

PROJECT SUNSHINE AND THE SLIPPERY SLOPE

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Project Sunshine was one of a wide range of studies examined by President Clinton's Advisory Committee on Human Radiation Experiments chaired by the ethicist Professor Ruth Faden of the Bioethics Institute of the Johns Hopkins University. The Final Report of the Advisory Committee published in 1995 gave a rather perfunctory summary of the Project in comparison with the fuller considerations of experiments involving living subjects. The main focus of the Advisory Committee was to review policies concerning informed consent relating to radiation experiments on patients for whom there may or may not have been some therapeutic benefit from participation in the studies, and healthy subjects who knowingly or otherwise participated in such experiments.

The Advisory Committee's Final Report summed up its view of Project Sunshine and related studies at p.641:

"In sum, during the 1950s the AEC [Atomic Energy Commission] promoted human tissue sampling for studies on fallout and other research, and its efforts involved secrecy and deception. The AEC evidently considered the legal aspects of 'body snatching', but there is no evidence that it sought to consider any independent ethical requirements for disclosure to the families of the subjects (or the subjects themselves, where alive) whose tissue was sampled. While further rationale for keeping the data gathering secret may have existed, in surviving documents concern for public relations emerges as the dominant motivation. At the same time, the AEC recognised that secrecy hampered the conduct of research that it believed central to the public interest."

The Advisory Committee's report gives a useful summary of the evolution of ethical guidelines in the United States governing research involving healthy subjects and that involving patient-subjects (at pp.780-2) but there is no discussion of the ethical implications of tissue retention following autopsy, especially of neonates and infants. The Advisory Committee did find (Finding 8 p 784) that "for the period 1944 to 1974 there is no evidence that any [US] government statement or policy on research involving human subjects contained a provision permitting a waiver of consent requirements for national security reasons". Not even the Wilson memorandum of 1953 adopting the Nuremberg Code for military research provided for any " 'national security' exception."

The Advisory Committee noted in the opening pages of its Final Report that the central ethical and moral issues in reviewing programmes such as Project Sunshine revolved around "the government's attempt to serve two critical purposes: safeguarding national security and advancing medical knowledge" (p.13) which led to "difficult choices at the intersection of geopolitics, science and medicine" (p.21). They concluded, "The burgeoning government-funded biomedical research, including human radiation research, required a re-examination of the traditional doctor-patient relationship. At the same time, the evolving role of medical researchers as government official and advisers also posed questions about the place of doctors, and more generally of scientists, in service to government." (p 42) The attempts by the Advisory Committee to address some of these questions have been criticised by some such as the journalist who provoked the initial formation of the enquiry with her revelations in the Albuquerque Tribune in 1993. Eileen Welsome has commented¹¹ Eileen Welsome, *The Plutonium Files America's Secret Medical Experiments in the Cold War* Delta Books, New York 1999 p.46:

"Eventually the group came up with an ingenious compromise that side-stepped the issue of whether individuals should be held culpable and ensured that a unanimous report would be delivered to the president. The committee declared that separate judgements could be made about the wrongness of an action and the blameworthiness of the person who committed the act. Simply put, it separated the experiments from the experimenters."

In several instances they found that there were 'professional norms and conventions' throughout the period requiring the solicitation of informed consent which were of a higher order for patient-subjects than for 'healthy subjects' and that investigators were 'morally responsible' in cases where they did failed to adhere to those policies, norms, conventions and practices. But the Advisory Committee also found that the human radiation experiments in the 30 year period under review "contributed significantly to advances in medicine and thus to the health of the public." (p.779)

Despite the concern for secrecy, the programme of tissue sampling was reported in the New York Times of 8 February 1957. Scientific reports and articles in the medical research literature were regularly published on the studies of radionuclides in ashed human bone, and indeed continue to be published. Australia

The involvement of Australian pathologists and other medical researchers in Project Sunshine can be dated back to a letter 22 at Series A1209/23 Item 1957/6061 of National Archives of Australia (Canberra) dated 7 November 1957 from the Department of External Affairs, Canberra to the Secretary of the National Radiation Advisory Committee in Melbourne asking for advice "concerning the question of Australian participation in the Standardisation Programme of the Measurements of Strontium-90, which was prepared by the United Nations Scientific Committee on the Effects of Atomic Radiation." The letter notes that the matter was discussed at the second meeting of the NRAC "and that it was resolved that Australia should participate in the programme and that the Commonwealth x-ray and Radium Laboratory and the Australian Atomic Energy Commission should carry out the necessary work."

The impact of the early results of the studies of Strontium 90 in human bone was evident in a memo 33 at Series A4940/1 Item C2067 of National Archives of Australia (Canberra) to the Australian Prime Minister dated 23 March 1959 (signature of sender unclear) reported a story 44 at same location as above in the Daily Mirror of the same date which in turn reported disclosures made by the US Joint Congressional Atomic Commission on the presence of Strontium 90 in a fallout band predominantly in the south-eastern portion of Australia in a line below 35 degrees latitude, stretching from Adelaide in South Australia to Jervis Bay in New South Wales. While the measurements of Strontium 90 in the atmosphere were lower than those in both the USA and UK they caused the head of the School of Chemistry at the NSW University of Technology, Professor D P Mellor to say (as quoted in the Daily Mirror): "This report has come as quite a shock. It is quite obvious not enough measurements have been taken here and not enough money and time and scientific effort have been put into this important research. According to this report the danger in Australia is much higher than was thought. It is even further increased by the discovery that Strontium 90 is not remaining in the stratosphere (sic) as long as was predicted."

Under a paragraph heading Freak Births the Daily Mirror stated: "Australian experiments by CSIRO experts have shown that effects of radiation produces freak babies and horrific abnormalities to future generations. In overseas countries - in less danger than Australia, according to the U.S. report - freak animals have been born, cattle have died mysteriously and weird (sic) plant life has appeared following radiation contamination."

The 1959 memo to the Prime Minister advises him: "If you propose to make any public comment I think the most important aspect is that Strontium 90 does not result from atom bomb tests and therefore has no relevance to the testing of weapons in Australia."

This is in error since Strontium 90 is a fission product from atoms bombs such as were being tested in Australia at Monte Bello, Emu and Maralinga in the 1950s. (It is also a fission product of H-bombs such as the UK subsequently developed at Christmas Island since H-bombs used A bombs as triggers. It is also a fission product of nuclear reactors such as the Australian installation at Lucas Heights, which became operational in 1958.⁵⁵ Alan Parkinson

The memo to the Prime Minister states:

"Two years ago, following the Geneva Conference on this subject, we instituted a thoroughgoing sampling programme and the levels of Strontium 90 are kept under continuous review. For your own information this sampling programme extends to the bones of animals and humans including mature people, children, and unborn children." (Emphasis added)

The underlying US document 66 see items discussing this document at Series A6456/3 Item R069 /002 of National Archives of Australia (Canberra) reports that Strontium 90 was now falling to earth from the stratosphere in two years rather than seven years. This was an important finding Resulting from the harvesting of the human material - which hastened the agreement to a partial moratorium on atmospheric nuclear weapons testing.

United Kingdom

In July 1995 (as the US Advisory Committee on Human Radiation Experiments was finalising its report) a UK Channel 4 documentary True Stories: Deadly Experiments reported that 91 pregnant British women had been injected with radioactive iodine in the 1960s and a further 37 women who were due to undergo medically-approved abortions had been involved in a separate series of tests to monitor the effect of radioactive iodine in the foetus.⁷⁷ Frank Urquhart, Pregnant women 'used in radiation tests', Scotsman July 7, 1995

The experiments were conducted in Aberdeen, Hammersmith and Liverpool. The press reports also noted that "In a separate series of experiments, between 1957 and 1970, body parts from an estimated 6,000 corpses had been removed for tests without the permission of the next of kin and sent for examination at the Atomic Energy Research Establishment, the programme claimed."

This report was also mentioned in an article a year later in The Australian of July 2, 1996. ⁸⁸ Barry Oliver, Exposure to radiation's deadly past, The Australian July 2, 1996. The producer of an Australian documentary was said to have "discovered an old file giving names of children whose body parts had been removed after death for radiation tests. The program managed to trace some parents. All knew nothing of what had happened."

Several women came forward in the UK with memories of being fed or injected with radioactive substances. The Dundee Courier reported on July 8, 1995 that the research had involved 90 patients at Aberdeen Maternity Hospital. The deputy chief executive of the Medical Research Council, Dr Evered, commented that "The assertion that any of these experiments was carried out in secret is patently absurd - the results were publicised in widely available scientific journals." ⁹⁹ See for instance

Aboul-Khair SA, Turnbull E, Turnbull AC and Crooks J, Effects of pre-eclampsia on the changes in iodine metabolism during pregnancy, J Obstet Gynaec Brit Cwlth 1968;75:1040-1044

Aboul-Khair SA, Buchanan TJ, Crooks J and Turnbull AC, Structural and functional development of the human foetal thyroid, Clin Sc 1966 31: 415-24

Van Middlesworth L. Radioactive iodide uptake of normal newborn infants. AMA American Journal of Diseases of Children, 1954; 88: 439-442

Ogburn RE et al. Radioactive-iodine concentration in thyroid glands of newborn infants. Paediatrics 1960; 26: 771-776

Hahn PF et al. Iron metabolism in human pregnancy as studied with the radioactive isotope. Fe⁵⁹. American Journal of Obstetrics and Gynaecology, 1953; 61(3): 477-486

Hagstrom RM, Glasser SR, Brill AB, Heyssel RM. Long-term effects of radioactive iron administered during human pregnancy. American Journal of Epidemiology 1969; 90(1); 1-10

The fact that these reports were published in peer-reviewed journals and had in many cases been conducted with the full cognisance of the relevant ethics committees is discussed in

Sue Rabbitt Roff Human Radiation Experiments: What Price Informed Consent? *Medicine, Conflict and Survival* 2000 16:291-301.

Dr Evered also was quoted as saying, "since 1953, they had obtained the consent of every volunteer taking part in experiments." One Aberdeen patient "claimed those taking part in the tests were rewarded with a place in a ward with fewer patients. She said they were also served better food and had a sitting room with a TV. But she claimed she was not fully informed about the nature of the tests." 110 Cheryl Margiotta, Radiation mum who lost baby speaks out, *Aberdeen Press and Journal* July 10, 1995 0

Rabbi Julia Neuberger chaired an inquiry by the Medical Research Council (which had funded most of the UK the studies). Although Rabbi Neuberger was quoted at the time of the report's publication in May, 1998 as saying "I find it mind-blowing that this could take place" 111 Sarah Bosely, Radiation study 'upset bereaved parents', *The Guardian* May 22, 1998 1 the report called basically for better record keeping for such research. Although it pointed to a 'consistently elevated' incidence of thyroid cancer in Grampian since the experiments were done 112 Frank Urquhart, Study backs mothers' secret test cancer fear, *Scotsman* 22 May 1998 2 no follow-up study was undertaken following the report. One patient, a former headmistress who had participated in the experiments and suffered thyroid cancer subsequently said, "We were definitely never told there was any risk involved with the injections because if we had been told that we just wouldn't have done it. The tests were never really discussed with us at all, and the experiments had already started before I was told they involved radioactive iodine. But, of course, in those days you never thought for one minute that doctors would ever do anything that was going to harm you." 113 *Scotsman* 22 May 1998 3

On 4 June 2001 the UK Daily Mail reported that "Bodies of stillborn British babies and infants who died at just a few months old were shipped to the US in the 1950s and 1960s to be used in nuclear experiments. After the tests the bodies were cremated and radioactivity in the remains was measured."

The experiments were said to be code-named Operation Sunshine and Britain was said to have become involved in 1955 when Dr Willard Libby appealed for "large numbers of bodies - preferably stillborn or newly born babies - for experiments on the effect of fallout from atom bomb Tests." Libby was quoted as saying, "If anybody knows how to do a Good job of body snatching, they will really be serving his country."

This article stated that over 15 years hospitals in Britain, America, Canada, South America, Australia and Hong Kong gave 6000 bodies of which almost 50 came from the Central Middlesex Hospital, the Royal Cancer Hospital in London, the Royal Hospital for Sick Children and hospitals in Bristol and Glasgow. The Daily Mail implies that whole bodies were shipped to nuclear test sites and then the levels of radioactivity were measured after cremation. In fact, bones from dead infants were retrieved in countries around the world, then ashed and measured for radioactivity and the results were reported to the US researchers.

Another article in an ex-serviceman's newspaper stated that "...new documents released by the US government and reports now in the UK Public Records Office at Kew, Southwest London, show leading British scientists were involved in body-snatching for both nations, which (sic) indicate that the British conducted tests on babies from Hong Kong, and acquired body parts from doctors in Cambridge, Newmarket, Norwich and Chelmsford, as well as the coroner for west London" as well as the Royal Marsden Hospital in London. 114 *The secrets of Britain's baby snatchers in NESAs News* July/August 2001 4

The Glasgow Sunday Herald reported on 17 June 2001 that the thighbones of more than 2100 children who died during the 1960s in Scotland were ashed and analysed for radioactive contamination. Most came from Yorkhill Sick Children's Hospital in Glasgow between 1959 and 1970. The research was said to have been initiated by the UK Atomic Energy Authority in 1955 and responsibility was transferred to the Medical Research Council in 1957. The article indicated that both organisations "admitted parents were not asked for their consent." The article further states "But in 12 years of analysing the bones, the only permission ever requested from bereaved parents was for routine post mortem examinations." One of the doctors who led the research, Professor Gavin Arneil, defended the research as being ethical at the time it was conducted. "It was vital in exposing the risks of nuclear fall-out, he said, and parents were better to remain 'in blissful ignorance'."

The Sydney Morning Herald of June 11, 2001 reported the Hong Kong Sunday Morning Post quoting Dr J Laurence Kulp, former head of Project Sunshine, as confirming that bone samples of cremated babies from countries such as Australia had been used between 1955 and 1963 to test nuclear fallout. Dr Kulp was quoted as saying "What's unethical about chemically analysing ash? There was a huge benefit for mankind." It was noted in the article that "Officials admitted relatives did not always give permission for the dead babies to be used."

The same article noted that the Australian Radiation Protection and Nuclear Safety Agency "has admitted bodies of stillborn babies were used..."

The Adelaide Advertiser dated 27 June, 2001 reported 115 Colin James, The Body Parts Scandal, Two decades of radiation tests that thousands of samples - including thyroid glands - from South Australian children had been tested in the period between 1957 and 1978 for Strontium 90 and Cesium 137. It stated "Ashes from the bones were initially sent to Britain and the US for analysis but were retained in Australia after testing facilities in became available in the late 1960s."

The same article reported that the Human Services Minister Dean Brown had stated that almost 1000 child and adult specimens - including 284 baby hearts - were being stored in a basement room at the Women's and Children's Hospital in Adelaide. Mr Dean stated that "while the samples were generally taken in line with legal standards at the time, ' by today's standards these practices are totally inappropriate and unacceptable. Although consent was given in some cases, in other cases it clearly was not given,' he said. 'An autopsy did not require consent. And in other cases organs were taken for autopsy but the relatives did not understand, in fact, some of those organs are held for a longer period.'" He indicated that the Department of Human Services would "review state legislation, help develop national standards on organ removal and produce a standard autopsy consent form to ensure a similar situation Did not arise again."

The article further noted that "Laws regarding the retrieval and storage of tissues and organs were changed in 1990 to make it compulsory for consent to be obtained from patients or next-of-kin." A subsequent article by Colin James, 'Dark Secrets' dated 30 June, 2001 in the Adelaide Advertiser referred to samples from dead South Australian children being "routinely collected between 1957 and 1981 for testing for radioactive contamination" and being sent to the Commonwealth Radiation Laboratory in Melbourne for analysis. The present writer located a document in the National Archives of Australia which indicated that nearly 800 samples had been analysed in Australia in 1965 alone, 174 of them from babies under a year old.116 Document titled TABLE 7 STRONTIUM 90 pCi/g OF CALCIUM IN AUSTRALIAN HUMAN BONES ALL AGES JANUARY-DECEMBER 1965 found at A6456/3 R029/148. Reported inter alia in The Australian 19 June 2001. What seems to be a pro forma for the record keeping of infant samples was found at A6456/3 R029/2/2 of the National Archives of Australia. 6

In responding to the issues raised by the recent resurgence of public interest in the use of cadaver parts for the research into fallout of Strontium 90 Dr John Loy, chief executive officer of the Australian Safety Authority said 117 Australian Broadcasting commission, AM broadcast June 7, 2001, 'Child bodies used in nuclear tests' 7

"I have to emphasise that this program wasn't done secretly. It was reported on. It was reported in the scientific literature. It was reported in public reports. It wasn't a secret but I think, in the standards of the Time, I don't think the idea of consent was even thought of."

Peter Campbell, a former director of pathology at the Royal Children's Hospital in Melbourne was quoted 118 Paul Heinrichs and Steve Dow The bones of Cold War contention The Age (Melbourne) June 10, 2001 in June 2001 as saying "We're talking years ago when attitudes were different. I'm not saying They were right, but they were different. It's true that fetuses were discarded or buried anonymously. Certainly some babies were disposed of. At the time there was a lot of anxiety about atomic energy. It was the height of the Cold War, you've got to remember. You could justify all sorts of things."

The defence thus consists of two elements - that the exigencies of national security during the Cold War overrode the rights of the parents and the deceased children involved and that the practices of doctors

during the approximately two decades of the experiments from 1955 onwards were consistent with the culture of medical paternalism that prevailed at the time.

In connection with the first position, it should be noted that President Clinton's Advisory Committee on Human Radiation Experiments found that national security was never explicitly invoked to trigger the right of the experimenters to avoid the duty of securing informed consent from the parents. The concern here is that a double standard may have developed in the wake of the Nuremberg Trials and its emergent Code. This double standard rests in the notion of a 'just war'. While the Nazi attempts to extend hegemony through war were declared to be unjust in the wake of the Allied victories, the ensuing 'cold war' was a struggle between the emergent victorious forces. In the event the western liberal democracies prevailed in the defence through military means of their political philosophy and the struggle has come to assume the status of a 'just war'. In the process, activities such as the use of executed victims of the Nazi regime for the development of an authoritative anatomical atlas were repudiated. 119 e.g. report of the Senate Project of the University of Vienna, Daniela C Angetter, Anatomical science at University of Vienna 1938-45 *Lancet* 2000 355:1454-57 - this work also involved the use of about 7000 bodies of children, mainly foetuses and stillborn infants, many of which showed signs of congenital syphilis but who were not clearly victims of Nazi practices. 9

But a 'slippery slope' may be seen to have opened up in the use of human body parts for the studies of the accumulation of fission products in the food chain and humans during the testing of nuclear weapons during the 'cold war'. 220 It is of course one of the greatest ironies of the cold war that more than 4000 atomic and nuclear weapons have been detonated, at great hazard to the atmosphere and the biosphere, in order to 'keep the peace.' It may be that revisionist historians of future generations will see the competitive testing era as itself a military interchange. And recent statements from the Presidents of both the USA and Russia suggest that it may not be over yet. 0 This 'slippery slope' may have led to a 'culture' which culminated in practices such as that described by the UK Secretary of State for Health in a speech to the House of Commons on January 30, 2001 where he referred to the "unethical and illegal stripping of every organ from every child who had had a post-mortem" by Professor van Velzen during his time as Chair of Foetal and Infant Pathology in the Department of Pathology at Alder Hey hospital of the Royal Liverpool Children's NHS Trust. The Minister reported that the Redfern Inquiry into Professor van Velzen's practices considered that he "lied to parents. He lied to other doctors. He lied to hospital managers. He stole medical records. He falsified statistics and reports, and he encouraged other staff to do the same." The Report also considered that, according to the Minister, "the understanding of cot death - for which van Velzen was funded - was not advanced one iota by his practice of stripping organs from the bodies of dead children."

Under Judaeo-Christian principles mirrored in the political philosophies of the western liberal democracies, the issue then became one of the legitimacy or not of the means used to achieve ends that were broadly, if implicitly in the absence of full public discussion outside of scientific circles, part of a prevailing moral and ethical consensus. This was resolved in practice in the last third of the twentieth century by the notion of 'medical paternalism' by many contributors to the research into the impact on humans of radionuclides from atomic and nuclear weapons fallout.

The medical paternalism that was characteristic of these decades (though increasingly challenged) can be divided into two parts - those concerning duties to the dead infants and those concerning duties to their parents. Although the Declaration of Helsinki refined the Nuremberg Code progressively throughout the last decades of the twentieth century 221 These Recommendations Guiding Physicians in Biomedical Research Involving Human Subjects was adopted by the 18th World Medical Assembly, Helsinki, Finland 1964 and amended by the 29th World Medical Assembly, Tokyo, Japan October 1975, the 35th World Medical Assembly, Venice Italy October 1983 and the 41st World Medical Assembly, Hong Kong September 1989 and in South Africa October 1996 it is actually silent on the duties owed by physicians to cadavers. While legislation such as the 1961 UK Human Tissues Act and various statements by professional bodies such as the Royal Society of Pathologists imply a need to 'respect' dead persons, this duty is not explicitly spelled out. There are several instances in which the needs of medical research are implied to override many 'discomforts' that might be held by lay people - i.e. patients and their carers - in relation to the disposition of body parts and tissues after death. These 'discomforts' have increased with the public's realisation in recent years that organ retrieval usually takes place prior to actual death and that there is physiological evidence that it causes pain to the moribund patient.

The discussions of medical paternalism in this context have concentrated more on the duty owed to parents to elicit informed consent about the disposition of dead infants. The implication is that since the survivors are

the sentient participants as distinct from the deceased, a greater duty of care is owed to them to prevent unnecessary distress if they subsequently become aware of the dismemberment of the deceased infants. Parents and others vary in their 'funerary' beliefs and practices, and the medical paternalist in this situation assumes that the burial or cremation of a partial body will satisfy these emotional needs if the survivors are unaware of the retrieval of the organs or dismemberment.

Allen Buchanan has defined medical paternalism 222 Allen Buchanan, *Medical Paternalism Philosophy and Public Affairs* 1978 7 no. 4 370-3902 as "interference with a person's freedom of action or freedom of information, or the deliberate dissemination of misinformation, where the alleged justification of interfering or misinforming is that it is for the good of the person who is interfered with or misinformed."

The right to practice this interference and/or misinformation is usually defended under one of three categories - the Prevention of Harm Argument, the Contractual Version of the Prevention of Harm Argument, and the Argument from the Inability to Understand. In the present problem, the central issue is whether or not the withholding of full information about the uses to which the cadavers will be put caused greater or less distress to the parents. Buchanan points out that the assumption that parents could not understand the greater good for which their deceased children might be dismembered reflects a "bleak estimate of the parental capacity for comprehension and rational decision" and tends to be a "self-fulfilling prophecy." Buchanan suggested in 1978 that the 'medical paternalistic model' "is a paradigm, a way of conceiving the physician-patient relationship."

As we have seen from comments in the press of parents who have discovered, often decades later, that their infants were dismembered and used for medical/scientific research the greatest loser in the failure to elicit informed consent at the time of autopsy is trust in the doctor-patient relationship. Several commentators have observed that this breakdown in trust in turn imperils current and future efforts to secure human tissue for medical and scientific research. Which is to say that the practice has had precisely the effect least desired by the 'harvesters' themselves.

Buchanan noted in 1978 that "There are now signs that medical paternalism is beginning to be challenged from within the medical profession itself." Indeed, in a paper delivered at the Royal Prince Alfred Hospital, Sydney to the Association of University Clinical Professors of Australia, the Hon Mr Justice MD Kirby, Chairman of the Law Reform Commission of Australia, warned in 1983 that

"Nor is paternalistic assessment - 'doctor knows best' - they will be convening public interest and professional panels to refine the relevant Acts, indeed to make it a criminal offence in the UK to fail to specify the uses to which organs and tissues will be put and to solicit fully informed consent. As well as the issues raised here in connection with the need to address the culture of a slippery slope of progressively lax approaches to the retrieval of human tissues, these deliberations will take place in a context where the ethics of double blind clinical trials²²⁴ For instance, Lord Scarman commented in the *Journal of the Royal Society of Medicine* in December 1986 that "As the law stands at the moment I would have thought that any doctor who allows his patient to go into a randomised clinical trial without telling him runs a very real risk if things go wrong and the patient suffers injury or damage. That is just by the way, since it has not yet been tested. Once can see the value of this form of experimentation - perhaps it is the only way in which one can have a steady, slow progress in the development of medical treatment - but I am bound to say that I think there is danger for the doctor in going ahead with subjecting, if that is the correct word, his patient to a randomised clinical trial without warning him." These issues were not prominent in the papers published in the *British Medical Journal's* issue on the randomised control trial at 50 on October 31, 1998. 4 and the use of epidemiological data are also increasingly challenged. A central issue will be whether an informed citizenry is more or less willing to support medical research (including that into the health hazards of nuclear weapons) by tissue donations, offering themselves for in vivo experimentation, or allowing their personal data to be disseminated - whether or not the medical researchers and their scientific colleagues of the last half of the twentieth century were wrong to distrust the capacities for both autonomy and altruism of their fellow citizens.

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