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## *Biological Tests and Clinical Trials : International Verdicts on the Nuremberg Medical Trials*

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### **1. Nazi Medicine and Clinical Trials**

During the 1930s and 40s new statistical criteria demanded clinical trials to assess the efficacy of new medical drugs and vaccines. Clinical observations on randomly occurring cases became condemned as scientifically inadequate. Statistical rigour required experiments on defined groups - whether conscientious objectors in the case of the Allies, or concentration camp prisoners in the case of the Germans.

Hitler at times compared himself to Robert Koch as a healer of racial ills, and Himmler authorised and extended human experiments in concentration camps. The Nazi state accelerated the research side to German medicine as well as centralisation of public health. Yet the Nazi system remained fragmented and encumbered by what Max Delbrück observed were organisational rigidities: tensions arose not only between the State, Nazi Party and SS, but also between rival academic factions. University medical faculties and Länder retained considerable autonomy - post-Anschluss Austria was typical in securing a high degree of nazification of medicine while retaining much autonomy. The NSDAP and SS pressurised the traditionally autonomous universities to appoint their nominees - with varying degrees of success. Even within the SS there were conflicts: epidemiologists interested in applying Gestalt theory to ideas of disease so as to take account of clinical variation in different environments clashed with geneticists.

The Deutsche Forschungsgemeinschaft provided central funding for research. Ute Deichmann has recently argued that there was a high level of funding for normal biological research which was not tainted by Nazi ideology. I disagree: Deichmann ignores that the reasons why the Nazis gave substantial funds for new disciplines like virology was that urgent solutions were required for viral diseases on the eastern front.<sup>1</sup> German research on lung cancer and smoking at the University of Jena similarly shows the need to take account of the context of the highly racialised public health administration of Thuringia.

The vagaries of decentralisation allowed the half Jewish Otto Warburg to

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1. Ute Deichmann, *Biologists under Hitler* Cambridge, Mass.: Harvard University Press 1996. Paul Weindling, 'A Biological Sonderweg', *Nature*, vol.380 (4 April 1996) 399-400.

continue biochemical research, and certain foreign researchers remained eg the Russian pioneer of radiation genetics Timofeef Ressovsky. The Nazis attempted to project an international system of medical research. The Reich Health Office had an international department - which sought to build up contacts with the USSR and via Vichy France with the US (neutral until 1941), and other states within the German sphere of influence eg Hungary, and Bulgaria. Although the savagery of the German dismemberment of Poland was accompanied by the germanising of medical institutions, the Warsaw Hygiene Institute continued under a German professor in command. The Germans sought collaboration within French medicine, eliciting the support of the French right, for example Alexis Carrel and Céline. France sustained medical research during the occupation.<sup>1</sup> The Germans allowed the Pasteur Institute to remain autonomous, on condition that it would provide training for German researchers eg the Waffen-SS bacteriologists Richard Haas (later Germany's leading virologist), or Erwin Ding-Schuler who took over vaccine research and production at Buchenwald. The Pasteur Institute was permitted to manufacture vaccines - one aim was to benefit deported French labourers in Germany, but also had to supply the Wehrmacht with consignments of vaccine.<sup>2</sup> Many French researchers were deported for resistance activities - eg the Pastorian Balachowsky to Buchenwald. The Director of the Pasteur Institute, Jacques Tréfouel, responded to the request for medical literature from the imprisoned Pastorian Alfred Balachowsky at the Department of Typhus and Viral Research in Block 50 at the Buchenwald concentration camp - a camp where there was a very high number of imprisoned French doctors.<sup>3</sup> The formal exchange of two Pastorians under conditions of immense strain indicates how the SS was concerned to perpetuate effective, "normal" science but which was to serve their exterminatory ends.

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<sup>1</sup>1. Jean Hamburger, Medical Research in France during the War 1939-1945 Paris: Éditions Médicales Flammarion, 1947

2. Paul Weindling, ' "Victory with Vaccines": The Problem of Typhus Vaccines during the Second World War', H. Plotkin and B. Fantini (eds), Vaccinia, vaccination, vaccinology (Paris: Elsevier, 1996), pp. 341-7.

3. Archives de l'Institut Pasteur, Fonds Direction, Balachowsky to Tréfouel 5.V.44; Tréfouel to Balachowsky 11.V.44.

## **2. Inter-allied Co-operation**

The Allies were obsessed that German wartime medical research must have produced a high level of discovery. The Allies overlooked that the competition and divisions between researchers meant that just as Germans had failed to produce an atom bomb, so the Nazis failed to produce penicillin or an equivalent, or to deploy DDT on a large-scale as they clung to poison gas fumigation with Zyklon as developed by the chemist Fritz Haber in WW1. Even biological warfare remained crippled by conflicts between the army and SS - mercifully the nerve gas Sarin was never manufactured in sufficient quantities.

The origins of the Nuremberg Medical Trial lie with the Field Information Agencies (Technical), known by their acronym as FIAT. These military agencies gathered information on German science, medicine and technology for strategic and economic purposes. Military authorities demanded knowledge of what had gone on in strategically relevant areas as biological warfare and aviation medicine.<sup>1</sup> Investigators for the CIOS (ie Combined Intelligence Operations Services) series of reports on scientific and technical installations - for example on vaccine production - came across cases of lethal experiments. On 14 March 1946 a meeting at the British FIAT commission drew attention to fatal or disabling human experiments. These problems were discussed at the US FIAT at the former IG Farben offices of the HOECHST chemical manufacturers by four American, two French and nine British representatives.<sup>2</sup>

## **3. The French Response**

At the FIAT meeting of March 1946 the bacteriologist Pierre L epine pointed out that medical researchers who were deported for resistance activities were ready to testify in cases against the Germans. Secondly, "that a pronouncement of moral condemnation should be made and suggested that this could be done by the representative scientific bodies of the four powers". This moral stance was to remain a French priority. On 19 June 1946 a French government decree appointed four doctors, a biologist and the director of the war crimes investigations to form a Commission on Medical Crimes.

The Commission first met on 31 July 1946 at the Pasteur Institute - a location with symbolic significance: now the heirs of Pasteur would sit in justice over the misdeeds perpetrated in the tradition of Robert Koch as an

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1. FIAT Review of German Science (1947-).

2. Public Records Office WO 471 International Scientific Commission for the Investigation of Medical War Crimes.

icon of German medicine. René Legroux presided over the French scientific commission. The scheme was that each Allied power form a scientific commission to "condemn the misuse of human beings in the name of science". Tchernia wanted an international commission as for atomic energy.(minutes 16 oct) The French invited the Russians in July 1946 to the international commission but received no reply.

The French supported the preparations for the NMT through Pierre Bayle, a naval doctor and medical psychologist, who drew on his experiences to produce a work on the psychology of medical genocide.SLIDE La Presse médicale reported on the ambivalence of the proceedings at Nuremberg and the vigorous German defence, and continued until 1953 to give intermittent coverage to German medical atrocities. The National Academy of Medicine established an ethics commission in 1949, which reached permissive conclusions, and the subject of human experiments disappeared from professional discussion until 1974; France had no specifically legal regulations for human experiments until 1988, despite longrunning public concerns at being exploited as "cobayes humains". Overall, I would characterise the French response to German medical crimes as firstly judicial in seeking prosecutions of German medical war crimes, secondly internationalist, thirdly ethical, and fourthly as limited to elite medical researchers.

#### **4. The British Response**

The British military pathologists were initially vigorous in their pursuit of medical warcrimes. They broadened out an investigation of the fate of captured SOE agents who were victims of sulpha drug experiments at Ravensbrück into a complete reconstruction of the survivors. The British military pathologist Major Mant traced ca 50 survivors throughout Europe. The British turned their evidence over to the US prosecution, having collected extensive documentation and witnesses prepared to show their wounds and to testify in the Nuremberg court room.

The British were not internationalist - because of hostility to the Soviet Union, and prior difficulties with Soviet atrocities eg Katyn. The British did favour informal co-operation with the French and US.

In October 1946 the Prime Minister, Clement Attlee, invited Lord Moran, Churchill's physician, to lead a delegation of British medical scientists to evaluate the German human medical experiments.<sup>1</sup> In January 1947 at a session of the international commission in Paris, Moran was elected its

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1. The delegation consisted of Henry Dale, Sydney Smith (Edinburgh), Sweeney (St Thomas), and W.G. Barnard (RCP). For background see Scientific Results of German Medical Warcrimes. Report of an Enquiry under the Chairmanship of Lord Moran. MC. MD (London, 1949).

chairman.<sup>1</sup>

The British response became increasingly clouded by the politics of the new National Health Service. In September 1946 an international medical conference was held at the British Medical Association in London, to launch the World Medical Association, as a physicians' association to counterbalance the public health orientation of the nascent World Health Organisation. Charles Hill became joint Secretary with P. Cibrie, formerly active in the French resistance. Hill aimed that the association would create a current of opinion against state medicine and the state-based WHO. The British Medical Association (BMA), critical of state medicine, attributed the Nazi medical crimes to state interference in medicine. In November 1946 a BMA official diagnosed the ills of scientific medical research: "It is clear from the events of the past fifteen years that material achievement and scientific progress unless harnessed to a humanitarian motive and moral dynamic become the tools of totalitarian ideologies." A BMA pamphlet issued in June 1947 condemned Nazi doctors as "their amoral methods were the result of training and conditioning to regard science as an instrument in the hands of the state to be applied in any way desired by its rulers. It is to be assumed that initially they did not realise that ideas of those who held political power would lead to the denial of the fundamental values on which medicine is based." The resulting code stressed the prime duty of the physician to the individual patient: this was the counterpart of principles asserting professional powers against state encroachments.<sup>2</sup>

Moran convened a commission of six experts to evaluate Nazi medical experiments. Overall, Nazi human experiments were condemned as incompetent and racist. C.P. Blacker, the President of the Eugenics Society, criticised the Nazi sterilisation experiments. For Blacker, keen as ever on sterilisation legislation, it was essential to demarcate between the Nazi abuse of eugenics as resulting in unscientific barbarism, and eugenics itself as humane, enlightened and thoroughly scientific.<sup>3</sup> That Nazi human experiments were condemned as incompetent countered the arguments of those seeking extenuating circumstances. Not only was this an exercise in scientific apologetics, the publicity was perfunctory. The report cost a mere 3d - in contrast to the immense US costs in mounting the NDT which filled fifty bulky volumes. The British response, shaped by expediency and

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1. P.J. Weindling 'Ärzte als Richter: Internationale Reaktionen auf die medizinischen Verbrechen während den Nürnberger Ärzteprozess im Jahre 1946-47', Wiesemann, C. and Frewer, A. (eds) Medizin und Ethik im Zeichen von Auschwitz. Erlangen: Palm und Enke, 1996, pp. 31-44.

2. BMA archives, W001 World Medical Association. International Relations Committee, memo by D.E. Claxton, Assistant Secretary to the BMA. International Relations. General File 19/3/19, Medical War Crimes, BMA pamphlet on "War Crimes and Medicine".

3. C.P. Blacker, 'Eugenic Experiments Conducted by the Nazis on Human Subjects', Eugenics Review, vol.44 (1952) 9-19.

domestic politics, turned the French demands for an ethical code into expert review based on the criteria of utility.

Moran was embroiled in the mounting outrage at the implementation of the National Health Service and at Bevan as "Medical Service Dictator". Whereas Charles Hill of the BMA spoke of doctors confronting "Bevan or Belsen", Moran was more conciliatory.<sup>1</sup> His main concern was guineas rather than human guinea pigs: for in heading the mission to the Pasteur Institute, he considered himself to be underpaid, especially when compared to a Harley Street consultation paid at the rate of five guineas an hour. The period that Moran was entrusted to deal with Nazi warcrimes was spent waging war against the Labour government's health reforms. Matters were resolved in 1949 - coincidentally when the warcrimes report was published - when Moran was invited to take a salaried position as chairman of the merit awards committee for consultants.<sup>2</sup>

Moran was angered by publicity. He even took against the BMJ's reporter at the NMT, Kenneth Mellanby, who was sympathetic to i. using the German discoveries ii. rehabilitating the German research record. He proposed the establishing of an Institute of Human Biology to continue clinical research. At the same time he was resolutely against organised team research: "I sometimes fear that many lavishly financed and efficiently organised schemes will often be sadly sterile, for to my mind, in research inspiration and organisation by no means always go hand in hand. I hope that there will always be a place, and funds, for the individual who wishes to work in his own way, untrammelled as little as possible by the "red tape" which seems to be a necessary accompaniment of any large-scale organisation."<sup>3</sup>

Mellanby's sentiments reflected those of the Society for Freedom in Science: the Society had been founded in 1940-1 at the height of the restructuring of science as part of the war effort, but it gained in influence after the war. Faced by a Labour government that stressed central state direction of science as part of social planning, critics attacked large-scale state controlled research as ushering in a Soviet style totalitarianism that alienated biologists because of the suppression of genetics. Nazi science was perceived as synonymous with regimentation. Protecting the scientist's autonomy meant shifting responsibility for Nazi human experiments onto the totalitarian state. This debate raised the question whether the results of Nazi

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1. Charles Webster, Problems of Health Care, Volume 1 (London, 1988), pp. 99-101. 110, 116.

2. Richard Lovell, Churchill's Doctor. A Biography of Lord Moran (London: Royal Society of Medicine, 1992), pp. 289-90.

3. K. Mellanby, Human Guinea Pigs (London 1945), preface. Paul Weindling, 'Human Guinea Pigs and the Ethics of Experimentation: the BMJ's Correspondent at the Nuremberg Medical Trial', British Medical Journal, vol. 313 (1996) 1467-70.

human experiments were indeed medically useful.

Moran produced a terse five page report that stood in marked contrast to the verbose moralism of the Nuremberg prosecution, contained in the fifty or so bulky volumes of trial proceedings and documents; however, Moran angrily stated that a moral analysis would have required American co-operation.<sup>1</sup> Mellanby also agreed that it was tragic that "little of value was discovered as the result of this appalling sacrifice of human lives".<sup>2</sup> The terseness of the British response can be attributed to another factor - to a concern with the iniquities of state medicine. It was a mentality that was antagonistic to the encroachments of the state, but demanded that medical experts retain immunity from public scrutiny.<sup>3</sup>

German chemical weapons, especially the nerve gas Sarin, were potentially of use to the Allies. The Chemical Defence Advisory Board scrutinised the evidence for German chemical weapons research, urged the arrest of involved personnel in order to pump them for information, scoured the testimonies and other evidence presented at the war crimes trials, and captured documents for information. The hunt was on for evidence of experiments with nerve gases so that such chemical weapons could be developed.<sup>4</sup> Radiation experiments - as recently revealed by the press - were soon to follow.

## **5. The US response**

An American priority was to mount a trial under the full glare of international publicity to ensure that what was a military tribunal should gain universal moral authority. But the US prosecution was stampeded into mounting a medical trial because of domestic factors in US politics. The Nuremberg prosecutors wanted to mount the first trial against German financiers and manufacturers - notably Flick and Krupp von Bohlen und Halbach. But found that rightwing lobbying in the US was liable to sabotage the political will and funds to hold the successor trials. The German doctors appeared to be easy targets for a swift and clearcut verdict, using the strategy that these were servile creatures of Himmler, and that that their experiments were no more than "thanatology" - ie murder for

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1. Foreign Office, Scientific Results of German Medical War Crimes (London, 1949), pp. 4-5.

2. Foreign Office, Scientific Results of German Medical War Crimes (London, 1949). Mellanby, Human Guinea Pigs, p. 196.

3. Charles Webster, 'The Metamorphosis of Dawson of Penn', Dorothy Porter and Roy Porter (eds), Doctors, Politics and Society: Historical Essays Amsterdam: Rodopi, 1993, pp. 212-8.

4. J.C. Evans, 'German CW Experiments on Human Beings', report dated 12.I.48 for Ministry of Supply, Advisory Council on Scientific Research and Technical Development, Chemical Defence Advisory Board, p. 4, copy in Wiener Library Kh (1). Report cited by Observer Films (1995). *The Secrets of Porton Down*. Granada Presentation for ITV.



experimental purposes.

Leo Alexander, the emigré Austrian neurologist who was appointed the prosecution's medical expert, was well aware of weaknesses in the US case concerning experimental ethics. The German defence rapidly began to tear the hastily prepared case into shreds, and what was meant to be a brief trial dragged on until August 1947. The chain of command was far less clear than the prosecution had hoped, so rendering it difficult to attach responsibility to senior SS and military medical officers. The Germans argued that their experimental ethics differed little from those of their US prosecutors. Even Alexander had earlier condoned compulsory sterilisation in the 30s.

The defence counsel pointed out that unethical experiments were committed among the Allies: Rose made much of Andrew Ivy's prewar experiments on the sterilising of prisoners. The case of R.P. Strong (the leader of American typhus expeditions to Serbia in 1914 and Poland in 1919) who had vaccinated 900 persons with a live plague bacillus and 29 persons with a beri-beri vaccine was compared by Rose to Haagen's experiments on the live typhus vaccine.<sup>1</sup> Haagen had used the model of Blanc in Algiers to develop a live vaccine.

The Americans were represented at the Pasteur Institute in October 46 by Andrew Ivy, a professor of physiology at the University of Illinois College of Medicine and head of the department of Clinical Science, a founder of the Naval Medical Research Institute during the war, and executive director of the National Advisory Cancer Council from 1947 to 1951. Ivy, much involved in strategically related medical research, saw the International Committee as potentially disrupting clinical research: he demanded an outline of principles and rules of experimentation, as "unless appropriate care is taken the publicity associated with the trial of the experimenters...may so stir public opinion against the use of humans in any experiment whatsoever that a hindrance will thereby result to the progress of science". Concern arose that if the condemnation of German medical research was excessively severe, this would jeopardise not only the continuing development of medicine in Germany, faced by severe problems of epidemic infections in the postwar aftermath, but also clinical trials more generally. To remedy this situation Ivy proposed a new "outline of principles and rules of experimentation". 1. The consent of the subject is required. Volunteers should be told of hazards and insurance should be provided. 2. Experiments should be based on animal experiments, and the results should be beneficial for "the good of society". 3. Experiments should avoid unnecessary physical and mental suffering and injury, should be carried out by qualified persons and should not be conducted if the outcome will be

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1. Bayle, *Croix gamée*, pp. 1240, 1258, 1260.

death or disability.

The first formulation of what became known as the "Nuremberg code" to prevent reckless human experiments, thus occurred at the Pasteur Institute, and was in response to the French demand for new guidelines. In the following January 1947, Leo Alexander recorded how he grappled with dictionaries at the PI to support his alternative concept of "kienology" to differentiate medical killing from beneficial therapy.

Alexander and Ivy, based their position on the patient oriented Hippocratic oath. A set of ten principles were formulated in order to erect moral, ethical and legal criteria to judge the level of criminality, a key innovation being that of informed consent. Called the Nuremberg Code, this has entered medical literature on clinical research.<sup>1</sup>

The Code had an international impact. In 1947 the UN Commission on Human Rights accepted the principle that "no one shall be subjected without his free consent to medical or scientific experimentation", arising from a British proposal that no person shall be subjected to "any form of physical mutilation or medical or scientific experimentation against his will".<sup>2</sup>

The US medical scientists evaluated the documents on German medical research at the NY Academy of Medicine, coming to some favourable conclusions. The United States recruited medical researchers whose expertise could be applied to strategic problems.<sup>3</sup> The Nuremberg Code provided an opportunity for the US to take the moral high ground. At the same time as the Trial, Operation Paperclip was underway involving 765 German and Austrian scientists, engineers and technicians for US strategic purposes between 1945 and 1955. Four of the defendants at the Doctors Trial were at some point employed by the US military.

## 6. Conclusions

The Trial cleared the way for western assistance to restart the motor of German scientific research - a British priority since September 1946. The Trial diagnosed that it was the corruptions of the totalitarian state rather than the amoral scientist which had caused the pathological abuses of Nazi medicine. While a handful of Nazi experimentors were condemned, the

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1. For the texts of the Nuremberg Code and the Declaration of Helsinki (1964), see British Medical Journal, vol. 313 (1996) 1448-9.

2. S. Perley, S.S. Fluss, Z. Bankowski and F. Simon, "The Nuremberg Code: An International Overview", George J. Annas and Michael Grodin, The Nazi Doctors and the Nuremberg Code. Human Rights in Human Experimentation, (New York: OUP, 1992) pp. 149-73.

French and Israeli proposals altered the phrasing to "informed consent" in 1948-9.

3. T. Bower, The Paper Clip Conspiracy (London, 1987).

Allies were successful in ensuring that medical research deemed so essential both for strategic ends and in the new postwar medical services should be allowed to continue on a broadly permissive basis. The Allied medical experts were successful in structuring a system that could allow human experiment to continue: it is thus no surprise to hear the ethicists' verdict on the US radiation experiments that these differed fundamentally from the atrocities at Buchenwald and that the British government has defended radiation experiments that these conformed to the Nuremberg Code. Although originally meant to prevent medical atrocities, by eliminating largescale excesses, the Nuremberg Code provided the foundations of an essentially permissive system allowing often highly dangerous human experiments.

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