also extended to congressional oversight of national security issues. The executive branch worked to 'prevent legislative action that would permanently inscribe congressional oversight into law.'¹²⁷ Thus, Ford was able to deflect the move toward a legislative charter by establishing his own investigating body (the Rockefeller Commission). In the late 1970s, Congress passed legislation that shifted its oversight powers for human subject protections to an executive branch commission - the President's Commission - and several subsequent presidential commissions have maintained weak oversight duties.¹²⁸

Executive branch oversight duties developed into nearly complete control over the implementation of human subject protections. For example, President Obama ordered his Presidential Commission for the Study of Bioethical Issues to investigate the recently discovered archived documents that described unethical nonconsensual human

¹²⁴ Mayer, *With the Stroke of a Pen*, 176. n.95 above.

¹²⁵ Ibid., p.163.

¹²⁶ EO No 11,905. n.96 above.

¹²⁷ Mayer, *With the Stroke of a Pen*, p.172. n.95 above.

¹²⁸ EO 13,237, Creation of the President's Council on Bioethics, 66 FR 59851. (30 November 2001), 62 & 671. Available at http://bioethics.georgetown.edu/pcbe/reports/past_commissions/index.html. Last accessed 3 March 2012.

experiments conducted by the U.S. in Guatemala in the late 1940s.¹²⁹ Obama also mandated a review of U.S. experimentation rules to determine if human subject protections are adequate today. On 14 December 2011, Obama's Commission issued its report and found that in federally sponsored research:

'The current U.S. system provides substantial protections for the health, rights, and welfare of research subjects and, in general, serves to "protect people from harm or unethical treatment" when they volunteer to participate as subjects in scientific studies'.¹³⁰

However, some experts disagreed with the Commission report because it did not address the rules allowing for nonconsensual experiments that are still in place.¹³¹

Moreover, the title of the report, 'Moral Science: Protecting Participants in Human Subjects Research', is reflective of the report's overwhelming emphasis on ethics in research involving human subjects, rather than emphasising the legal rights of human subjects in government research. One can argue that the Commission failed Obama's mandate to determine whether human subject protections are adequate and the public may pay the price with further nonconsensual experiments.

Since the 1970s, the executive branch has diverted congressional reform efforts, resulting in a concentration of power in the executive branch with little accountability: the executive branch can promulgate legal rules for weak human subject protections, secretly conduct classified nonconsensual experiments, and implement weak oversight. Never before has the overt power of the executive branch over human subject protections been so great. The next section further illustrates how the government's utilitarian Cold War policy allowing nonconsensual experiments is continuing into the post 9-11 era, even as it becomes more entrenched and thus condoned.

6.3 Excessive secrecy

The Cold War policy of excessive secrecy is continuing today and is eroding public trust in government regarding secret research involving human subjects. In the 1990s, declassified government documents proved that during the Cold War, top officials at the Atomic Energy Commission (AEC), the DOD and other agencies 'argued vigorously' that to protect national security, human radiation experiments must be classified as secret to avoid lawsuits and bad publicity.¹³² Similarly, in the 1990s, Energy Secretary Hazel O'Leary held a meeting about releasing secret government documents in response to a freedom of information act request on radiation experiments. 'All the senior officials present argued against releasing materials on the experiments, warning that it would only fuel a widening scandal and wound the department's reputation. O'Leary overruled them.'¹³³ Furthermore, in 1997, executive branch officials for the radiation experiments investigation stated that 'our interagency working group, which did include eight

¹²⁹ Barack Obama, Presidential Memorandum - Review of Human Subjects Protections. 24 November 2010. Available at <http://bioethics.gov/cms/sites/default/files/news/Human-Subjects-Protection-Letter-from-President-Obama-11.24.10.pdf>. Last accessed 20 March 2012.

¹³⁰ Presidential Commission for the Study of Bioethical Issues, Moral Science. 2. n.92 above.

¹³¹ Harriet Washington, 'Non-Consenting Adults: The Nuremberg Code, set up to protect the human subjects of research, is being routinely ignored', *Slate Online*, article from *New Scientist*. 22 January, 2012. Available at:

http://www.slate.com/articles/health_and_science/new_scientist/2012/01/the_nuremberg_code_set_up_to_protect_the_human_subjects_of_research_is_being_routinely_ignored_.html. Last accessed 3 March, 2012.

¹³² Gary Lee, 'Radiation Data Withheld to Avoid Suits, Bad PR', *Plain Dealer*, 15 December 1994. 18A. See also declassified government document, available at <http://www.fas.org/sgp/othergov/doe/aec1947.pdf>. Last accessed 3 March 2012.

¹³³ Ted Gup, *Nation of Secrets: the threat to democracy and the American way of life*, (New York, NY: Doubleday, 2007), 115-116.

agencies, including the CIA, the D of D and the Department of Energy, are unaware of any secret, classified experiments of any sort involving human subjects research going on today.¹³⁴ The ACHRE Final Report recommended declassifying the remaining classified CIA documents on MKULTRA and related programs, including documents that referenced radiation. 'So long as documents about secret human experiments are withheld from the public, it will be impossible to put to rest distrust with the conduct of government.'¹³⁵ Nevertheless, most of the documents have remained classified. Likewise, given that O'Leary's experience is a further indication that the Cold War secrecy policy is continuing, public trust in the interagency working group statement may prove to be highly limited.

Excessive secrecy methods surrounding the CIA mind control experiments have also delayed investigation and reform efforts. CIA director Stansfield Turner stated that the CIA's mind control programs had ended in the 1960s but new declassified documents revealed that another 'full-scale' 'super-secret behavioural-control project' had continued into the 1970s.¹³⁶ Turner either lied or was not aware of this CIA mind control program. In either case, this is a serious act of misconduct by a major executive branch official and, unlike MKULTRA and other CIA mind control programs whose details were declassified; the details of this project have remained classified. Nevertheless, the CIA was not a rogue agency; rather most historians now conclude that the White House or executive branch gave orders for mind control experiments and other CIA misdeeds.¹³⁷

The executive branch makes use of what has been called plausible deniability; which allows the U.S. government to deny involvement in illegal U.S. government acts and covert policies such as Cold War experiments and extraordinary rendition.¹³⁸ President Eisenhower formalised the procedure of plausible deniability in 1955.¹³⁹ It enables the President and executive branch officials to continue to deny and cover up nonconsensual experiments and hamper congressional investigations and reforms.

Thus, the National Security Council (NSC) members made decisions regarding CIA activities, leaving the President with the ability to 'maintain some White House control' while plausibly denying presidential responsibility. In light of the considerations above, it can be concluded that today, statements by the executive branch regarding secret mind control research, national security and nonconsensual experiments are highly questionable.

6.4 Misleading rhetoric

A final major obstacle to reform is the misleading rhetoric surrounding human subject protections. The ACHRE's AMA statement cited above on the ethical requirement of the absolute informed consent in U.S. research is an example of misleading rhetoric that gives the false impression that human subject protections are adequate when in fact they

¹³⁴ Federico Pena, Tara O'Toole, and John Dwyer, 'The White House: Press briefing', *M2 Presswire*, 1 April 1997.

¹³⁵ ACHRE Final Report. 839. n.2 above.

¹³⁶ Bill Richards, 'Book Disputes CIA Chief on Mind-Control Efforts: Work went on into 1970s, author says', *Washington Post*, 29 January 1979, A2.

¹³⁷ Mark Mazzetti, Tim Weiner, 'Files on Illegal Spying Show C.I.A. Skeletons from Cold War', *New York Times*, 27 June 2007. Available at <http://www.nytimes.com/2007/06/27/washington/27cia.html?pagewanted=all>. Last accessed 3 March 2012.

¹³⁸ Stephen Grey, *Ghost Plane: The true story of the CIA torture program*, (New York, NY: St. Martin's Griffin, 2006), 109-110.

¹³⁹ Kathryn Olmsted, *Challenging the Secret Government: The post-Watergate investigations of the CIA and the FBI*, (Chapel Hill, NC: University of North Carolina Press, 1996). 86.

are not. Most people have taken U.S. government official statements at face value. Guatemalan President Colom recently described the unethical, nonconsensual U.S. experiments conducted in his country in the 1940s as a crime against humanity and concluded: 'We are aware that this is not the policy of the United States'.¹⁴⁰ However, guest speakers at a Bioethics Commission meeting addressed the Guatemalan experiments and admitted that 'the kind of unethical medical studies that occurred half a century ago could still happen again despite more than 1,000 rules and regulations that should prevent such abuses'.¹⁴¹

The misleading rhetoric continues to originate from the highest levels of government. Obama wrote: 'As President, I have often said that I have no greater responsibility than protecting the American people.' However, this is arguably 'a paternalistic invention that is historically unfounded and potentially damaging to the political heritage of the nation'.¹⁴² The presidential oath of office states that the President's supreme responsibility is to 'preserve, protect, and defend the Constitution of the United States'.¹⁴³ The U.S. Constitution imposes burdensome limits on government authority and guarantees various rights in order to advance individual freedom rather than collective security.¹⁴⁴ However, the national security imperative has nearly always outweighed 'burdensome' human subject protections.

Nonconsensual experiments are an unavoidable cost of protecting national security: this is the unspoken belief behind the inability to ban nonconsensual experiments in classified research. The obstacles to reform have led to human subject protections becoming even weaker and more ineffective than during the Cold War. Utilitarian government policies have been further institutionalised and condoned by the judicial, congressional and executive branches acceptance of such policies. A few examples illustrate this: the Feres doctrine, congressional acquiescence to the executive branch in national security issues, and excessive secrecy. For these reasons, it is difficult not to conclude that the danger of further nonconsensual experiments is even greater today than during the Cold War. Reform efforts have been no match for the powerful opposition to the consent requirement. The next section reviews the failed reform efforts in response to the two major Cold War experiment programs.

7. Attempts at reform

After the CIA mind control experiments were publicly exposed in the mid-1970s, Edward Kennedy proposed legislation to 'minimize the potential for any similar abuses in the future'.¹⁴⁵ However, the reforms only resulted in weak human subject protections; a system of EOs following the Common Rule (with its waiver of consent provision), and a lack of independent oversight. Since then, executive branch control over human subject protections has been consolidated and the ability to strengthen human subject protections in classified research has remained extremely limited.

¹⁴⁰ 'Obama Apologises to Guatemala for US Human Experiments', Asiaone News, AFP, 2 October 2010.

Available at

<http://www.asiaone.com/News/AsiaOne+News/World/Story/A1Story20101002-240218.html>. Last accessed 22 April 2012.

¹⁴¹ Mike Stobbe, 'Bioethics Panel Told No Guarantee against Unethical Research,' *Huffington Post*, 1 March 2011. Available at: http://www.huffingtonpost.com/2011/03/02/bioethics-panel-_n_830207.html. Last accessed 3 March, 2012.

¹⁴² Steven Aftergood, 'What is the President's Greatest Responsibility?', *Secrecy News*, 30 June 2011. Available at <http://www.fas.org/blog/secrecy/2011/06>. Last accessed 3 March 2012.

¹⁴³ Ibid.

¹⁴⁴ Ibid.

¹⁴⁵ Project MKULTRA, Committee on Human Resources United States Senate, 4. n.3 above.

In 1994, Clinton directed the ACHRE to investigate radiation experiments so that any government wrongdoing was not repeated, but the focus was on ethics rather than law.¹⁴⁶ It concluded: 'Government officials and investigators are blameworthy for not having had policies and practices in place to protect the rights and interests of human subjects who were used in research from which the subjects could not possibly derive direct medical benefit.'¹⁴⁷ Many people criticised the report arguing the ACHRE's conclusions were weak and, for the most part, it found no harm to the victims and named no officials to blame.¹⁴⁸ However, it made several important recommendations which represented significant progress for human subject protections in classified research. In particular, the ACHRE evaluated whether human subject protections were adequate and concluded that the current system for administering human subject protections in classified research was in need of reform.¹⁴⁹ It unambiguously recommended an absolute informed consent requirement for classified research:

'Although the Advisory Committee acknowledges that both the formation of an independent review panel and an absolute informed consent requirement create opportunities for information leaks or security breaches and delays in the progress of urgent research, these disadvantages are surmountable and are more than balanced by the increased vigilance afforded the rights and interest of citizens and the safeguarding of the public's trust in government.'¹⁵⁰

If the recommendations had been followed; for the first time, nonconsensual experiments would have been banned under U.S. law. The ACHRE Final Report was an explicit recommendation to adopt 'a federal policy requiring the informed consent of all human subjects of classified research and that this requirement not be subject to exemption or waiver.'¹⁵¹ Under U.S. law, the undisputed and enduring standards for the absolute informed consent requirement - the U.S. Constitution and the Nuremberg Code - would finally have become a legal duty that researchers would be required to adhere with. It would be comparable to the ICCPR's ban on nonconsensual experiments and Article 7(1)(k) of the Rome Statute.

Clinton's response to the ACHRE recommendations was to issue a memorandum that included the ACHRE recommendation to prohibit the waiver of informed consent.¹⁵² However, the memorandum was only the first step in the administrative rule making process. The memorandum was a legal order requiring the HHS Office for Human Research Protections (OHRP) to lead the process to amend the Common Rule. However, modifying the Common Rule has proven to be impossible. At the time of the Clinton memorandum, it required the unanimous consent of the 17 federal departments who had signed on to the Common Rule.¹⁵³ 'By January 2001, 15 of the agencies had signed off on the amendment but, (as is typical when the presidency changes parties) when the Bush administration took power, it ordered all pending policies suspended until they could be reviewed.'¹⁵⁴

So the Clinton administration and the subsequent Bush administration failed to complete the unanimous sign-off requirement.¹⁵⁵ As a result, the ACHRE's

¹⁴⁶ ACHRE, Final Report. 828. n.2 above.

¹⁴⁷ Ibid. at 11.

¹⁴⁸ Welsome, *Plutonium Files*. 463 & 487. n.1 above.

¹⁴⁹ ACHRE, Final Report. 675 & 828-830. n.2 above.

¹⁵⁰ Ibid. at 830.

¹⁵¹ Ibid. at 828.

¹⁵² Memorandum, 62 FR 26369. 26 & 371. n.98 above.

¹⁵³ Statement by Jerry Menikoff, Director U.S. OHRP HHS, Role of HHS OHRP Protecting Human Research Subjects', *State News Agency*, 26 March 2009.

¹⁵⁴ Jonathan Moreno, 'A New World Order For Human Experiments', (2003), *Accountability in Research* no 10, 54.

¹⁵⁵ Email from Pat Elhinnawy, HHS OHRP, Director, Public Affairs to author (1 April 2009) (on file with

recommendation was never completed and the Common Rule's waiver of informed consent remains unchanged to this day. The DOD, CIA and Department of Homeland Security (DHS) currently follow the Common Rule and have promulgated special rules for classified research including an Institutional Review Board (IRB) panel review of classified research with no expedited review.¹⁵⁶ The special rules do not include an absolute informed consent requirement.

Several government officials, including Greg Koski, the first director of HHS OHRP, have stated that the Common Rule system of human subject protections is inadequate and ineffective,¹⁵⁷ and government experts and advisory groups have called on Congress for legislation to address issues related to the human subject protections.¹⁵⁸ As noted above; since 1997, legislation for revising the Common rule has failed to pass.¹⁵⁹ Nevertheless, attempts at Common Rule reforms are continuing: on 22 July 2011, the Office for Human Research Protections (OHRP) at the HHS announced the consideration of seven possible regulatory reforms for the Common Rule but an absolute consent requirement was not among them.¹⁶⁰ Today, the two main processes for changing experimentation law remain gridlocked, with no end in sight.

The disturbing legacy of the Cold War experiments is that the U.S. government has never implemented the one reform essential for providing fundamental human subject protections - a ban on nonconsensual experiments, thus significantly increasing the danger that such experiments could happen again. As with any criminal statute, a ban would go far in preventing the act criminalised within the statute - in this case, nonconsensual experiments in classified research. Many experts agree that small unethical medical studies like the Guatemalan experiments could occur again but few believe that today's ethics would allow for widespread unethical nonconsensual experiments. However, it can be argued that widespread experiments may be possible if not likely given the right circumstances. The next section examines some of conditions that the ACHRE report stated might be warning signs of further nonconsensual experiments.

8. Continuing concerns about current nonconsensual experiments

The consensus is that the secret neuroweapons are highly likely to be at a rudimentary level of development and there is little danger of widespread secret nonconsensual experiments today. This consensus is based on two arguments.¹⁶¹ First, according to the laws of physics and neuroscience, although neuroweapons are scientifically possible, it is believed further discoveries and technical breakthroughs are necessary for their full development.¹⁶² Neuroscience research and technology are currently under developed;

author).

¹⁵⁶ Presidential Commission, *Moral Science*, 113. n.92 above.

¹⁵⁷ Erin Williams, *Federal Protection for Human Research Subjects: An analysis of the Common Rule and its interactions with FDA Regulations and the HIPAA Privacy Rule*, (Congressional Research Service, (CRS)), Washington: U.S. GPO, June 2005), 10-11.

¹⁵⁸ Daniel Federman, Kathi Hanna, (ed.) et al., *Institute of Medicine (IOM), Responsible Research: A systems approach to protecting research participants*. (The National Academies Press, Washington, D.C., 2002), p.18. Available at http://books.nap.edu/openbook.php?record_id=10508&page=R1. Last accessed 3 March 2012.

¹⁵⁹ Williams, *Federal Protection for Human Research Subjects*, Summary. n.158 above.

¹⁶⁰ HHS OHRP website, News Release, HHS announces proposal to improve rules protecting human research subjects, 22 July 2011. Available at <http://www.hhs.gov/news/press/2011pres/07/20110722a.html>. Last accessed 3 March 2012.

¹⁶¹ Moreno, *Mind Wars*. 10. n.6 above. See also Royal Society, 'Brain Waves Module 3: Neuroscience, conflict and security', 7 February 2012. Available at <http://royalsociety.org/policy/projects/brain-waves/conflict-security/> Last accessed 29 March 2012.

¹⁶² Dyson, Freeman, 'Radiotelepathy: Direct Communication from Brain to Brain', in *This Will Change*

therefore neuroweapons are still considered science fiction today.¹⁶³ Second, the U.S. government could keep neuroweapons and nonconsensual experiments secret for years, if not for decades.¹⁶⁴ The next section presents an assessment of the ACHRE warning signs and current conditions, followed by two sections that introduce an alternative explanation that significantly challenges the consensus and its two arguments.

8.1 The ACHRE warning signs

The ACHRE described warning signs that may indicate further nonconsensual experiments are happening again and this provides a tool to evaluate the consensus. The 1995 ACHRE Final report warned:

'The convergence of elements of secrecy, urgent national purposes, and the essential vulnerability of research subjects, owing to differentials in information and power between those conducting research and those serving as subjects, could again lead to abuses of individual rights.'¹⁶⁵

Today, all the ACHRE warning signs are present at significant levels. A recent report by the National Research Council covering emergent cognitive neuroscience research for the next two decades included this key finding: 'The IC does not have the internal capability to warn against scientific developments that could lead to major -even catastrophic-intelligence failures in the years ahead.'¹⁶⁶ The report further stated that secrecy prevented adequate international oversight over foreign classified biotechnology research involving human subjects.¹⁶⁷ A case can be made that this would apply to the U.S. as well. Increased secrecy after 9-11 has led to further concerns over human subject protections. In 2001, President George W. Bush gave the HHS authority to classify information as secret; this 'could allow the Defense Department or CIA to undertake secret human experiments with the HHS.'¹⁶⁸ Likewise, an Institute of Medicine (IOM) report recommended that 'those exploring and recommending responses to bioterrorism should consider the protection of research participants in classified and terrorism-related research to be of the highest priority.'¹⁶⁹

Moreover, Professor Jack Geiger testified at a congressional hearing that, contrary to conventional wisdom, today's ethics would probably not prevent secret nonconsensual experiments in response to another 'intense' national security scare.¹⁷⁰ Some recent cases of widespread, long-term, inhumane experimentation programs include U.S. drug testing in foreign countries, leading to serious injuries and deaths.¹⁷¹

Everything: Ideas that will shape the future, John Brockman, ed., (New York: Harper Perennial, 2010). 146. See also John Horgan, 'The Myth of Mind Control: Will anyone ever decode the human brain?', *Discover Magazine*, 29 October 2004. Available at <http://discovermagazine.com/2004/oct/cover>. Last accessed 29 March 2012.

¹⁶³ Moreno, *Mind Wars*, 75-76. n.6 above. See also Committee on Military and Intelligence Methodology for Emergent Neurophysiological and Cognitive/Neural Science Research in the Next Two Decades, 'Emerging Cognitive Neuroscience and Related Technologies', National Research Council, (Washington, DC: National Academies Press, 2008), 2-3. Available at http://www.nap.edu/openbook.php?record_id=12177&page=12. Last accessed 3 March 2012.

¹⁶⁴ Moreno, *Mind Wars*.107. n.6 above.

¹⁶⁵ ACHRE, Final Report. 829. n.2 above.

¹⁶⁶ Committee on Military, 'Emerging Cognitive Neuroscience'. 12. n.164 above.

¹⁶⁷ Ibid. 185 & 190.

¹⁶⁸ Peter Hardin, 'The Ethics of Experiments: Scholars fear post attack secrecy', *Richmond Times-Dispatch*, 3 March 2002, A14. See also 'HHS: Secretary given power to classify information', *AmericanHealth Line*, 20 December 2001. Available at LexisNexis.

¹⁶⁹ Federman, ed., et al., IOM Responsible Research: A systems approach. 215. n.159 above.

¹⁷⁰ Human Radiation and Other Scientific Experiments: The federal government's role, Hearing before the Committee on Governmental Affairs United States Senate, 103rd Congress, (Washington: U.S. GPO, 1994), 65.

¹⁷¹ Donald Bartlett and James Steele, 'Deadly Medicine', *Vanity Fair*, January 2011 Available at <http://www.vanityfair.com/politics/features/2011/01/deadly-medicine-201101?printable=true¤tP>

'The U.S. has some of the world's strictest research safeguard but has flouted its own rules in dozens of countries, and has a history of systematic deficiencies.'¹⁷² This raises the question of whether the IC would ignore current ethical standards and conduct secret nonconsensual experiments for the development of secret neuroweapons.

The ACHRE warning of the essential vulnerability of research subjects remains valid today, as U.S. law currently allows for nonconsensual experiments in classified research. Perhaps the most serious ground for concern is that since World War II (continuing to this day), human experiments have been considered essential to national security research. Additionally, the constitutional rights of the individual have nearly always been outweighed by national security concerns. The combination of ACHRE warning signs indicates that the risk of current nonconsensual experiments is high. The next two sections examine in turn; first, neuroscience and secrecy; and second, allegations of current nonconsensual experiments for the development of neuroweapons to further determine the specific risk that neuroweapons pose a danger of current nonconsensual experiments.

8.2 The science of neuroweapons

The consensus argues that neuroweapons are still considered science fiction; however, at least one type of neuroweapon utilising electromagnetic radiation (EMR) has now taken on new significance. This section examines how the development of EMR neuroweapons challenges the consensus and its two arguments that neuroweapons are still likely to be rudimentary. The consensus position is presented first, followed by the challenge to the consensus.

In the last decade, ethicists and government reports on neuroweapons have included two major types of neuroweapons; neuropharmacology and the development of incapacitating chemical agents, and radiation based weapons (known as directed energy weapons) that can beam non-ionising¹⁷³ EMR. The lead scientist in a 2012 Royal Society report stated that an 'understanding of the brain and human behaviour, coupled with developments in drug delivery, also highlight ways of degrading human performance that could possibly be used in new weapons.'¹⁷⁴ The report also described directed energy neuroweapons; concluding that the threat of advanced neuroweapons is a future concern.¹⁷⁵

Since the 1950s, the U.S. military and the CIA have funded and conducted research on mind control; including EMR neuroweapons that can target and control human behaviour.¹⁷⁶ Examples of EMR neuroweapons include directed energy weapons,

age=3#ixzz18NY8yGh9. Last accessed 3 March 2012.

¹⁷² Keith Epstein and Bill Sloat, 'U.S. Medical Researchers Flout Rules Around World' *Cleveland Ohio Plain Dealer*, 8 November 1998.

¹⁷³ U.S. Environmental Protection Agency website. 'Radiation that has enough energy to move atoms in a molecule around or cause them to vibrate, but not enough to remove electrons, is referred to as "non-ionizing radiation." Examples of this kind of radiation are sound waves, visible light, and microwaves.' Available at: http://www.epa.gov/radiation/understand/ionize_nonionize.html. Last accessed 17 March 2012.

¹⁷⁴ Kate Kelland, 'Neuroscience: The new face of warfare', *Reuters*, 7 February 2012. Available at <http://www.abc.net.au/science/articles/2012/02/07/3425093.htm>. Last accessed 29 March 2012. See also Brainwaves 3: Neuroscience, conflict and security. Royal Society, 2 February 2012. Available at <http://royalsociety.org/policy/projects/brain-waves/conflict-security/>. Last accessed 30 April 2012.

¹⁷⁵ Kelland, n.175 above.

¹⁷⁶ Douglas Pasternak, 'Wonder Weapons: The Pentagon's Quest for Nonlethal Arms is Amazing. But is it Smart?' *US News and World Report* 7 July 1997, 40. See also Louis Slesin, editorial, *Nation*, 14 March 1987. See also Neil Davison & Nick Lewer, 'Bradford Non-Lethal Weapons Research Project: Research Report No. 7' (May, 2005), 13. Available at http://www.bradford.ac.uk/acad/nlw/research_reports/index.php. Last accessed 23 April 2012.

non-lethal weapons and antipersonnel weapons. It is well established that the human brain and body are electrochemical biological systems that communicate with electrical, magnetic and electromagnetic signals.¹⁷⁷ EMR neuroweapons are based on the principle that external EMR signals can mimic, disrupt and affect brain and body functions;¹⁷⁸ the study of which is bioelectromagnetism. The majority of such research has remained classified; although unclassified bioelectromagnetic research has established that non-ionising EMR can affect human behaviour.¹⁷⁹ A few weapons utilising this research have been revealed; for example the heat wave weapon that radiates EMR to disperse riots and unruly crowds, by causing heat and pain.¹⁸⁰

Bioelectromagnetism seems to be important for both future neuroweapons and for solving the brain's 'so-called neural code'.¹⁸¹ In 2010, the prominent physicist Freeman Dyson speculated on the importance of EMR for solving how the brain works: 'The essential facts that will make detailed observation or control of a brain possible' are microwave signals and two tools; first microscopic radio transmitters and receivers; and second, a tool to convert neural signals into radio signals and vice versa.¹⁸² Other prevailing scientific viewpoints about EMR support the argument this research is still rudimentary 'Even though the body is basically an electrochemical system, modern science has almost exclusively been concerned with the chemical aspect'.¹⁸³ Many argue that the study of bioelectromagnetism had been discredited during the first half of the twentieth century and has no scientific validity.¹⁸⁴ In 1910, the Carnegie Foundation conducted a review of U.S. medical education and it dismissed the "unscientific" use of electric devices - some but not all were of questionable medical value - and also any medical practice not based on the prevailing biochemical theory.¹⁸⁵ So all mentions of medical devices based on bioelectricity were driven from the classroom.¹⁸⁶

Physicians discovered that ionising EMR frequencies such as in x-rays could produce cancer and that non-ionising EMR frequencies below light did not seem to cause cancer. Therefore the general conclusion was that non-ionising EMR had no biological effects: 'Classical concepts of physics simply did not allow for any meaningful interaction between any form of non-ionising electromagnetic radiation and living organisms'.¹⁸⁷ In addition, since World War II, the DOD has heavily relied on radar and

¹⁷⁷ Paul Rosch and Marko Markov, ed. *Bioelectromagnetic Medicine*, (New York: M. Dekker, 2004).

¹⁷⁸ Vladimir Binhi, *Electromagnetic Mind Control Fact or Fiction? A scientific view*, (New York: Nova Science Publishers, 2010). 1. See also Pasternak, 38. n.177 above.

¹⁷⁹ Simon North, 'War in the Desert, Electronic weapons', *London Guardian*, 2 February 1991. See also Louise Doswald-Beck, Gerald Cauderay, 'The Development of New Antipersonnel Weapons', *International Review of the Red Cross*, 279, 1 November 1990. See also Jim Della-Giacoma, 'Microwave and acoustic weapons pose new threats', *Reuters World Service*, 30 May 1996.

¹⁸⁰ 'U.S. Military Heat Ray Weapon Unveiled', *Huffington Post Canada*, 13 March 2012. Available at: http://www.huffingtonpost.ca/2012/03/13/us-military-heat-ray-weapon_n_1343092.html. Last accessed 21 April 2012.

¹⁸¹ Horgan, 42. n.163 above.

¹⁸² Dyson, 146-147. n. 163 above.

¹⁸³ North, n.181 above. See also Andrew Marino, *Going Somewhere: Truth about a life in science*. (Belcher, LA: Cassandra Publishing, 2010). 73. Available at <http://www.goingsomewherebook.com/>. Last accessed 30 April 2012. See also Abraham Flexner, The Flexner Report, Bulletin Number Four, Carnegie Foundation for the Advancement of Teaching, (2010). Available at <http://www.carnegiefoundation.org/publications/medical-education-united-states-and-canada-bulletin-number-four-flexner-report-0>. Last accessed 21 April 2012.

¹⁸⁴ Robert Becker, *The Body Electric: Electromagnetism and the foundation of life*, (New York: William Morrow and Company, 1985), 70 & 82.

¹⁸⁵ Ibid. See also Marino, *Going Somewhere*. 73. n.187 above.

¹⁸⁶ Becker. 82. n.186 above.

¹⁸⁷ Robert Becker, 'Electromagnetism and Life', in *Modern Bioelectricity*, Andrew Marino, ed. (New York:

other EMR technologies. Some argue that to prevent lawsuits over possible health effects from exposure to EMR, the DOD maintain a policy that there are 'no proven biological effects' from EMR; only heating effects, similar to a microwave oven.¹⁸⁸ Recently, the U.S. Air Force stated its official position was that there are no proven biological effects of EMR.¹⁸⁹

These prevailing scientific viewpoints have been firmly in place since World War II and likely contributed to the current consensus that there is no proven scientific basis establishing EMR neuroweapons could be a serious threat comparable to the atomic bomb. Despite the decades of funding for secret EMR neuroweapons research beginning with the 1950s CIA mind control experiments, the weapons are not considered a significant threat to national security today. This is highlighted by recent civilian reports and articles on neuroscience applications to national security only examining rudimentary directed energy weapons under development.¹⁹⁰

However, emerging evidence challenges this consensus. Robert Oppenheimer, scientific director of the Manhattan Project, testified at a 1945 congressional hearing that some U.S. physicists correctly speculated that an atomic bomb was being built, although they kept the information secret.¹⁹¹ Similarly, prominent bioelectromagnetic scientists wrote about EMR mind control weapons during and after the Cold War, and left significant clues about another weapon comparable to the atomic bomb. Most neuroscientists lack information about the history and science of EMR neuroweapons that seems to have begun in the 1950s and they cannot comprehend the possibility and the consequences of the secret development of such weapons.¹⁹² Furthermore, Cold War secrecy and disinformation tactics included 'active deception'¹⁹³ to make the science of EMR mind control seem 'absolutely unbelievable.'¹⁹⁴ The next three subsections examine the development of EMR neuroweapons beginning with the 1950s and the clues left by bioelectromagnetics researchers.

8.21 *EMR neuroweapons in the 1950s; a national security issue*

In the 1950s, the U.S. and former Soviet Union (U.S.S.R.) seemed to have discovered the weapons potential of EMR. In 1953, the U.S.S.R. began bombarding the U.S. Embassy in Moscow with low level EMR and 'five presidents kept it secret.'¹⁹⁵ The CIA analysed the bombardment of the U.S. Embassy with microwaves and discovered it matched those microwave characteristics mentioned in published Soviet experiments involving behavioral effects in rats.¹⁹⁶ Milton Zaret was contacted by Samuel Koslov (the advisor to the President on this issue); Zaret had previously conducted research for the CIA,

M. Dekker, 1988), 1. See also Andrew Marino website <http://andrewamarino.com/>. Last accessed 30 April 2012. See also Reppert, 'The Moscow Signal' 22 May 1988.

¹⁸⁸ Christopher Ketcham, 'Warning: Your cell phone may be hazardous to your health', *Gentleman's Quarterly*, February 2010. Available at <http://www.gq.com/cars-gear/gear-and-gadgets/201002/warning-cell-phone-radiation?currentPage=2>. Last accessed 29 March 2012.

¹⁸⁹ Sharon Weinberger, 'Thought Wars', *Washington Post Magazine*, 14 January 2007, W22.

¹⁹⁰ Kelland, n.175 above. See also Koebler, n.9 above.

¹⁹¹ Hearings before the Special Committee on Atomic Energy, Pursuant to Senate. Resolution 179, U.S. Senate, 79th Congress, 1st Session., 27-30 November, 3 December 1945, (Washington, D.C.: U.S. Government Printing Office, 1946), 189.

¹⁹² North, n.180 above.

¹⁹³ Steven Aftergood, 'The Soft-kill Fallacy: The idea of non-lethal weapons is politically attractive and purposely misleading', *Bulletin of Atomic Scientist*, September/October 1994, 43.

¹⁹⁴ Binh, xi, n.179 above.

¹⁹⁵ David Jones 'Opening Pandora's Box', Fulcrum Central Productions, BBC documentary, Channel 4, England, 1984.

¹⁹⁶ Marino, n.187 above.

which suggested it might be possible for microwaves to be used to create an advanced mind control weapon. Zaret's experiments for the CIA replicated Soviet rat experiments on the behavioural effects of microwaves which were 'translated into the different scientific nomenclature used in the United States, like a microwave Rosetta Stone.'¹⁹⁷ This is one of several indications that despite the prevailing scientific viewpoints on the lack of EMR bioeffects, some EMR bioeffects research was scientifically sound and it was also a significant national security concern.

In 1965, Koslov, who also worked for the Advanced Research Projects Agency (ARPA), ran the Pentagon's Project Pandora; which secretly studied the behavioural and biological effects of low-level modulated microwaves.¹⁹⁸ Ross Adey (a pioneer of bioelectromagnetic medicine), Zaret and other bioelectromagnetics experts were consulted by U.S. government agencies or conducted secret work on Project Pandora.¹⁹⁹ These experts found that EMR affected the nervous system; however Koslov later destroyed the Project Pandora documents²⁰⁰, reporting he did not have enough room to store them.²⁰¹ Koslov concluded, without explanation, that 'the Moscow microwave beam was not an effective mind-control weapon'²⁰²; however, a recent *Washington Post* article stated that Project Pandora conclusions were uncertain: 'The results were mixed, and the program was plagued by disagreements and scientific squabbles.'²⁰³

At the same time, CIA EMR mind control research was considered of primary importance to national security:²⁰⁴ 'Experts agree that nonionizing electromagnetic radiation (NIER) can affect behavior, but the question is whether the radiation can be harnessed and used on people at a distance. With its MKULTRA program the C.I.A. began looking for the answer'.²⁰⁵ In the 1960s and 1970s, the electromagnetic aspect of neuroscience research was well funded and classified by the U.S. government.²⁰⁶ It seems clear that the U.S. government was aware of the EMR research that suggested the weapons potential of EMR bioeffects. Furthermore, a small number of scientists were instrumental in establishing the scientific basis for bioelectromagnetic medicine.²⁰⁷ They found 'truly remarkable interactions between electromagnetic fields and the brain' but the 'relevant experiments were hidden from view by the Cold War'.²⁰⁸ As a result of both secrecy and prevailing scientific thought, however, bioelectromagnetic research has remained underfunded and disregarded by the mainstream scientific community.²⁰⁹ For

¹⁹⁷ Ibid.

¹⁹⁸ Jones, n.199 above. See also Nicholas Steneck, *The Microwave Debate*, (Cambridge: MIT Press, 1984) 94.

¹⁹⁹ Marino, 163, n.187 above. And also Steneck, n.203 above.

²⁰⁰ Ibid. Marino

²⁰¹ Ibid. at 164. See also Reppert, 'The Moscow Signal', 22 May 1988 citing an April 1979 report by Senate Committee on Commerce, Science and Transportation criticizing the State Department's handling of the microwaves affair.'

²⁰² Marino, 164, n.187 above. See also Jones, n.199 above. See also Barton Reppert, 'Looking at the Moscow Signal: The zapping of an embassy 35 years later: the mystery lingers', *Associated Press*, 22 May 1988.

²⁰³ Weinberger, n.193 above.

²⁰⁴ Human Drug Testing by the CIA, Subcommittee on Health and Scientific Research of the Committee on Human Resources United States Senate, (Washington: U.S. GPO, 1977) 20, 21 September 1977, p.202. CIA medical doctor Sidney Gottlieb testimony discussing CIA mind control programs and the possibility of mind control using radiowaves and the Embassy bombardment: 'It was felt to be mandatory and of the utmost urgency for our intelligence organization to establish what was possible in this field on a high priority basis.'

²⁰⁵ Slesin, editorial, n.177 above.

²⁰⁶ Kathleen McAuliffe, 'Mind Fields', *Omn*, February 1985.

²⁰⁷ Rosch, vii, n.177 above.

²⁰⁸ Binh, ix, xi. n.179 above.

²⁰⁹ Louis Slesin, 'The Science and Politics of the EMF Puzzle; The missing pieces in the Frontline Story',

example, in the 1960s, Allen Frey, a neuroscientist, tested microwave radiation on animals and found evidence that electricity seems to affect brain activity.²¹⁰ Frey stated that the Pentagon hired scientists who published research disputing Frey's findings while at the same time refusing to reveal their methodology and data.²¹¹ Moreover, in the 1970s, his government contractors told him to cover up his research or they would terminate his contract.²¹² Numerous bioelectromagnetics scientists reported similar treatment by the U.S. government.²¹³ At that time, most researchers, including neuroscientists, still held the prevailing scientific viewpoints on the lack of proven biological effects of EMR.²¹⁴ Thus the weapons potential of the bioelectromagnetics research remained out of the public view.

8.22 *The 1980s; a turning point for bioelectromagnetics researchers*

In the 1980s, bioelectromagnetics researchers felt that their research could lead to EMR weapons comparable to the atomic bomb; a further indication that the study of the electromagnetic aspect of the electrochemical brain seemed to be critical to national security. These researchers discovered that when information was embedded onto a carrier EMR wave it 'induced the widest variety of biological effects'; although how this happened was not known.²¹⁵ Their experiments suggested externally applied electromagnetic fields had a scientifically measurable effect on electromagnetic processes of transformation, transfer, coding, and storage of information in living systems; including in the brain.²¹⁶ In the 1980s, Richard Cesaro, deputy director for advanced sensors at the Defence Advance Research Projects Agency (DARPA) helped to make sense of this disregarded science. He stated that animal experiments confirmed microwaves can penetrate and influence the brain and a weapon based on successful human experiments would be more powerful than the atomic bomb.²¹⁷

At this time, some promising unclassified EMR bioeffects research was classified as secret by the U.S. government.²¹⁸ For example, Eldon Byrd ran the Marine Corps Nonlethal Electromagnetic Weapons program and the researchers found EMR and magnetic signals 'could induce the brain to release behavior-regulating chemicals.'²¹⁹ He was told that if the research was successful, it would be classified: subsequently his and other similar projects were cancelled and some have speculated the research was classified because it was successful.²²⁰ At the same time, the Russian EMR neuroweapons programs expanded and the related U.S. programs were defunded and classified as secret.²²¹ 'Independent scientists have found it very difficult to obtain

Microwave News, July/August 1995. Available at <http://microwavenews.com/front.html>. Last accessed 2 April 2012.

²¹⁰ Ketcham, n.192 above.

²¹¹ Ibid.

²¹² Ketcham, n.192 above.

²¹³ Ibid. See also Pasternak, 40, n.177. See also Robert Becker, *Cross Currents: The perils of electropollution, the promise of electromedicine*, (New York, NY: Jeremy P. Tarcher/Penguin, 1990), 344-7. And Steneck, 118, n.203. above

²¹⁴ Steneck, 121, n.203 above.

²¹⁵ Ketcham, n.192 above.

²¹⁶ Samuel Koslov, 'Bridging the Gap', in Ross Adey, Albert Lawrence ed., *International Conference on Nonlinear Electrodynamics in Biological Systems*, (New York: Plenum Press, 1984), 586. See also Aleksander Presman, *Electromagnetic Fields and Life*, (New York NY: Plenum Press, 1970)

²¹⁷ Reppert, n.207 above.

²¹⁸ North, n.181 above. See also Pasternak, 40, n.177 above. And Reppert, n.207 above.

²¹⁹ Pasternak, 40, n.177 above.

²²⁰ Pasternak, 40, n.177 above.

²²¹ V.L. Issraelyan, Representative of the USSR to the Committee on Disarmament. Negotiations on the Question of the Prohibition of New Types of Weapons of Mass Destruction and New Systems of Such

funding to research in related areas.²²² Similarly, neuroscience research with implants which electrically stimulated the brain were apparently no longer supported: 'brain-stimulation studies back in the U.S. bogged down in ethical controversies, grants dried up, and researchers drifted to other fields, notably psychopharmacology, which seemed to be a much safer, more effective way to treat brain disorders.'²²³ Even the related military research seemed to disappear into classified research; the Army Research Institute 'worked on a variety of "neurotechnologies" in the mid-1980s, ostensibly abandoning the program . . . military officers will not comment on the success or failure of such programs.'²²⁴

Several researchers felt that a letter should be written to the President about the emerging weapons potential of bioelectromagnetics research, similar to the 1939 letter written to President Roosevelt about the weapons potential of nuclear physics.²²⁵ For example, Robert Becker, twice nominated for a Nobel Prize for his bioelectromagnetics research,²²⁶ described a military report that stated microwave pulses appeared to produce stimulation in the central nervous system.²²⁷ Becker stated the stimulation was comparable to Jose Delgado's research that found brain implants could be remotely controlled to electrically stimulate an animal's brain to control various complex behaviours, instincts and emotions.²²⁸ Weapons based on microwave pulses with the capability of precise mind control without the need for implants remain unproven but in the mid-1980s, Becker recounted several researchers surmised such a weapon was a possibility.²²⁹ Most would agree that if developed, such a weapon could be comparable to an atomic bomb.

Becker had witnessed decades of bioelectromagnetics research, the growing U.S. and Russian interest in EMR weapons and excessive government secrecy including government deception and disinformation techniques. In conversation with another pioneer of bioelectromagnetics research (Professor AR Liboff), Becker always maintained the belief that both the U.S. and Russian governments were very much involved in EMR mind control research.²³⁰ Both Becker and Adey felt that electromagnetic mind control was inevitable.²³¹ On a 1984 BBC documentary on Project Pandora, Becker surmised that there could be a super-secret Manhattan Project to develop EMR weapons²³² and that the best cover story, the official explanation for secret government research, would be that EMR weapons were not scientifically possible.²³³ Despite the increasing scientific research suggesting that the human body and brain are

Weapons, UN Committee on Disarmament Document CD/35, 10 July, 1979. See also North, n.181 above; John Horgan, 'The Forgotten Era of Brain-Control Chips', *Scientific American*, October 2005, 72; Becker, 325, n.188 above and Reppert, n.207 above.

²²² North, n.181 above and Barton Reppert, 'Looking at the Moscow Signal: The zapping of an embassy 35 years later: the mystery lingers', *Associated Press*, 22 May 1988.

²²³ Horgan, n.226 above.

²²⁴ William Scott, *Aviation Week and Space Technology*, 15 August 1994.

²²⁵ Koslov, n.221 above.

²²⁶ North, n.181 above.

²²⁷ Becker, 304, n.218 above. The report is: Paul Tyler, Lt. Col. David Dean, ed., 'The Electromagnetic Spectrum in Low-Intensity Conflict' (Maxwell air Force Base, Ala.: Air University Press, 1986). Available at <http://www.icomw.org/archives/index.asp>. Last accessed 30 April 2012.

²²⁸ Becker, 304, n.218 above. See also Becker, 319-320, n.188 above.

²²⁹ Becker, n.188 above.

²³⁰ Binh, xi, n.179 above.

²³¹ Ibid.

²³² Jones, n.199 above.

²³³ Ibid.

affected by EMR,²³⁴ the U.S. government continued to claim that the science for EMR neuroweapons had never been proven and such weapons were science fiction.²³⁵ Becker may be proved to be right about a secret project and accompanying cover story: as Oppenheimer explained, scientists who are familiar with the science surrounding secret weapons have a greater chance of correctly speculating about what weapons the government may be secretly developing.

In a 2011 interview, Elizabeth Rauscher, a physicist who has conducted bioelectromagnetics research since the 1970s, corroborated Becker's explanation. Rauscher has concentrated on EMR bioeffects research to enhance health²³⁶ and she recounted that in the 1980s, many bioelectromagnetics researchers were discussing EMR bioeffects, its importance to neuroscience and weapons research, comparable to the atomic bomb.²³⁷ She stated her belief that Becker's general hypothesis on how the brain and neuroweapons could work was scientifically valid²³⁸ - although admitting she had rejected the possibility of EMR bioeffects until she had observed and conducted experiments herself.²³⁹

8.23 *The 1990s and beyond; EMR neuroweapons and excessive secrecy*

Decades of further comparable secret research in both the U.S. and Russia indicate that EMR neuroweapons continue to merit the interest of both countries. In 1986, Soviet leader Mikhail Gorbachev discussed 'weapons based on new physical principles' including EMR weapons that could 'strike at personnel'.²⁴⁰ A 2002 U.S. Air Force document on future weapons described the science for remote targeting as:

'High risk endeavours with high payoffs, difficult to attain but probably achievable. . . . With the advent of directed energy and other revolutionary technologies, the ability to instantaneously project very precise amounts of various types of energy anywhere in the world can become a reality.'²⁴¹

Dennis Bushnell, chief scientist at NASA's Langley Research Centre, tagged microwave attacks against the human brain as part of future warfare²⁴² and stated that such weapons will remain classified.²⁴³ Likewise, Russian president Vladimir Putin described a new military program to develop electromagnetic weapons that target the nervous system: 'Such high-tech weapons systems will be comparable in effect to nuclear weapons, but will be more acceptable in terms of political and military ideology.'²⁴⁴ Since the 1990s, U.S. EMR antipersonnel weapons have been surrounded by extreme secrecy. For example, Louis Slesin, the editor of the trade publication, *Microwave News* for over 30 years stated that these programs - particularly those involving antipersonnel research - were so well guarded that details were scarce. "People [in the military] go silent on this issue," says Slesin, "more than any other issue. People just do not want to talk about

²³⁴ North, n.181 above. See also Rosch, vii, n.177 above.

²³⁵ Pasternak, 40, n.177.

²³⁶ Interview of Elizabeth Rauscher, Saturday December 3, 2011. Available at <http://www.youtube.com/watch?v=qwGhJ23oS7Y>. Last accessed 30 April 2012

²³⁷ Ibid.

²³⁸ Ibid.

²³⁹ Ibid.

²⁴⁰ Ibid.

²⁴¹ 'Press Conference on Gorbachev's Nuclear Arms Elimination Proposals', *BBC Summary of World Broadcasts*, 21 January, 1986: Tass for abroad: SU/8162/A1/1. Available at Lexis Nexis.

²⁴² William Baker, Eugene Bednarz, Long-Term Challenges from the Air Force's Air Power Theory and Doctrine, Controlled Effects: Scientists explore the future of controlled effects, (Air Force Research Lab Directed Energy Directorate, 2001).

²⁴³ Weinberger, n 193 above.

²⁴⁴ Ibid.

²⁴⁵ Christopher Leake, Will Stewart, 'Putin Targets Foes with Zombie Gun', *Mail on Sunday*, 1 April 2012.

this."²⁴⁵ Today, the consensus is resolute that despite the decades of secret research, such weapons are highly unlikely to be successfully developed.

To summarise, it can be argued that the consensus has been misled by a lack of basic information on the history and science of bioelectromagnetics and EMR neuroweapons. By both chance and design, the U.S. government has maintained a nearly complete monopoly over a fundamental area of neuroscience research that seems to be critical to national security, the electromagnetic aspect of the electrochemical brain. There seems to be four major factors behind the consensus and its failure to recognise the importance of EMR neuroweapons; first, the prevailing scientific viewpoint that bioelectricity has been discredited since the beginning of the twentieth century; second, the prevailing scientific viewpoint that because non-ionising radiation exposure did not seem to produce cases of cancer, there was no indication that EMR could produce bioeffects or react with the human body; third, the Defense Department's official policy of 'no proven bioeffects of EMR'; which, some have argued, is maintained to avoid lawsuits over possible health effect from EMR based radar and other critical technologies; and fourth, excessive U.S. secrecy methods surrounding EMR neuroweapons since World War II. Consequently the promising unclassified EMR bioeffects research on the brain remained under funded and could not overcome the prevailing scientific viewpoints.

A case can be made that EMR neuroweapons could be comparable to the atomic bomb because the weapons are based on one of two fundamental brain processes; the electromagnetic aspect of the electrochemical brain. The obscure fact required to understand the potential of EMR neuroweapons is an understanding of the importance of bioelectromagnetism. It now appears that EMR neuroweapons are based on a fundamental but disregarded area of neuroscience that is vital to national security. Without the availability of key neuroscience research to unclassified researchers, successfully developed EMR neuroweapons have been inconceivable. At the same time, decades of scientific breakthroughs resulting in advanced EMR neuroweapons could have taken place under classified conditions. In this way, the tremendous weapons potential of EMR neuroweapons may have remained hidden in plain sight. The history, science and excessive secrecy regarding bioelectromagnetics research suggests that if EMR neuroweapons were developed, they might be as dangerous as the atomic bomb and EMR neuroweapons may pose a significant, but completely overlooked danger.

It could be argued the consequences of excessive U.S. government secrecy surrounding EMR neuroweapons are dangerous:

'Because of the overall bias toward secrecy the salient danger is not that information vital to national security will be disclosed, but that politically critical decisions will be made without due consultation either horizontally or vertically, inside the bureaucracies or in the country at large.'²⁴⁶

An arguable comparison could be made with Congress funding the Manhattan Project without knowing what was involved and Vice President Harry Truman only learning about the Project when President Roosevelt died.²⁴⁷ The issue of neuroweapons could be the new danger: 'The science in question now is not physics, but neuroscience, and the question is whether we can control its militarization.'²⁴⁸ Public discussions seemingly

²⁴⁵ Pasternak, n.180. See also researcher's reluctance to discuss issues related to secret neuroethics research in Editorial, 'Silence of the Neuroengineers: Researchers funded by a defence agency should stop skirting the ethical issues involved', 423 *Nature*, (9 June 2003), 787.

²⁴⁶ Morton Halperin and Daniel Hoffman, *Top secret: National security and the right to know*, (Washington: New Republic Books, 1977). 35-36.

²⁴⁷ Hugh Gusterson, 'Militarization of Neuroscience', *Bulletin of the Atomic Scientists*, 10 April 2007, Available at <http://www.thebulletin.org/columns/hugh-gusterson/20070410.html>. Last accessed 29 April 2012.

²⁴⁸ Ibid.

ignore the fact that the answer to the question might be no; for over half a century, the development and militarisation of one critical area of neuroscience - the electromagnetic aspect of the electrochemical brain - has been controlled and monopolised by the U.S. government.

Overall, the consensus that neuroscience is rudimentary and neuroweapons are science fiction appears to be in a weak position. At the same time, the alternative position that EMR neuroweapons are more advanced than civilian, unclassified neuroscience research would suggest and that EMR neuroweapons have successfully been kept secret for decades is gaining in credibility. The next section examines the widespread allegations that current nonconsensual experiments are used for the development of neuroweapons and the significant indications that such experiments could be kept secret for decades.

8.3 Allegations of current nonconsensual experiments

Since the CIA mind control experiments began, there have been unusually persistent and widespread allegations of nonconsensual mind control experiments beyond those that came to light in the 1970s. When Seymour Harsh, a well-known U.S. investigative journalist, wrote on biological warfare in the 1960s, he was reported to have 'regularly received twenty-page reports from various persons alleging incredible CIA ventures into brainwashing and mind-control'.²⁴⁹ Likewise, after Professor Jonathan Moreno wrote books and articles on Cold War experiments and neuroweapons, thousands contacted him because they believe they are victimised by such experiments.²⁵⁰

Not only the U.S., but major world powers could be testing EMR neuroweapons on non-consenting human research subjects. The growing numbers of allegations of nonconsensual mind control experiments include claims from major countries around the world.²⁵¹ For example, after the 1989 breakup of the former Soviet Union, Russian newspapers reported large numbers of alleged victims of Russian mind control experiments and public figures have claimed EMR neuroweapons have been deployed to target and torture for political purposes. Putin recently speculated that the new EMR neuroweapons to be funded and developed in Russia could be used for political purposes (above). Also in 2009, newspapers reported the alleged microwave targeting of former Honduran leader Manuel Zelaya during Brazilian Embassy siege.²⁵² A complaint was filed with the Permanent Council of the Organisation of American States (OAS) which condemned 'the hostile action by the de facto regime against the embassy of Brazil in Tegucigalpa and the harassment of its occupants through deliberate actions that affect them physically and psychologically and violate their human rights'.²⁵³ Another political case was alleged in 2011; the running mate of Taiwan opposition presidential candidate James Soong claimed he had come under attack from 'electromagnetic waves' launched by a local intelligence unit.²⁵⁴

An example of alleged use of EMR neuroweapons and torture is the case of Tek

²⁴⁹ Michael Rossman, 'On Some Matters of Concern in Psychic Research', in John White, ed. *Psychic Warfare, Fact or Fiction: An investigation into the use of the mind as a military weapon*, (Wellingborough, Northamptonshire: Aquarian Press, 1988), 142-143.

²⁵⁰ Moreno, n. 47 above. See also *Mind Wars*, 10-11, n.6 above.

²⁵¹ Moreno, *Mind Wars*, 10-11, n.6 above.

²⁵² Fabiano Maisonnave, 'Manuel Zelaya Undergoes Strange Siege inside Brazilian Embassy', *Guardian online*, 25 October 2009. Available at <http://www.guardian.co.uk/world/2009/oct/25/honduras-manuel-zelaya-embassy-siege>. Last access 6 April 2012.

²⁵³ Ibid.

²⁵⁴ Jens Kastner, 'Taiwanese Election Looms', *Asia Sentinel*, 15 December 2011. Available at http://www.asiasentinel.com/index.php?option=com_content&task=view&id=4048&Itemid=386. Last access 29 March 2012.

Nath Rizal, a prominent government consultant to the South Asian country of Bhutan before he exposed corruption in high places. He became a popular political figure and internationally recognised human rights activist. Tek Nath Rizal spent several years of imprisonment in Bhutan and alleged government mind control torture with secret electromagnetic radiation (EMR) mind control weapons. The U.S. Department of State and Amnesty International regarded Rizal as a political prisoner and he won his release from prison and wrote a book about his experiences.²⁵⁵

Most allegations sound like science fiction and include the same cluster of symptoms. Victims state that they are observed and targeted 24 hours a day for years on end via remote communication technologies interacting with their brains. They state that the methods used are destructive and debilitating. Some fear they have been the subject of a government program designed to develop a mind control weapons system. The alleged victims claim they have been the targets of terrifying and effective remote mind control weapons that can neutralise the enemy without killing them.

Victims allege that the decades of secret research supports the argument that, unlike the atomic bomb - which became known to the public when it exploded over Japan- some EMR neuroweapons are likely be surreptitious intelligence weapons, whose power lies in keeping them secret. Surreptitious weapons would likely remain classified, never to be revealed to the public; they would be silent, undetectable, and leave no trace evidence behind- thus creating a more ominous threat to fundamental human rights than the atomic bomb. Currently the consensus is that mind control allegations are a contemporary social phenomenon or a conspiracy theory and the claims have been dismissed without further investigation.²⁵⁶ An alternative explanation is the emergence of secret neuroweapons and a case can be made that nonconsensual experiments may have been kept secret for decades.

The victims of alleged nonconsensual mind control experiments now have a plausible basis for their claims; first, the lessons of the Cold War experiments suggest that widespread nonconsensual experiments could happen again; and second, the U.S. government's nearly complete, decades-long monopoly over a fundamental area of neuroscience research that forms the scientific basis for EMR neuroweapons. EMR neuroweapons, if they were developed successfully, could be a type of weapon more dangerous than the atomic bomb: the surreptitious characteristics of EMR neuroweapons coupled with the government secrecy surrounding them means that the public, including experts, would remain unaware of the danger. The allegations could be a case of nonconsensual experimentation involving a new category of secret weapons and fundamental human rights violations. This lends further support to the significant and urgent need for U.S. and international laws banning nonconsensual experiments.

9. Conclusion

Nonconsensual experimentation in national security research is a longstanding intractable problem. Nonconsensual experiments are still legal both internationally and more specifically in the U.S. in practise if not in principle and will most likely remain so for decades to come. A critical first step towards a ban on nonconsensual experiments is to recognise how and why past reforms have failed. Today, the unspoken U.S. government policy that nonconsensual experiments are essential to national security remains the norm. Medical, pharmaceutical and national security interests continue to be an impenetrable barrier to reform efforts, and government policies continue to maintain the

²⁵⁵ Tek Nath Rizal, *Torture: Killing me softly*, (Bhutan, Friends of Bhutan, 2010). Available at <http://teknathrizal.com/>. Last accessed 29 March 2012.

²⁵⁶ Weinberger, n.193 above.

status quo allowing for nonconsensual experiments under U.S. law. Consequently, the problem of nonconsensual experiments is preventable, but the odds against successful reforms are formidable.

Today, the ethical and legal basis for the requirement of informed consent in classified research is well supported. However, the ethical and legal commitments upholding informed consent in human experiments are not legally binding and remedies are not accessible. In the U.S., reform efforts have led to symbolic changes without substance as human subject protections offer no protection from unlawful and nonconsensual experiments. Consequently, there is a strong argument for both adopting an international convention making nonconsensual experimentation an international crime, and for legislating to make nonconsensual experimentation in the U.S. a crime.

In the U.S., Congress should pass legislation to specifically prevent experiments similar to the widely condemned Cold War experiments. Although this narrower and more focused approach would still face an uphill battle, this effort may have the best chance of succeeding. Reform efforts must also concentrate on lobbying the President to send the following clear message: give the constitutional right to be free from nonconsensual experimentation priority over national security research priorities. In light of the complete concentration of power in the executive branch regarding human subject protections in classified experiments, any lesser efforts are most likely to fail. Finally, the totality of the evidence regarding allegations that current nonconsensual experiments are used for the development of neuroweapons is significant and is cause for concern; a thorough impartial investigation should be carried out.