

Making up 'Vulnerable' People: Human Subjects and the Subjective Experience of Medical Experiment

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Summary. This paper explores how 'the human subject' was figured historically and expands the interpretive range available to historians for understanding the subjective experiences of people who have served in medical experiments in the past. We compare LSD studies on healthy 'volunteers' conducted in two experimental settings in the 1950s: the US National Institutes of Mental Health's (NIMH) Addiction Research Center (ARC) Lexington, Kentucky and the NIH Clinical Center (NIHCC) in Bethesda, Maryland. Sources consist of oral history interviews, transcripts and archival documents including photographs and records. Political priorities and historical contingencies relevant for crystallising the expert domain of modern bioethics, especially the 1960s US Civil Rights movement, were central for producing the 'vulnerability' attributed to the modern figure of the 'human subject'. Using Ian Hacking's historical ontology approach, we suggest how this figure of the 'vulnerable human subject' affected historical actors' self-understandings while foreclosing paths of historical inquiry and interpretation.

Keywords: history of medicine; bioethics; human sciences; clinical trials; LSD studies; ontology; Hacking

Introduction

Countless numbers of people have served in medical experiments. Yet there are remarkably few ways in which they have experienced their time as 'human subjects' in historical accounts written since the 1970s. Consider, for example, Nathan Leopold, one of the more infamous people who served in malaria experiments between 1944 and 1947 while incarcerated at the Stateville Penitentiary in Illinois. A well-educated young man serving a federal life sentence for a 1924 murder, Leopold was paroled after more than three decades in federal prison. In the 1950s, Leopold wrote about his experiences as a subject in the malaria experiments: 'We were told that there was danger, that we might be sick, that we might die. No man was coerced or even persuaded. If anything the Army officers threw their weight the other way'.¹ Yet when viewed through the interpretive lens of the present-day historian, Leopold's claim is inverted. Despite Leopold's insistence to the contrary, one historian of medicine asserts that Leopold unknowingly was coerced, and that coercion travelled 'through incentives, many of which were distributed by other prisoners,

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¹J. N. F. Leopold and E. S. Gardner, *Life Plus 99 Years* (New York: Doubleday & Co., 1958), 307.

through the spirit of wartime volunteerism, status within prison culture, and in other ways'.²

The inclination to doubt Leopold's account is fair. Scholars are trained to consider the social situations in which historical evidence was created and to be especially sceptical of testimony, interview and other post hoc accounts of events and people's experiences. Yet historians who cast back to understand the experiences of people who served in medical experiments have tended to render them in a uniform way: as vulnerable subjects who were victims of coercion, discrimination or exploitation. Our interest is in the production of this uniformity in accounts of the subjective experience of the people who served in medical experiments in the past within the discourse of bioethics.

We seek to expand the interpretive range available to historians for understanding the subjective experience of those serving in experiments by exploring how 'the human subject' has been figured historically. We rely on oral history, meeting transcripts and a site visit report of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, conference proceedings and transcripts of drug experiences.³ We compare LSD studies on healthy 'volunteers' conducted at the US National Institutes of Mental Health's (NIMH) Addiction Research Center (ARC) in Lexington, Kentucky and the NIH Clinical Center (NIHCC) in Bethesda, Maryland in the 1950s. We compare the studies along two dimensions.⁴ Synchronically, we find that the historical circumstances of the LSD human experiments in these two sites were very similar—perhaps unsurprisingly so: they were studies of the same psychiatric drug at the same period of time. Each was conducted at one of few NIMH intramural research centres, which often shared personnel. Diachronically, however, we show that all extant retrospective accounts exhibit patterned differences. Our aim in reporting these accounts is *not* (primarily) ethical or documentary, but interpretive: namely, we seek to explain the gap in retrospective accounts of people who served in the same experiments. Our main argument is that the divergence in accounts

²Nathaniel Comfort, 'The Prisoner as Model Organism: Malaria Research at Stateville Penitentiary', *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, 2009, 40, 190–203. The malaria experiment was sponsored by the Office of Scientific Research and Development. Records of the Stateville malaria studies are housed at the archives of the National Academies of Science, Washington, DC. See Edwin Cowles Andrus, *Advances in Military Medicine, Made by American Investigators* (Boston: Little, Brown and Co., 1948), Vol. II, 877. For an overview of OSRD anti-malarial research, see chapter 8 by James A. Shannon, 'Clinical Testing of Antimalarial Drugs'. OSRD records are collected under Medical Division, Board for Coordination of Malarial Studies; Panels, Clinical Testing, Testing Centers; Illinois State Penitentiary—Stateville (Washington, DC: National Academies of Science). For a similar interpretation from legal history, see Bernard E. Harcourt, 'Making Willing Bodies: The University of Chicago Human Experiments at Stateville Penitentiary', *Social Research*, 2011, 78, 443–478.

³As sources of historical evidence, oral histories and interviews are treated with trepidation if not suspicion. Recently, historians have pointed to the weaknesses of

oral histories but also distinguished their strengths as a unique form of evidence. See e.g. Lee Smith, *Oral History*. (New York: Putnam, 1983) and C. Jerolmack and S. Kahn, 'Talk Is Cheap: Ethnography and the Attitudinal Fallacy', *Sociological Methods Research*, 2014, 43, 178–209. Examining the limits of interviews and self-reports of attitudes and behaviours for explaining 'what people actually do', Jerolmack and Khan argue that analysis proceeding from ethnographic observation offers more complete accounts of the ways in which what people say or do depends on how they define the situation. While we cannot perform ethnographic observation in sites that no longer exist, we have each produced contextually situated accounts of the laboratories in which these human subjects participated in the 1950s (Nancy D. Campbell, *Discovering Addiction: The Science and Politics of Substance Abuse Research* (Ann Arbor, MI: University of Michigan Press, 2007); Laura Stark, *Behind Closed Doors: IRBs and the Making of Ethical Research* (Chicago, IL: University of Chicago Press, 2012)).

⁴Gregor Feindt, Félix Krawatzek, Daniela Mehler, Friedemann Pstel and Rieke Trımçev, 'Entangled Memory: Toward a Third Wave in Memory Studies', *History and Theory*, 2014, 53, 24–44.

stems from the introduction of a new kind of person, namely, the figure of the 'vulnerable human subject' by the discipline of American bioethics in the 1970s. The invention of the modern human subject matters for historians because this figure has guided many scholars' interpretations of historical evidence since the 1970s.

In the sections that follow, we sketch our analytic approach; lay out empirical evidence from two sites of human experimentation on LSD during the 1950s; and comparatively analyse accounts of how participants articulated their experiences of the 1950s experiments when asked to do so decades later. As David Reubi has shown, the figure of the modern human subject of experimentation was produced by a group of actors in the 1960s and 1970s, who were responding to social changes and expanding structures of governance, and who spawned what Reubi calls the modern 'bioethical assemblage'.⁵ Superficially, the bioethical assemblage appeared to constrain modern medicine. But the field of bioethics was, in Roger Cooter's words, 'appropriated by and then congealed within, the very institutions of medicine whose social relations the bioethical "movement" initially set out to reform'.⁶ In the late 1960s, modern bioethics emerged in the United States as a new expert domain that was subsequently extended globally via funding mechanisms and legal apparatuses. The diffusion of bioethical reasoning imparted the appearance of universality to a set of particularly American ethical imperatives.⁷ Vintage American bioethics brought into being the 'human subject' just as other populations were reimagined during the American civil rights revolution and the global human rights revolution.⁸ As a result of these historical contingencies, the bioethical assemblage assigned the modern human subject the attributes of other subjugated groups and cast it into a narrative of hierarchical positioning in which human subjects were vulnerable to risks at the hands of medical power-holders. As with Reubi's critique of the paternalism central to 'informed consent' as a portrayal of relationships between biomedical researchers and subjects integral to the 'figure of the human being capable to think and decide',⁹ we do not make inferences about behaviour as a social scientist might by looking at subjects' socially and historically situated accounts of action as related in interviews. Rather we consider the interviews to offer the basis for analysing how the discourse of bioethics made

⁵David Reubi, 'The Human Capacity to Reflect and Decide: Bioethics and the Reconfiguration of the Research Subject in the British Medical Sciences', *Social Studies of Science*, 2012, 42, 348–68; David Reubi, 'Re-moralising Medicine: The Bioethical Thought Collective and the Regulation of the Body in British Medical Research', *Social Theory & Health*, 2013, 11, 215–35.

⁶Roger Cooter, 'Inside the Whale: Bioethics in History and Discourse', *Social History of Medicine*, 2010, 23, 665. See also Stephen Toulmin, 'How Medicine Saved the Life of Ethics', *Perspectives in Biology and Medicine*, 1982, 25, 736–50. Sociological and anthropological literature on bioethics indicates the limits of bioethical understandings of the human subject inscribed within notions of 'informed consent', respect for persons, and beneficence. See Onagh Corrigan, 'Empty Ethics: The Problem with Informed Consent', *Sociology of Health and Illness*, 2003, 25, 768–92; Richard Tutton

and Onagh Corrigan, eds, *Genetic Databases: Socio-Ethical Issues in the Use of DNA* (New York: Routledge, 2004); and Raymond De Vries, Kristina Orfali, and Charles Bosk, eds, *The View from Here: Bioethics and the Social Sciences* (Oxford: Wiley-Blackwell, 2007).

⁷There is a robust literature on the American mien of 'global' bioethics. For a good starting point, see Renee C. Fox, Judith P. Swazey and J. C. Watkins, *Observing Bioethics* (New York: Oxford University Press, 2008) and Adam Hedgecoe, "'A Form of Practical Machinery": The Origins of Research Ethics Committee in the UK', *Medical History*, 2009, 53, 331–50.

⁸Samuel Moyn, *The Last Utopia: Human Rights in History* (Cambridge, MA: Belknap Press of Harvard University Press, 2010); Lynn Hunt, *The Invention of Human Rights* (New York: Norton, 2008). J. D. Skrentny, *The Minority Rights Revolution* (Cambridge, MA: Belknap Press of Harvard University Press, 2002).

⁹Reubi, 'Human Capacity to Reflect and Decide', 356–7.

it possible for human subjects of LSD research to imagine themselves as 'vulnerable subjects'. Significantly, some did so; others did not.

The effects of bioethics as an emerging discourse are apparent both in historical actors' accounts, which we document, and in current scholarly accounts of human experimentation, as the comparative case of Nathan Leopold exemplified. Using the approach of historical ontology outlined by philosopher Ian Hacking, we suggest how scholars' accounts of experimentation on 'human subjects' from a variety of historical periods impose selfhoods that were available to actors only after *circa* 1970.¹⁰ In their interpretations of historical evidence, scholars have been tempted to impose a uniform understanding of people who served in medical experiments, even though some historical actors may have been compelled by varieties of reasoning far more numerous than conventionally assumed.

Approach: Hacking's Historical Ontology

Philosopher Ian Hacking has argued that particular 'selfhoods' become available to people in specific social-historical settings, which then organise the character of relationships and meaning attribution.¹¹ Hacking coined the phrase 'human kinds' to signify categories that demarcate a type of person or social group, existing both as concepts (i.e. ideal types in people's heads) and as material instances in the world. These categories interact with the people they would appear to describe through a process Hacking calls 'dynamic nominalism', or 'the looping effect'. The people under study in the human sciences are capable of responding to the categories that experts invent to describe them, and experts in turn are capable of adapting categories in response. Hacking's approach suggests that there are as many 'kinds' of people in the world as there are unique circumstances in which people are situated. As a remedy to this potential proliferation of 'selfhoods', we examine where and how *patterned* differences across identities emerge and become meaningful within institutional practices.

Hacking's theory of dynamic nominalism prompts the question this paper aims to answer: why do some people who fit the description of a human kind adopt self-understandings generally accepted to pertain to that human kind, while others who also appear to fit the description do not take on the self-understanding and may even actively reject it?¹² As in Hacking's historical analysis of child abuse victims, we show that when select people came to understand themselves as 'human subjects' in the terms of bioethical description, they reinterpreted their past experiences in medical research very differently. Philosopher of science Paul Roth puts it this way: 'Child abuse is an example of a kind of action that, Hacking argues, can be used to retrospectively describe, and a past, so described, often changes.'¹³ The punch line, Roth says, is that, 'one can, in effect, respectively reorganize experience, and so come not only to see but also to experience one's own past in a different way'.¹⁴

¹⁰See Ian Hacking, *Historical Ontology* (Cambridge, MA: Harvard University Press, 2002), in particular 'Making Up People', 99–114.

¹¹On the scientific self, see Lorraine J. Daston and Peter Galison, *Objectivity* (Brooklyn: Zone Books, 2007), 35–9.

¹²Many historians of medicine have recently deployed Hacking in their studies with fruitful effect, e.g. Sarah E. Igo, *The Averaged American: Surveys, Citizens,*

and the Making of a Mass Public (Cambridge, MA: Harvard University Press, 2007); Michael Pettit, 'Becoming Glandular: Endocrinology, Mass Culture, and Experimental Lives in the Interwar Age', *The American Historical Review*, 2013, 118, 1052–76.

¹³Paul Roth, 'The Pasts', *History and Theory*, 2012, 51, 313–39.

¹⁴*Ibid.*, 21.

We consider whether the conventional repertoire for rendering scholarly understandings of the character of relations between researchers and the people they research is complete. One common academic explanation for outcomes in circumstances where people have uneven access to power involves an exploitation narrative in which one set of actors dominates another set of actors. The exploitation narrative appears in both scholarly and popular accounts of research involving human participants, and in current and historical accounts.¹⁵ Some scholars have begun to ask whether relationships are accurately characterised by wilful submission to domination, but many also hew to this standard exploitation narrative to explain coordinated actions even though relationships may just as easily have been characterised by cooperation as domination.¹⁶ We suggest that discursive repertoires and material regimes predicated entirely upon the exploitation narrative can misapprehend relationships of coordinated action if such relationships are imagined as always already coercive. In the history of human experiment, it is especially tempting to impose on analyses of experimental relationships a utilitarian bioethical framework that became available around 1970. Our aim in this paper is not to flip the equation but to hold open the possibility that both types of relationships—exploitative and cooperative—exist in the spaces of human experiment.

Taking into account primary documents that include consent forms, testimony transcripts and published research, we consider the historical production of the available *kind* of actor ('the human subject') to explain people's interactions and self-understandings within clinical research settings. Actors known in recent decades as 'human subjects' only became available in the modern western sense after 1970. No doubt, some people derived their understanding of medical subjectivity from the older, popular lexicon of the 'human guinea pig', and some felt pressured, powerless, or used, although they may not have used the terms 'exploited' and 'vulnerable' in their modern bioethical meaning.¹⁷ However, we found the narrative of exploitation and recent conception of vulnerability too narrow to capture

¹⁵E.g. Roberto Abadie, *The Professional Guinea Pig: Big Pharma and the Risky World of Human Subjects* (Durham, NC: Duke University Press, 2010); Allan M. Hornblum, *Sentenced to Science: One Black Man's Story of Imprisonment in America* (University Park: Pennsylvania State University Press in Association with the Pennsylvania State University Libraries, 2007); John D. Marks, *The Search for the 'Manchurian Candidate'* (New York: Norton, 1991); Sonia Shah, *The Body Hunters: How the Drug Industry Tests its Products on the World's Poorest Patients* (New York: The New Press, 2006); Harriet A. Washington, *Medical Apartheid: The Dark History of Medical Experimentation on Black Americans from Colonial Times to the Present* (New York: Harlem Moon, 2007); Eileen Welsome, *The Plutonium Files: America's Secret Medical Experiments in the Cold War* (Dial Press, New York, 1999).

¹⁶Regarding human-animal interactions, see Vinciane Despret, 'From Secret Agents to Interagency', *History and Theory*, 2013, 52, 29–44; D. G. Shaw, 'The

Torturer's Horse: Agency and Animals in History', *History and Theory*, 2013, 52, 146–67.

¹⁷Sydney A. Halpern, *Lesser Harms: The Morality of Risk in Medical Research* (Chicago: University of Chicago Press, 2004); Jenny Hazelgrove, 'The Old Faith and the New Science: The Nuremberg Code and Human Experimentation Ethics in Britain, 1946–73', *Social History of Medicine*, 2002, 15, 109–35; Rebecca M. Herzig, *Suffering for Science: Reason and Sacrifice in Modern America* (New Brunswick: Rutgers University Press, 2006); Susan Lederer, *Subjected to Science: Human Experimentation in America before the Second World War* (Baltimore, MD: The Johns Hopkins University Press, 1995); and Talitha Bolton, "'Never Volunteer for Anything": The Concept of the "Volunteer" in Human Experimentation During the Cold War', *University of Sussex Journal of Contemporary History*, 2005, 9, 1–14. Each of these authors explore how human subjects were figured before the advent of bioethics with particular reference to the discourse of voluntarism, heroism, martyrdom and sacrifice for the good of society.

the full range of feelings, experiences, and self-understandings our historical actors have expressed.

In this paper, we set aside questions of mistreatment during the 1950s LSD experiments. Instead we compare the understandings of selfhood that people brought to their experiences in the 1950s LSD experiments; with the understandings of selfhood they claimed after the early 1970s, when the modern bioethical invention of the human subject became publicly available in the wake of the disclosure of the Tuskegee syphilis studies in the summer of 1972.¹⁸ We ask: how did people who participated as human subjects in the 1950s look upon their participation at the time and at later points in their lives, after the consolidation of the field of modern bioethics?

Comparative Analysis of Two Cases

Our evidence comes from archival documents, public testimony, interviews and oral histories from participants in the 1950s LSD studies that were conducted at two research centres, both part of the NIMH intramural research programme: namely, the NIHCC on the agency's main campus in Bethesda, Maryland; and the US Public Health Service ARC in Lexington, Kentucky. Our aim is not to analyse whether people were exploited, coerced or mistreated; nor whether these experiments were scientifically or morally justified. Rather we ask whether participants integrated post-1970 notions of the 'vulnerable human subject' into their retrospective accounts of the 1950s LSD experiments by articulating their earlier experiences in terms that became discursively available only after consolidation of the modern field of bioethics.

Three scientific communities studied the effects of LSD on human beings more than a decade before it was recast as an exceptionally dangerous drug and classified as a controlled substance.¹⁹ Biological psychiatrists suspected that by giving healthy people LSD, they could discern the neural pathways through which psychosis travelled.²⁰ They reasoned that LSD could produce a temporary 'model psychosis' tractable to laboratory scrutiny after they observed that when otherwise healthy people took LSD, their behaviours mimicked psychosis and, specifically, schizophrenia.²¹ Second, psychoanalytically inclined psychiatrists used LSD to ease the social dynamics of therapy by increasing therapists' capacity for empathic identification with their patients.²² Third, the US CIA was interested in LSD both as a possible method for getting information from foreign enemies, and as a drug against which American prisoners of war might need an antidote if enemies used it on captured soldiers. The CIA funded researchers at both sites during the 1950s.²³

¹⁸Susan Reverby, *Examining Tuskegee: The Infamous Syphilis Study and Its Legacy* (Chapel Hill: University of North Carolina Press, 2009).

¹⁹Erika Dyck, *Psychedelic Psychiatry: LSD from Clinic to Campus*. (Baltimore, MD: The Johns Hopkins University Press, 2008); Steven J. Novak, 'LSD before Leary: Sidney Cohen's Critique of 1950s Psychedelic Drug Research', *Isis*, 1997, 88, 87–110.

²⁰Nicolas Langlitz, *Neuropsychodelia: the Revival of Hallucinogen Research Since the Decade of the Brain* (Berkeley: University of California Press, 2013), 29–30.

²¹Charles Savage and L. S. Cholden, 'Schizophrenia and the Model Psychoses', *Journal of Clinical and Experimental Psychopathology*, 1956, 17, 405–13.

²²Charles Savage, 'The Uses and Abuses of LSD in Psychotherapy,' Third World Congress of Psychiatry, 1961, 466.

²³When CIA funding came to public light in the 1970s, NIHCC researchers managed most inquiries internally and were cleared of using any CIA money for LSD experiments. ARC researchers testified extensively in televised congressional hearings about CIA-sponsored experiments conducted in Lexington from 1953 to

For researchers at ARC, human experimentation regarding addiction had been congressionally mandated in 1929 and thus had a 40-year history when the US National Commission for the Protection of Human Subjects (1974–78) called upon ARC Research Director William R. Martin to testify in January 1976. Martin estimated that ARC had conducted ‘well over 200,000 patient days of experimentation’ to date.²⁴ At the time, the National Commission documented that pharmaceutical drug testing on prisoner volunteers comprised 85–90 per cent of human subjects in Phase 1 drug trials across the nation.²⁵ The National Commission site visit to the ARC revealed detailed protocols, including safeguards against coercion such as levels of participation and procedures for declining or withdrawing from particular studies. LSD experiments at the ARC typically involved fewer than 12 individuals at a time (half of whom were controls). LSD studies were conducted in at least 18 other sites in the continental USA, including those we discuss at the NIHCC below. Because ARC experimental techniques quantified subjective effects, detailed transcripts akin to those at NIHCC were not produced and ARC data did not survive in documents or archival sources. Additionally, the interviews we examine were conducted for investigative journalistic and documentary purposes; Edward M. Flowers has been to date the *only* person who has spoken about his experience as a research participant at the ARC. Moreover, his testimony in congressional hearings during the 1970s occurred at a time when Flowers was considering a lawsuit and his remarks must be situated within the historical context we analyse in this article. However, the National Commission conducted interviews with 16 research participants in May 1976; these listed specific grievances.²⁶

The NIHCC opened specifically to perform clinical research with ‘normal controls’, who were exclusively either religious objectors to the draft or religious service workers during the 1950s, and who by the 1960s included college students and federal prisoners transferred to Bethesda. Approximately 400 ‘Normals’ performed their religious service or (pacifist) national service at the NIHCC between 1953 and 1960. An estimated 50 Normals served in LSD studies, which ended by 1960. Medical records (obtained with permission) present extraordinarily detailed observations recorded during LSD experiments. Approximately seven of these former Normals gave oral histories about the LSD experiments and also made their medical records available to Stark.

We acknowledge the asymmetry in available sources for NIHCC and ARC. Yet the convergent goals and timing of the LSD studies at each site creates a productive comparison for establishing the absence of the discourse of vulnerability in retrospective accounts of participants at the NIHCC, and its overdetermined presence in the one extant retrospective account from the ARC.

The following section characterises participants’ experiences at each study site prior to the consolidation of the expert domain of bioethics during the late 1960s. We then document

1963. The ARC was forced to move to Baltimore and undergo reorganization, whereas the NIHCC laboratories endure in their original site to this day. John D. Marks, *The Search for the ‘Manchurian Candidate’* (New York: Norton, 1991).

²⁴National Commission Meeting Proceedings #14, January 9, 1976, Box 26, Kennedy Center, 95–6.

²⁵National Commission, *Research Involving Prisoners: Report and Recommendations*. Department of

Health, Education and Welfare (OS) 76–131 (Washington, DC: U.S. Government Printing Office, 1976), 31, 47.

²⁶Campbell, *Discovering Addiction*, 2007. National Commission Report of a Site Visit, Addiction Research Center, Lexington, Kentucky, May 3, 1976. Box 26, Kennedy Center.

how study participants at each site regarded their experiences and actions after several decades. We explain the similarities and differences in their accounts (1) over time and (2) across research sites on the basis of the promulgation of the discourse of bioethics and on their patterns of affiliation with larger social groups and sponsoring organisations.

LSD experiments at the Addiction Research Center, 1947–1974

The ARC was the primary laboratory for clinical investigation of new opioid drugs, then called ‘narcotics,’ prior to the 1962 amendments to the US Food, Drug, and Cosmetic Act on which today’s clinical trials regime is based. Staffed by United States Public Health Service (USPHS) researchers, the laboratory was housed at a USPHS Hospital in which two-thirds of patient-inmates were serving sentences on drug-related federal charges; one-third voluntarily sought admission. ARC publications referred to the participants as post-addicts, patient-inmates, or patients. Experiments did not promise therapeutic benefit but were designed to identify a non-addictive analgesic that posed less of a public health threat than morphine or heroin.²⁷ To volunteer for research, ‘post-addicts’ had to be healthy adult males whose sentences allowed them to be drug-free for six months prior to release.

ARC researchers studied drug effects, including addiction or dependence. In the late 1940s, ARC researchers began studying LSD in order to document how and why LSD effects differed from the opioid drugs they typically studied.²⁸ If there were any concerns about the scientific or ethical appropriateness of the subjects, it was that their drug-taking histories might make them more or less ‘sensitive’ to LSD effects and prevent valid generalisation. ARC studies differed from almost all other LSD experiments (including those at the NIHCC) in two respects: the subject population and chronic administration. Elsewhere most subjects were white and middle-class enrolled in single-dose studies; by contrast ARC studies involved an entirely African-American sample. Describing near-term research plans to his CIA contact in a letter dated 29 March 1954, ARC Research Director Harris Isbell spoke of re-using a group of eight subjects in the dose-effect and tolerance experiments described below.²⁹ He noted that this group differed ‘greatly with respect to race, economic and educational status, personality characteristics, and prior drug use’ from other populations appearing in the LSD literature to date. As the ARC Quarterly Report (January—March 1954) noted, ‘This is a matter of great interest, since the subjective effects of LSD-25 have been studied more intensively and more thoroughly in a greater diversity of populations than any other drug with which we are familiar, including morphine and alcohol.’³⁰ This remark indicates just how widely distributed the study of LSD was in the research community.

ARC dose-effect studies were designed to study whether or not LSD created ‘tolerance’ similar to opiates.³¹ In an early study, 11 subjects (six white, five ‘negroes’) were divided

²⁷Caroline J. Acker, *Creating the American Junkie: Addiction Research in the Classic Era of Narcotic Control* (Baltimore, MD: The Johns Hopkins University Press, 2002).

²⁸Non-opioid drugs studied at the ARC included chlorpromazine (CPZ); reserpine; scopolamine; amphetamines; tryptamine; LSD, psilocybin, and mescaline.

²⁹Documentation was obtained through the Freedom of Information Act (FOIA) by investigative journalist J. P. Olsen. See also correspondence by Harris Isbell, 8 March 1954, A-87.

³⁰ARC Quarterly Report, A-112.

³¹Harris Isbell, Richard E. Belleville, H. Franklin Fraser, Abraham Wikler and C. R. Logan, ‘Studies on Lysergic

into a control group that got water twice a day for three days and 75 mcgs of LSD on the fourth day, and an experimental group administered increasing doses of LSD (10 mcg, 20 mcg and 30 mcg twice a day) for three days and 75 mcgs on the fourth day. Questionnaires and observation occurred for eight hours following the last and highest dose. A 'very significant degree of tolerance' was noted after just three days on small doses, but there was also significant individual variation in the formation of tolerance and 'insensitivity' to effects. Two controls exhibited 'very little response' to the higher dose even after three days of water. This seemingly unpredictable response ultimately led to a diminished aura of scientific and clinical optimism surrounding LSD by the early 1960s. But in response to data from these early experiments, investigators proposed to determine 'how much the dose must be elevated in order to break through this degree of tolerance'.³²

The ARC was part of a research network conducting LSD experiments. Clinical pharmacologist Conan Kornetsky, who lived on the grounds of the USPHS Hospital as a University of Kentucky graduate student, returned to the ARC after working with other researchers to develop a questionnaire designed to characterise LSD effects piloted at the NIHCC.³³ Kornetsky conducted the second tolerance experiment described above, finding that after eight days building tolerance through increasing doses, individuals appeared no *more* tolerant than they had after three days in the previous experiment. Proceeding cautiously, researchers gradually increased the 'challenge' dose given at the end to 100 mcgs (a 33 per cent increase in two subjects) and to 125 mcgs (a 66 per cent increase in two subjects). Increases of this magnitude failed to 'break through' tolerance when the criterion was restoration of the original intensity of LSD effects as measured on a number of scales and instruments designed to quantify subjective effects.³⁴ At Isbell's urging, specific scales were developed to overcome the weaknesses of other psychometrics due to Isbell's scepticism that LSD experiments in the chronically mentally ill were scientifically sound; thus he sought only the most psychologically stable and 'insensitive' subjects for experiments involving chronic administration of LSD. Prior work with LSD had administered single doses at daily or weekly intervals.³⁵ In the increasingly voluminous scientific record on LSD, no studies but those of the ARC involved chronic administration.³⁶ The LSD Significant Scale included items gauging degree of euphoria, sedation, anxiety, restlessness, dysphoria, disruption of thought process, perceptual changes, changes in self-image and autonomic changes. Experimenters were unable to reproduce the initial intensity of effects—subjects responded to repeated administration of LSD as if it were inert and researchers were uncertain what dose, if any, would achieve breakthrough.

Until 1955 the US government banned monetary compensation for ARC subjects, who were instead paid in a currency available to researchers and desirable to subjects—their

Acid Diethylamide (LSD-25): I. Effects in Former Morphine Addicts and Development of Tolerance During Chronic Intoxication', *AMA Archives of Neurology and Psychiatry*, 1956, 76, 468–78.

³²Isbell, 8 March 1954, A-87.

³³Harold A. Abramson, Murray E. Jarvik, M. R. Kaufman, Conan Kornetsky, A. Levine and M. Wagner, 'Lysergic acid diethylamide (LSD-25): I. Physiological and perceptual responses', *Journal of Psychology*, 1955, 39, 3–60.

³⁴Scales later became the Addiction Research Center Inventory, still used to classify compounds and ascertain addiction liability.

³⁵Isbell *et al.*, 'Studies on Lysergic Acid Diethylamide (LSD-25)', 468–9.

³⁶Harris Isbell and C. R. Logan, 'Studies on the Diethylamide of Lysergic Acid (LSD-25): II. Effects of Chlorpromazine, Azacyclonal, and Reserpine on the Intensity of the LSD-Reaction', *AMA Archives of Neurology and Psychiatry*, 1957, 77, 350–8.

drug of choice, which was not LSD, but heroin. As Edward M. Flowers later testified in televised congressional hearings, his motivation for participating was ‘for the simple reason, they had drugs, and I wanted them.’³⁷ Although later castigated for exploiting vulnerable subjects, particularly racial minorities, LSD researchers at the ARC saw their subjects as ‘seasoned’, knowledgeable about drug effects and therefore able to offer data that were valid and reliable at a time long before LSD was considered a dangerous drug.³⁸ As they told the US National Commission for the Protection of Human Subjects in 1976, non-addicts were considered ethically unacceptable for tests involving narcotics or other psychoactive drugs, whereas ‘experienced addicts were considered to be the best possible reporters’ and ‘best able to understand what administration of these drugs meant in order to give informed consent’.³⁹ Such experiments required little interpretive nuance to conform to conventional bioethical accounts of researchers as villains and subjects as victims in the racially charged climate of the 1970s.

LSD experiments at the NIH Clinical Center, 1954–1958

Federal funding for NIH grew exponentially after the Second World War. The agency expanded and consolidated its intramural research programme by building a new research campus in Bethesda, Maryland, a suburb of Washington, DC.⁴⁰ The NIH needed research materials, including healthy bodies, for intramural clinical researchers who conducted experiments on site at its research hospital, the Clinical Center (NIHCC). Most NIH clinical scientists in the 1950s were using one of two research technologies: either radioisotopes to map the metabolic pathways of the human body or newly developed therapeutic drugs.⁴¹ To supply healthy bodies for these research purposes, NIH administrators set up the Normal Volunteer Patient Program. The biggest demand for Normals came from NIMH scientists testing new ‘psychotomimetics’, including LSD. Their interests aligned with the main factions in the broader psychiatric community in the early 1950s discussed earlier.

The only healthy people to serve in clinical experiments at NIH during the 1950s came through the Church of the Brethren or the Mennonite Church, and were either conscripts with religious objections to combat service or religious service volunteers (similar to missionaries). The leaders of the organisation of Historic Peace Churches—which included the

³⁷Edward M. Flowers Oral History Interview, 2004, conducted by J. P. Olsen and Luke Walden. Used with permission.

³⁸CIA-funded LSD research occurred in 80 North American sites, including Edgewood Arsenal; Fort Detrick, Maryland; Fort Bragg, North Carolina; Fort McClellan, Alabama; Fort Benning, Georgia; and Dugway Proving Ground, Utah, according to Jonathan Moreno, *Undue Risk: Secret State Experiments on Humans* (New York: Routledge, 2001), 256. See Jon M. Harkness, ‘Research behind bars: a history of nontherapeutic experimentation on American prisoners’ (PhD dissertation, University of Wisconsin-Madison, 2003), 218–30.

³⁹National Commission Report of Site Visit, 4.

⁴⁰The NIH Clinical Center officially opened in 1953, but the outdoor ribbon cutting ceremony reflected

government deadlines rather than a finished interior. Scientists did not begin research inside the facility until 1954. Michele Lyons, *70 Acres of Science* (Bethesda, MD: Office of NIH History, National Institutes of Health, 2006).

⁴¹Angela N. H. Creager, *Life Atomic: A History of Radioisotopes in Science and Medicine* (Chicago, IL: University of Chicago Press, 2013); Harry M. Marks, *The Progress of Experiment: Science and Therapeutic Reform in the United States, 1900–1990* (Cambridge: Cambridge University Press, 1997); Marcia Meldrum, ‘Departures from the Design: The Randomized Clinical Trial in Historical Context, 1946–1970’ (PhD dissertation, SUNY Stony Brook, 2000).

Mennonite Church, Quaker churches and Church of the Brethren—contacted the Selective Service in 1948, when President Truman created the first peace time military draft.⁴² The church organisations had established voluntary service programmes for pacifist conscripts during the Second World War. The national voluntary-service branches of the Mennonite Church and Church of the Brethren coordinated the terms of non-combat service assignments.⁴³ When the NIHCC opened in 1953, the Selective Service brokered an arrangement between the church organisations and NIH administrators to set the research hospital as an approved location for military service.⁴⁴ In 1954, the first religious-conscientious objectors arrived at the NIHCC for up to two years of non-combat military service as normal controls in NIH medical experiments. They had chosen the site from among dozens of possible assignments arranged by the church organisations.

Within months, church organisations and NIH administrators signed a contract for healthy research subjects that allowed anyone who joined the churches' voluntary service programmes to go to Bethesda to be a 'Normal'. Among members of these religious communities, it was conventional for young adults (around age 18) to 'witness' their faith by serving in voluntary service for 3–12 months. The number of church members who joined the voluntary service grew during the 1950s, and so church organisers added the NIH programme to its menu of choices. By the end of that decade, more than 500 Normals had lived full-time at the NIHCC to serve in human experiments—all from the Church of the Brethren or Mennonite Church, the only sources of healthy human bodies for clinical researchers during the 1950s. Both NIH administrators and church leaders recruited religious service workers for the Normal Volunteer Patient Program by emphasizing its humanitarian purpose. NIH released its first recruitment pamphlet in 1955, which was directed at Christian youths and explained that '[t]he normal volunteer must have a real interest in helping humanity'.⁴⁵

An excerpt from the nursing notes of one Normal, Evelyn (nee Dyck) Bertsche, gives a sense of how the Normals organised their social worlds and understandings of their experiences at NIHCC in the 1950s in terms of their religious communities and religious commitments. Evelyn was from the Midwestern USA, and at NIHCC she met other young members of her faith, including Dale Horst, a young Mennonite man from Lancaster County, Pennsylvania. Dale and Evelyn courted, and both served in Conan Kornetsky's LSD studies at the NIHCC in 1955 (Figure 1). 'Evelyn has been visiting with Dale on the unit until she began the test with Dr. Kornetsky at 9:15', her nurse recorded. 'It lasted until 11am—She was permitted visitors from 9:45 to 10:20.' Kornetsky had been a clinical researcher at ARC in the early 1950s, arriving in Bethesda directly from Kentucky, simply shifting the site in which he conducted research for NIMH's intramural programme. But the scientists were not the only groups travelling. Evelyn's brother was employed as a staff member of the Mennonite service programme, and he transported volunteers to Bethesda to be admitted as 'healthy patients' in the Normal Volunteer Patient Program. Evelyn's nurse observed that on one LSD test day, in addition to Dale, '[s]ome group members visited her, and her brother who

⁴²Laura Stark, 2012; S. M. Kohn, *Jailed for Peace: The History of American Draft Law Violators, 1658–1985* (New York: Praeger, 1987).

⁴³M. Gingerich, *Service for Peace: A History of Mennonite Civilian Public Service* (Akron, PA: Mennonite

Central Committee, 1949); J. K. Kreider, *A Cup of Cold Water: The Story of Brethren Service* (Elgin, IL: Brethren Press, 2001).

⁴⁴Stark, 2012. 94–5.

⁴⁵1955 revision, 5, 8.



Fig. 1 Dr. Conan Kornetsky conducted LSD research with healthy participants during the 1950s at both ARC and NIHCC (pictured here).

Source: Wedel Collection, Science and the Subject's Perspective.

brought a new patient to the ward came to see her.' Seeing visitors was one way to occupy time while Evelyn and scientists waited for the effects of the LSD to fade.⁴⁶

Church leaders were pleased with the arrangement with NIH. Church leaders required NIH consent forms to be clear about who was liable in case a participant was injured or died, although the forms were not standardized between institutes or projects, and many were handwritten (Figure 2). Through 1963, NIH scientists actively debated *whether* they needed to have signed forms or whether oral consent was sufficient—and perhaps superior, as some scientists thought.⁴⁷ The church organisations also required that studies in which their volunteers were enrolled were approved in advance. To accommodate this request, the Medical Board of the NIHCC, comprised of the Clinical Directors, created a proto-human subjects review committee to approve studies. In the first two years, 90 per cent of studies vetted by the Clinical Review Committee were on healthy people. Experiments with sick patients rarely required pre-approval. The church organisations were also pleased by the financial arrangement with NIH. The agency paid the church organisations directly on a man-day metric, and the organisations gave volunteers a small stipend. It was a lucrative programme for church organisations compared to other volunteer sites (e.g. relief programmes in Europe and Africa). The organisations regularly sent volunteers to NIH for short assignments—which earned money for the church and removed the cost of hosting volunteers at the organisations' residential national voluntary-service training centres—while the volunteers awaited their visas for the foreign placements they desired. In sum, the LSD

⁴⁶Bertsche, dated nursing notes, 24 August 1955. Horst and Bertsche both donated oral history interviews for

the current historical study, which are reported later in the paper.

⁴⁷Stark, 113–35.

11-28-54

Since W. Dale Horst is a minor,
 I, Dr. Walter S. Horst hereby give permission
 for Dale Horst to undergo procedures
 which are necessary to carry out
 studies on effect of Bufotenine, and
 experimental drug. I understand
 that the effects of this drug may
 be similar to that of L.S.D.
 I release the P.H.S. and its personnel
 from any liability which may result
 from participation in this program.

Wm. Walter S. Horst
 Dale Horst

Fig. 2 Hand-written consent form for comparison study with LSD.
 Source: NIH Clinical Center Department of Medical Records.

experiments at the NIHCC between 1954 through 1960, like the studies at ARC, defy conventional villain and victim stories when the justifications and contemporary knowledge of the range of organisations and individuals are taken into account.

Bioethics and the Emergence of the Modern Human Subject

In the years around 1970, the new 'expert field' of bioethics (to use Hacking's framework) both created and took on the protection of a new object of clinical study—the 'vulnerable human subject'. People became 'vulnerable human subjects' in ways that were not previously and systematically possible. Of course, the phenomenon of clinical experimentation existed well before the 1960s.⁴⁸ However the 'vulnerable human subject' as an *object* of expert bioethical attention in its own right—and not solely as a *tool* to study diseases and therapies—emerged in the context of post-civil rights governance. This new human kind

⁴⁸Halpern, Lesser Harms; Lederer, *Subjected to Science*.

was typified as a member of a racial-ethnic minority group from an urban area where structural conditions converged to make low income and low education a high probability.

Ethical concerns and practices prior to the mid-1960s were part of an American research tradition that emphasized situational more than structural issues. Although the Nuremberg Code (1947) was well known and widely discussed among US-based researchers, the Code had negligible effects on researchers' everyday practice, and on US civil and criminal law.⁴⁹ In retrospect, one obvious contradiction between American research practices and the principles of the Nuremberg Code was on the issue of research with prisoners. Promulgated in the wake of the Holocaust, the Nuremberg Code restricted research on prisoners, and yet prominent American researchers, including NIHCC leaders, continued to use and advocate for the indispensability of prisoners for clinical experimentation.⁵⁰ In the United States in the late 1950s and early 1960s, the Law-Medicine Research Institute (LMRI) at Boston University was charged to determine what administrative practices researchers used in clinical medicine. Operating with a grant from the USPHS and an informal directive from NIH leaders, the LMRI provided a forum to discuss current practices in consent (*not* the legal term of art created in 1957 of 'informed consent', it is worth pointing out). At the culminating 1962 meeting of the LMRI, the director of the three-year project, Irving Ladimer (who had worked as intramural staff at NIH to set up human subjects policies for the NIHCC), framed the LMRI's task not as 'our intent to expose, or disclose, or sensationalize any of the activities that are going on in the research profession', but to offer standards on which clinical researchers could base their own activities.⁵¹ This early attempt at standardisation revealed the variety of institutions in which clinical research was conducted in the late 1950s and early 1960s. Some of these, such as prisons and pediatric units, would later become matters of concern for the emerging field of bioethics.

Yet in the USA, around 1960, prisoners were understood to constitute a special population characterized as healthy, normal, accessible and affordable in the sense that they were already housed at state and federal government expense. Because they were subject to the prison's 'standardized control', they were considered to embody 'substantial uniformity' that characterised a natural population valued above all for its normalcy. Prisoner populations were valued as both diverse and homogenous, characterisations that were deeply context-dependent on whether researchers were interested in experimental investigation of the range of human variability or in selecting 'special subject populations ... according to particular characteristics'.⁵² Prisoner populations were depicted as large enough for

⁴⁹Leonard Glantz, 'The Influence of the Nuremberg Code on US Statutes and Regulations', in George J. Annas and Michael A. Grodin, eds, *The Nazi Doctors and the Nuremberg Code: Human Rights in Human Experimentation* (New York: Oxford University Press, 1992). [Author], 103–4.

⁵⁰Susan Lederer, 'Research without Borders: The Origins of the Declaration of Helsinki', in Roelcke and Maio, eds, *Twentieth Century Ethics of Human Subjects Research: Historical Perspectives on Values, Practices, and Regulations* (Stuttgart: Franz Steiner Verlag, 2004).

⁵¹Ladimer explained that some unnamed people had discussed 'legal or ethical codes, or administrative codes' and criticised any codification because 'they do not either intend to be practical or cannot in fact be carried out administratively. They are in large measure, commandments', (1). As a result, he and event sponsors had 'no knowledge, hope, expectation or desire that this will necessarily be translated into a law or code', (2). Transcript of conference 'Concept of Consent in Clinical Research', 29 April 1961, Boston University archives.

⁵²LMRI, 14.

investigators to recruit 'sizable groups of prisoner-subjects to meet almost any physical or psychological specifications', including personality type, age, race, relative stability or instability of psychopathology. For instance, they could be recruited much more quickly than the general population on the basis of particular antibody characteristics or other biological or physiological markers than could non-prisoners.⁵³ There was an emphasis on *scientific justifications* for the use of prisoners as 'normal volunteers' or 'normal controls'. The discussion exhibited a utilitarian discursive register manifest in the tendency to refer to prisoners as useful and to render their usefulness non-problematic.⁵⁴ We consider this register a nascent form of the Civil Rights exploitation register that became contentious in the 1970s. In the early 1960s, the utilization register was present but neither emphasized nor problematized.

In the context of LMRI's work in the late 1950s and early 1960s, conflict between clinical researchers and correctional officials did arise, but these were resolved by an appeal to a humanistic view that the prisoner/non-prisoner distinction did not matter. Prison medical officers and investigators were considered to be 'basically responsible for the total welfare of prisoner-subjects'.⁵⁵ Furthermore, it was the 'normal volunteer that [was] the significant category'.⁵⁶ While degrees of normalcy could be debated, the consensus was that most, if not all, prisoners fit squarely into the category normal. However, they were not considered 'vulnerable'. Indeed early discussion of these matters of concern reserves the term 'vulnerability' for investigators rather than subjects.

Origin stories of bioethics often track the birth of the field to a discrete moment in time around 1966.⁵⁷ Yet, modern clinical bioethics—and with it the concept of the human subject—emerged gradually as the US government reoriented the legal, material and cognitive resources available to researchers, participants, commentators, and policy makers working within research infrastructures in the USA and abroad. To be sure, the phrase 'human subject' existed prior to this period, but humans were understood as *tools* to study other things, such as pharmaceuticals. The new expert domain of bioethics—comprised of philosophers, theologians and scientists—looked at research participants from a different orientation: namely, as *objects* of bioethical study.

The modern bioethical enterprise that came into being in the 1960s in the United States had particular preoccupations. First, the expansion of medical manufacturing and federal funding for medical research following the Second World War fuelled the creation of the field of bioethics as a way to smooth the path for scientific research. Moreover, modern bioethics developed iteratively with the concerns of the US federal government, which in the 1960s was managing activists' demands for civil rights. Specifically, the US Civil Rights Acts (1964, 1968) and the US Voting Rights Act (1965) required that the federal government compare the relative involvement of people who fit into a pre-defined set of racial categories

⁵³Frank Smith, '1,000th Prisoner Volunteer Admitted to Clinical Center', *The NIH Record*, 25 August 1964, 16, 1, 4).

⁵⁴J. Goodman, A. McElligott and Lara Marks, eds, *Useful Bodies: Humans in the Service of Medical Science in the Twentieth Century* (Baltimore: The Johns Hopkins University Press, 2003).

⁵⁵*Ibid.*, 35.

⁵⁶*Ibid.*, 24.

⁵⁷Renee C. Fox, Judith P. Swazey and J. C. Watkins, *Observing Bioethics*. For excellent critical accounts, see Roger Cooter and C. Stein, *Writing History in the Age of Biomedicine* (New Haven, CT: Yale University Press, 2013); Robert Martensen, 'The History of Bioethics: An Essay Review', *Journal of the History of Medicine and Allied Sciences*, 2001, 56, 168–75.

legislated in the 1960s by the US Office of Budget and Management. All organisations and people involved in activities funded by the US government were mandated to collect information about the race of people involved in their activities—including people participating in research.⁵⁸ Thus race became a bioethical category and an attribute of the human subject within the modern bioethical frame. It was not a forgone conclusion that race would be a relevant *moral* attribute in medical experimentation.

In the late 1960s and early 1970s, the field of modern bioethics provided a new vocabulary of moral experience—a specific way of talking and thinking about medical experimentation as the field consolidated under the auspices of the US federal government. After the 1972 revelations of the Tuskegee Syphilis Experiments, the US Congress passed the National Research Act (45CFR46), which created the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The Congress mandated that the Commission both create principles to anchor all research on people that was funded in whole or in part by the US Department of Health, Education and Welfare, and evaluate human-subjects regulations (passed two months earlier) that would bind most research on human subjects in the USA and abroad.

During its years of work from 1974 to 1978, the Commission multiplied and specified the meaning of ‘vulnerability’. In doing so, Commission members were simultaneously reacting to public sentiments about what constituted vulnerability (via public ‘comments’ on proposed rule making and stakeholder interviews) and codifying the meaning of ‘vulnerability’ by expanding the new vocabulary of bioethical experience in federal reports and suggested regulatory revision.

A key concept for the Commission’s efforts was the modern ‘human subject’, which shared the broad attributes of other subjugated populations also brought into being during American civil rights movement. The Congress mandated that the Commission consider research with prisoners, among other ‘special classes’ of people. Proposed regulations provided the starting point for the Commission’s assessment, and these rules noted in August 1974: ‘Prisoner groups are particularly valuable in properly conducted clinical trials since they provide a stable subject population which can be followed over a period of weeks or months rather than days or hours. From the point of view of the prisoner subject, participation in research offers an opportunity to make a contribution to society and to provide an income, much as other jobs in prisons do.’⁵⁹ The Commission was also mandated to determine the principles that should undergird all research, and the Commissioners focused their attention on this mandate in February 1976. Draft reports show that the meaning of ‘vulnerability’ at once expanded and stabilized during the course of the work. Commissioners began to consistently apply the term ‘vulnerable’ to the categories of children, prisoners and the ‘institutionalized mentally infirm’; as well as to people at a socioeconomic disadvantage, including racial minorities. Pointing out structural injustices,

⁵⁸Catharine Bliss, ‘Translating Racial Genomics: Passages in and Beyond the Lab’, *Qualitative Sociology*, 2013, 36, 423–43; Steven Epstein, *Inclusion: The Politics of Difference in Medical Research* (Chicago: University of Chicago Press, 2007); Jennifer Reardon, ‘On the Emergence of Science and Justice’, *Science,*

Technology, & Human Values, 2005, 38, 176–200; John H. Evans, *Playing God? Human Genetic Engineering and the Rationalization of Public Bioethical Debate* (Chicago: University of Chicago Press, 2002).

⁵⁹Research with Prisoners, 23 August 1974. 45CFR46.

the Commissioners observed: 'This form of injustice occurs over a period of time, through systematic social arrangements that are permitted to persist.'⁶⁰

Published in 1979, the Commission's Belmont Report gave seemingly timeless authority to ethical concepts like coercion, exploitation and vulnerability. The attributes of the 'vulnerable human subject' made legible in the Belmont Report and formed in the course of the Commissioners' 1970s deliberations now stands as a proxy for an earthquake in the shifting cultural geography of research in the human sciences that propelled bioethics to public prominence. In the next section, we turn to consider what happened to the 1950s human subjects' understandings of their experiences after the expert discourse of bioethics that claimed to describe them and uphold their rights as vulnerable human subjects came into wide public circulation more than two decades later.

An Addict's Account of Experiences in LSD Studies, 1975

Widely reported and televised scandals involving unethical human subjects research catapulted LSD research into public view by the mid-1970s.⁶¹ Prison research programmes were implicated, along with military and intelligence testing programmes such as those of the Army Chemical Corps (ACC) research contracts. LSD research at ARC came under scrutiny in the US Senate hearings of the Church (1975) and Kennedy (1977) committees on human subjects research and CIA funding, in the hearings there was little room for differentiation or nuance in the national political theatre. ARC subjects were no longer referred to as 'experienced' or 'seasoned' 'post-addicts' who were the most valuable and ethical subjects of experiment, but were recast as 'exploited' and 'vulnerable', an understanding that neither the subjects nor the research community embraced until the congressional hearings. Indeed, by the time of the hearings, they had been recast as the *least* ethical human subjects.

Thirty years after the hearings, and 50 years after the studies, J. P. Olsen and Luke Walden, documentary filmmakers working on a film titled 'The Narcotic Farm', located one surviving prisoner-subject, Edward M. Flowers, an African American man who had participated in hallucinogen experiments at ARC in the early 1950s while serving time.⁶² In 1975, Flowers had testified on Capitol Hill. In subsequent interviews prior to his 2009 death, he indicated that the Church hearings were a turning point in his understanding of the ARC studies as exploitative.

And I really got a first hand insight about some things when we had the hearings, because then the bigger picture kinda showed. Then I got in touch with the fact that the CIA was behind all this, all these kinds of things and what not. And things that was said there in that hearing kinda like brought it home to me. ... They used my ass and took advantage of me, you know, being a young kid and all the rest of that kind of stuff. Back then at that time for a while there I was angry, bitter and ... a little

⁶⁰Draft report, 3 Feb. 1976, 3. Folder: Meeting 39, 10–11 Feb. 1978. Box 10. National Commission collection. Kennedy Institute of Ethics. Georgetown University, Georgetown, Washington, DC.

⁶¹Cancer research at the Jewish Chronic Disease Hospital in Brooklyn; hepatitis research at Willowbrook School on Staten Island; and Tuskegee stand as examples of unethical human subjects research that catalysed

formation of the National Commission (Reverby 2009). Soon after news of Tuskegee broke in 1972, another human subjects scandal regarding military and Central Intelligence Agency (CIA) testing of psychoactive drugs as 'incapacitating agents' implicated the ARC.

⁶²Flowers was also the sole subject interviewed by journalist John Marks for his 1991 book.

TABLE I
EFFECTS OF LYSERGIC ACID DIETHYLAMIDE ON PULSE, RESPIRATION,
AND BODY TEMPERATURE

| Subject | Sex | Age | Interval in min. | Dose in µg. | Pulse per min. | | Respiratory rate per min. | | Oral temp. °C. | | |
|--------------------------|----------|-----|---------------------|----------------|-------------------|------|------------------------------|------|----------------|------|------|
| | | | | | I | II | I | II | I | II | |
| Thirteen Normal Subjects | | | | | | | | | | | |
| Mel Lehman | M. G. L. | M | 19 | 91 | 100 | 68 | 78 | 18 | 20 | 36.2 | — |
| Wilmer Wedel | W. W. | M | 28 | 127 | 120 | 74 | 110 | 15 | 18 | 36.8 | 37.3 |
| | Rb. M. | M | 30 | 100 | 120 | 82 | 80 | 21 | 24 | 36.6 | 36.6 |
| | A. R. | M | 19 | 110 | 120 | 58 | 56 | 18 | 21 | 36.9 | 36.8 |
| | J. K. | F | 46 | 120 | 120 | 83 | 80 | 19 | 16 | 36.6 | 36.2 |
| Don Braun | D. B. | M | 24 | 107 | 120 | 80 | 82 | 16 | 17 | 36.9 | 36.7 |
| Martha Loewen | M. L. | F | 22 | 150 | 120 | 90 | 85 | 20 | 17 | 36.8 | 36.7 |
| | L. N. | F | 24 | 138 | 120 | 99 | 114 | 18 | 21 | 37.4 | 37.2 |
| Howard Heise | H. H. | M | 25 | 116 | 120 | 76 | 166 | 10 | 14 | 37.4 | 37.5 |
| Connie Swogger | C. S. | F | 18 | 111 | 120 | 71 | 80 | 18 | 20 | 37.1 | 36.8 |
| Ron Moyer | Rn. M. | M | 19 | 127 | 120 | 77 | 84 | 14 | 16 | 36.7 | 37.2 |
| Dale Horst | D. H. | M | 19 | 100 | 120 | 72 | 78 | 22 | 20 | 36.6 | 36.9 |
| | M. G. | F | 18 | 129 | 120 | 88 | 94 | 16 | 10 | 37.5 | 36.7 |
| Mean | — | — | 24 | 117 | — | 78 | 91 | 17 | 18 | 36.9 | 36.9 |
| Standard error | — | — | ±2 | ±5 | — | ±3 | ±7 | ±1 | ±1 | ±0.1 | ±0.1 |
| p* | — | — | — | — | — | <0.1 | >0.05 | >0.4 | — | >0.6 | >0.6 |

Fig. 3 Table of church volunteers used in one LSD experiment, with corresponding full names. Four people listed were interviewed: Mel Lehman, Wilmer Wedel, Martha Loewen (Wedel), and Dale Horst.

Source: Louis Sokoloff et al. 'The Effects of D-Lysergic Acid Diethylamide on Cerebral Circulation and Over-All Metabolism.' *The Annals of the New York Academy of Sciences* 66 (1957): 468–477. Reproduced with permission from Wiley Material.

was doing. I just sat in my bedroom and stayed by myself because I was too afraid.' The men were terrified, too. 'Some of those shots, some of those tests scared me to death. I mean they scared me actually', Wilmer Wedel remembered. Likewise, Wilmer's current neighbour in Kansas, Dale Horst, eventually started vomiting from the tests, and Dale's contemporary friend from high school in Pennsylvania, Melvin Lehman, who joined Mennonite voluntary service together with Dale, said 'I dreaded having to do them [LSD experiments].'⁶⁷

Nonetheless, the former Anabaptist volunteers generally insisted that the LSD experiments were a satisfying experience and that they were treated appropriately.⁶⁸ For example, Richard Cope, a Mennonite volunteer who described the LSD experiments, said, 'I didn't care for [it]. ... Unfortunately I had a bad experience.' Despite the bad physical experience, Cope 'thought [NIH scientists and staff] were professional'. In another study researchers shined intense lights into his eyes, past the point of being uncomfortable. 'I

⁶⁷Although Horst and Lehman were officially categorised as IW (non-combat military obligations), they had not been drafted. Since they were at the age when which most Mennonite service workers would volunteer (that is, between high school and college graduation, roughly between age eighteen and twenty-two), they joined the church service programme and requested that this service count towards their military obligation.

⁶⁸At the end of each interview, they were prompted to describe their former or current selves in terms of modern bioethics. The final prompt question was typically phrased this way, 'We often hear or read about people in medical experiments today who are hurt or taken advantage of in some way. When you hear these kinds of stories, do you ever identify with them a little bit or think of your experiences at the Clinical Center?'

felt they were burning my retina, that's how intense it was. ... It was terrible.' Still, when asked whether he identified with people taken advantage of in medical research today, Cope said, 'I really don't feel that way. Everything was different then, so I believe they were ethical. I don't recall any unethical behavior or experiences that I had at NIH.' In sum, 'I would say it was a good experience.'

The Mennonite and Church of the Brethren subjects present a seeming contradiction between negative reactions to the LSD studies and a sense that they were appropriately treated. This apparent contradiction resolves when it is contextualised within the broader system of meaning that organised their sense of self and their actions. While at the NIHCC, their activities and self-understandings were not anchored in the field of medicine or the immediate clinic setting. All were members of Anabaptist church organisations that cultivated young Christians committed to witnessing the life of Jesus, which these church organisations translated into two principles: pacifism and service. Thus, the LSD participants understood their experiences as religious work in the terms of a shared rhetoric of suffering and witnessing through elective, willing sacrifice for others. When the Mennonite Church started its voluntary service programme to arrange non-combat placements for drafted church members during the Second World War, an early programme assessment noted one shortcoming: not every religious service placement 'was ... always as sacrificial and valuable as the Christian ideal demands'.⁶⁹ Whereas post-addicts were perceived as 'volunteering to get high', newspaper accounts of Mennonite and Church of the Brethren volunteers advertised that '[t]hey volunteer to suffer'. *The Saturday Evening Post* explained, '[a]t the National Institutes of Health normal, healthy Americans willingly starve, freeze and get sick—to serve medicine and mankind'.⁷⁰ The difficulty of the service was a spiritual necessity, neither a source of pride nor retribution. In his oral history interview, Wilmer Wedel and his wife, Martha (nee Loewen), both Mennonite volunteers in the LSD experiments (the couple met at the NIHCC), showed a *Life Magazine* article from 1958. The article included captioned pictures of Charles Savage giving Wilmer an ink-blot test while (readers presume) Wilmer was on LSD. Mass-market publications lauded volunteers and encouraged readers to witness the suffering of religious service workers. Low-budget circulars such as the one in which Horst appeared in an LSD study, did the same (Figure 4). Religious volunteers did not necessarily misunderstand LSD experiments, but rather understood *themselves* differently than did Flowers, and therefore placed the practices of experiment in the frame offered by their churches.

If it seems that there is only evidence that these volunteers were suffering, that is because they were—or were trying to appear to be—suffering. Willing, even zealous sacrifice is a theme well documented among scientists in the creation of the scientific self, but scholars have less readily explored sacrificial selfhood among research participants.⁷¹ Religious volunteers considered their experiences valuable to the extent they suffered. Thus they

⁶⁹M. Gingerich, *Service for Peace: A History of Mennonite Civilian Public Service* (Akron, PA: Mennonite Central Committee, 1949), vi–vii.

⁷⁰Howard Simons, 'They volunteer to suffer', *Saturday Evening Post*, March 26, 1960, 33.

⁷¹Herzig, *Suffering for Science*; Lederer, *Subjected to Science*; Martin S. Pernick, *A Calculus of Suffering:*

Pain, Professionalism, and Anesthesia in Nineteenth-Century America (New York: Columbia University Press, 1985). Scholars such as Lederer, *Subjected to Science*, have documented the logic of sacrifice in researchers' auto-experimentation.

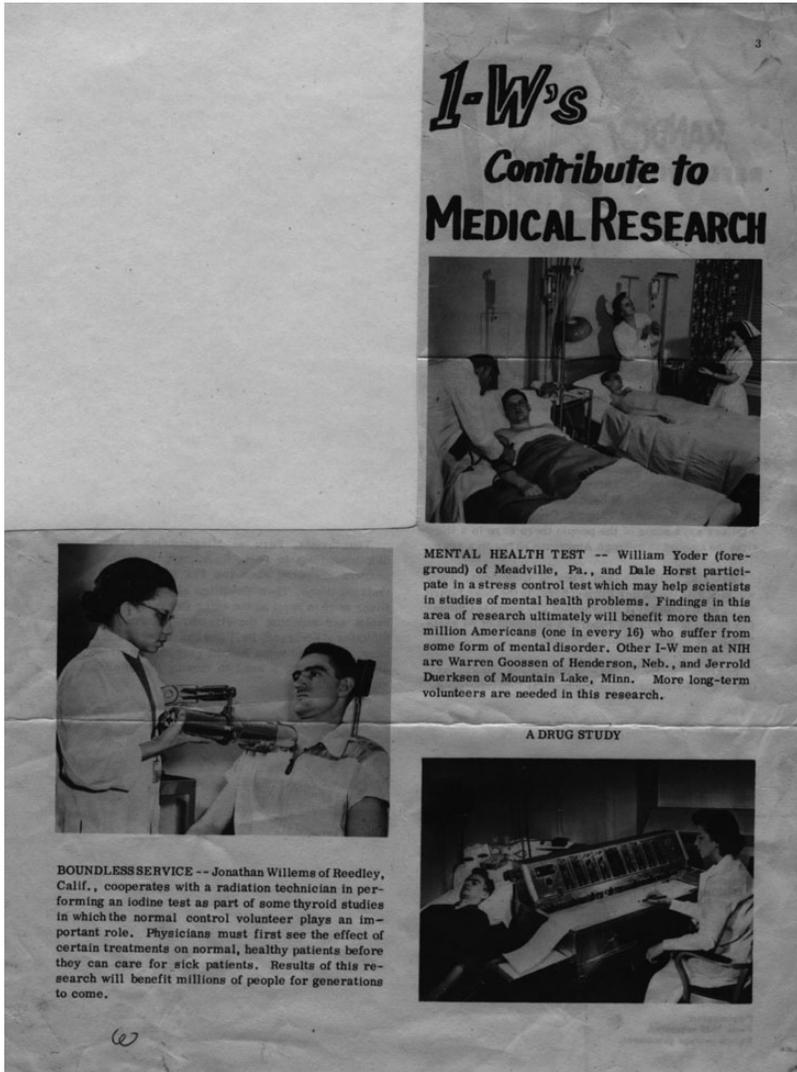


Fig. 4 Article in I-W Mirror describing NIH Clinical Center studies with conscientious objectors (I-W in Selective Service Administration parlance). Upper right: Roger MacDonald, MD, and nurses Carolyn Smith and Mary (last name unknown), n.d. [1956]. [Identified by Dale Horst.] Bottom right: Dale Horst and Bonnie Peacock in an LSD study.

Source: Horst personal collection, Science and the Subject's Perspective.

enacted their religious and political self-understandings by cultivating the experience of suffering. Lehman, who described his LSD experience as physically unbearable, rebuffed the suggestion that he transferred to a different voluntary service programme after a year because he disliked the LSD experiments: 'No, I didn't plan to stay longer than that. I was

ready to get out and do something. NIH was a good fit for the time that I was there.' When asked, 'How did you envision yourself serving? What were you serving?' Lehman replied, 'I was serving first of all the Lord and second serving my country.' Likewise, Horst explained that 'voluntary service, I felt, was an important way to do my alternative service for a lot of reasons. It was important to me personally to do that because I was grateful for the privilege of having something I could do that fit my conscience.' Neither Dale nor Mel were drafted, but instead elected, like the women subjects, to go into voluntary service at the age typical for Mennonite youths. They subsequently got their voluntary service classified as fulfilling their military obligation. Horst's friend at the NIHCC, fellow Mennonite Evelyn (nee Dyck) Bertsche, explained her service as an LSD research subject in similar terms. 'All the volunteers were altruistic and motivated by the desire to help others ... and were willing to work together to help others.' When asked, 'Could you say specifically how you felt like you and other volunteers helped other people? Was it specifically in the hospital or in some other way?' Bertsche explained that 'the philosophy was that in being a part of these experiences and a part of these experiments we were helping others who had physical and mental problems. It was just the philosophical idea that we would be able to help, by what we were doing, other people who were in need' (Evelyn Dyck Bertsche Oral History Interview, 2011, conducted by Laura Stark).

As white religious service workers who had selected NIH among a set of possible national service experiences, the world of their churches and religious lives defined the character of their experience in LSD research. They fit uneasily as models of the modern bioethical 'human subject'. They stand in contrast to Flowers who recognised himself in 1975 and again in 2004 as a modern bioethical 'human subject' in 1950s LSD experiments—and as a 'recovering drug addict' and as a black prisoner who was 'used' in ARC studies. For religious service workers, the religiously defined way of relating to the experience and the physical space of medical research played out and was reinforced through daily life with acquaintances, friends, neighbours and loves who were fellow service workers.

Conclusion

It would defy the historical record—and be analytically lazy, as well as morally irresponsible—simply to reverse the standard claim: to assert that people of the past were *not* vulnerable in human experiments. This is neither our goal nor our claim. Rather, we argue that such people have attributed a wider range of meaning to actions and events unfolding in experimental settings than scholars' interpretive conventions presently allow. Starting around 1970, people who served in medical experiments became able to think and to speak of themselves in the new terms of modern bioethics. Yet, for scholars and participants after 1970, the possible ways of being a human subject were—and have remained—limited by the expert knowledge about the human subject as a new 'human kind', which developed iteratively through the new expert domain of bioethics during the late 1960s and early 1970s. The new discourse and practices of bioethics realigned the older lexicons that had previously shaped the experiences of narcotic addicts, and Anabaptist conscientious objectors, and voluntary-service workers in the 1950s.

Our study builds on Hacking's framework of historical ontology and demonstrates how actors' accounts of their experiences can *change* when new fields of expertise claim authority over issues with meta-ethical implications. Our work is part of a broader recent

effort by scholars, such as historian Emily Wilson who has documented how researcher and activist understandings of live fetal research during the 1930s were recast in the course of public bioethical debates in the 1970s.⁷² In our case, a new expert discourse from the field of bioethics created categories of ‘vulnerable populations’. Our analysis shows that the turn towards civil rights in the long 1960s underlay human-subjects regulations and government hearings on LSD in the mid-1970s, both of which made available the identity of the ‘exploited’ or ‘vulnerable’ human subject. By interacting with these categories, people created new versions of their selves and their pasts—but in patterned ways.

The bioethical discourse dominant from the late 1960s onwards was not equally taken up by all research participants. Those who articulated their experiences in bioethical terms had typically absorbed a civil rights discourse that proved a more comfortable fit for members of racial-ethnic minority groups than for white, upper-middle class Christians, who were members of a religious community seeking service through sacrifice. The bioethical discourse that refigured doctors as oppressors and participants as victims grew out of the US civil rights initiatives (and simultaneous global human rights efforts, especially toward decolonization), which allied racial-minority rights movements, including advocacy efforts for prisoner rights. This medical narrative mapped onto the positioning of white, upper- and middle-class professionals as a dominant group that exploited a black underclass. As a result, in 1975 Flowers reinterpreted his experiences as a research participant more than two decades earlier in terms previously unavailable to him—or to anyone—when the research took place. Religious volunteers did not understand themselves this way. As members of a white, Christian community of suffering, they understood their experiences as coextensive with their religious and political self-understandings.

Costs accrue if historians neglect to explore actors’ own accounts. In this paper, we treat such shifting accounts as an empirical puzzle, rather than an unfortunate evidentiary problem. Over the past four decades, the range of plausible ways for historians to represent the experiences and actions of people who served in medical experiments has narrowed, perpetuating a mode of being a ‘human subject’ that is the socially and historically specific product of the discipline of bioethics. By accounting for the productivity of the discourse of bioethics, scholars can discern the effects of specific concepts and assumptions on historical evidence and expand interpretive accounts of experiments using humans as tools of research.

As historians of clinical research, we are enthusiastic about expanding the study of embodied experience beyond the narrow ways and limited means through which studies of human experimentation have been engaged since the 1970s. As demonstrated above, bioethics brought with it a distinctive set of assumptions, concerns and contradictions. Hacking’s approach offers a way to investigate how the governing moral sensibilities of a specific time and place constrain and liberate scholars themselves. The secular, North American, rights-revolution ethos of vintage bioethics limits how questions about research

⁷²Emily K. Wilson, ‘Ex Utero: Live Human Fetal Research and the Films of Davenport Hooker’, *Bulletin of the History of Medicine*, 2014, 88, 132–60.

practices in the human sciences are conceptualised, and can deflect questions about the historicity of the discipline of bioethics as a knowledge making enterprise in its own right. We hope that efforts to interrogate the ontology of modern bioethics—to ask how, when and where the terms and priorities of this expert domain developed and with what effects—can capture a fuller repertoire of institutions, sensibilities and activities that eventually constituted modern science and biomedicine.

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