

extraordinary difficulties the labor problem presents us with, I hold the view that those 2–3 millions should be specially selected and preserved. This can, however, only be done if at the same time they are rendered incapable to propagate. About a year ago I reported to you that agents of mine had completed the experiments necessary for this purpose. I would like to recall these facts once more. Sterilization, as normally performed on persons with hereditary diseases, is here out of the question, because it takes too long and is too expensive. Castration by X-ray however is not only relatively cheap, but can also be performed on many thousands in the shortest time.⁵⁹

Brack had earlier proposed that X-ray sterilization (castration) could be done surreptitiously:

One practical way of proceeding would be, for instance, to let the persons to be treated approach a counter, where they could be asked to answer some questions or to fill in forms, which would take them 2 or 3 minutes. The official sitting behind the counter could operate the installation in such a way as to turn a switch which would activate the two valves simultaneously (since the radiation has to operate from both sides). With a two-valve installation about 150–200 persons could then be sterilized per day, and therefore, with 20 such installations as many as 3,000–4,000 persons per day.⁶⁰

Brack's grandiose scheme was never implemented; a series of experiments at Auschwitz by the gynecologist Horst Schumann determined that the people sterilized by this method were burned so severely they were no longer capable of work. Nearly all of the subjects of these experiments—at least a hundred people—were later killed.⁶¹

Given the exposures used and the scale of the mass screenings, it is not hard to imagine that hundreds or even thousands of people may have eventually contracted cancer from the procedures. Cancers must also have been caused by the use of X-rays for purposes of eugenic sterilization. A February 25, 1936, amendment of the Nazi Sterilization Law allowed the use of X-rays to sterilize women over the age of thirty-eight and women for whom the stan-

dard tubal ligation might be dangerous.⁶² Eugenicists had earlier objected to the use of radiation as a form of temporary birth control; permanent sterilization, by contrast, seemed morally, medically, and racially unobjectionable. No one can say how many cancers may have been caused by such exposures, especially since many of the people sterilized were later killed in the "euthanasia operation."

One must realize that at the same time that X-rays were being used en masse to screen and to sterilize, physicians continued to caution against the mutagenic effects of radiation. *Volk und Rasse*, a leading racial monthly, in 1935 warned that physicians should use "extreme care" in treating patients with radium and X-rays, given the possibility of genetic damage, even from vanishingly minute levels of exposure.⁶³ As two radiologists/racial hygienists put the matter, "there is no threshold below which radiation exposure can be considered safe." (These authors also warned that genetic damage accumulated with every exposure and could be passed on to future generations.)⁶⁴ A 1938 overview summarized the danger in no uncertain terms:

Every new mutation weakens the genetic profile (*Erbbild*) of the people and increases the number of inferior genes that already exist in a population. Careful and responsible action can protect us from endangering healthy people with radiation. The steps we must take are clear: familiarity with the harmful properties of X-rays and radium, conservative and expert judgment in their use in diagnostics and therapy, and adequate radiation protection for everyone exposed in medicine and in industry can all help limit the ill-effects of radiation on the human genetic heritage (*Erbgut*).⁶⁵

Practical steps were taken to limit harms from excess or unregulated exposures, the most important measure being the "X-Ray Ordinance" (*Röntgenverordnung*) issued by the Reich Labor Ministry on February 7, 1941. The ordinance established exposure limits similar to those being established by other countries at this time: the occupational "tolerance dose" (*Toleranzdosis*) of 0.25 roentgen per day, for example, was roughly comparable to that