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Jubilare

Die Fachgesellschaften von
Strahlentherapie und Onkologie gratulieren zum Geburtstag:

10.06.2014 Gelsenkirchen:
Dr. Marlis Martin-Malberger
65 Jahre

11.06.2014 Bedburg:
Dr. Udo Brückner
85 Jahre

12.06.2014 HB Nijmegen:
Prof. Dr. Jan Willem Leer
65 Jahre

15.06.2014 München:
Dr. Annemarie Wuttge
89 Jahre

Symposium BENIGN RELOADED 2

„Strahlentherapie nichtmaligner Erkrankungen"
der AG Gutartige Erkrankungen der Deutschen Gesellschaft für Radioonkologie e.V.
Bad Hersfeld, 18.10.2014

Ort der Veranstaltung:
Stadthalle Bad Hersfeld,
Wittastr. 5, 36251 Bad Hersfeld

Wissenschaftliche Leitung und Organisation:
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PD Dr. med. R. Mücke
Prof. Dr. med. U. Schäfer
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Kursgebühren (inklusive Pausenverpflegung):

Facharzt:	80,- €
Arzt in Weiterbildung:	50,- €
MTRA, MPE:	30,- €

Anmeldung erbeten bis spätestens:
30. September 2014

Aggressive B-Zell Lymphome: Internationale Studie bestätigt bessere Ergebnisse durch eine ergänzende Strahlentherapie zur allgemein üblichen Chemotherapie bei ausgedehnten Tumoren

Besonders aggressive B-Zell-Lymphome, eine Untergruppe der Non-Hodgkin-Lymphome, die vor allem bei älteren Menschen auftreten, wurden lange Zeit mit einer Kombination aus Chemo- und Strahlentherapie behandelt. In letzter Zeit wurde auf die Radiotherapie allerdings immer häufiger verzichtet, stattdessen setzten die internistischen Onkologen vielversprechende neue Medikamente ein. Zwar konnten monoklonale Antikörper Ergebnisse verbessern. Jedoch wurde in einer aktuellen Studie (Held et al.) gezeigt, dass vor allem bei ausgedehnten Tumoren die Langzeiterfolge durch eine zusätzliche Strahlentherapie noch weiter optimiert werden können.

Bei aggressiven Varianten des B-Zell-Lymphoms kommt es häufig zu einem ausgedehnten Befall der Lymphknoten, bei dem die Tumorgröße von mehr als 7,5 cm als „bulky disease" bezeichnet wird. Hier hat der Tumor häufig die Grenzen der Lymphknoten überschritten. Die Therapie bestand lange Zeit nur in einer Chemotherapie mit CHOP. Patienten mit „bulky disease" erhielten teilweise aber auch eine Bestrahlung. Vor einigen Jahren wurde CHOP durch den monoklonalen Antikörper Rituximab ergänzt, der gezielt B-Zellen angreift. In einer früheren Studie (RICOVER-60) konnte fest gestellt werden, dass mit dieser Therapie die Behandlungsergebnisse deutlich verbessert wurden. Es ergab sich deshalb die Frage, ob auf eine Radiotherapie überhaupt verzichtet werden kann.

Bei 166 Patienten mit aggressiven B-Zell-Lymphomen wurde auf die Strahlentherapie verzichtet. Dieser Verzicht erhöhte trotz Rituximab die Rate an lokalen Rückfällen im Vergleich mit den bestrahlten Patienten deutlich erhöht. Umgekehrt wurde der Anteil an Patienten, bei denen der Krebs in den ersten drei Jahren nicht weiter fortgeschritten war, durch die Radiotherapie von 62 auf 88 % gesteigert. Der Anteil der überlebenden Patienten erhöhte sich von 65 auf 90 %. Die teilnehmenden Zentren haben bereits die Konsequenzen gezogen und bieten für die meisten Patienten mit „bulky disease" wieder eine Strahlentherapie an. Eine Dosis von 36–40 Gy ist zwar relativ niedrig, wird damit aber gut vertragen.

Prof. Michael Baumann, der Präsident der DEGRO, stellt fest: „Der Verzicht auf die Radiotherapie in RICOVER-noRTh hat die Verträglichkeit nicht verbessert. Die Studie zeigt, dass die Radiotherapie bei ausgewählten Patienten mit malignen Lymphomen auch in Zukunft einen hohen Stellenwert haben wird."

Berlin, März 2014

Literatur

1. Held, G. et al.: "Role of Radiotherapy to Bulky Disease in Elderly Patients With Aggressive B-Cell Lymphoma" in: JOURNAL OF CLINICAL ONCOLOGY, Published Ahead of Print on February 3, 2014 as 10.1200/JCO.2013.51.4505, http://jco.ascopubs.org/content/early/2014/02/03/JCO.2013.51.4505

Personalia

München

Prof. Dr. med. **Stephanie E. Combs**, bisher leitende Oberärztin an der Klinik für Radioonkologie und Strahlentherapie am Universitätsklinikum Heidelberg, leitet seit 1. April dieses Jahres die Klinik für RadioOnkologie und Strahlentherapie am Klinikum rechts der Isar der TU München. Sie trat damit die Nachfolge von Herrn Prof. Dr. med. Michael Molls an, der nach 22 Jahren als Leiter der Klinik in den Ruhestand ging. Nach ihrem Medizinstudium in Heidelberg, San Antonio (Texas, USA) und Norfolk (Virginia, USA) promovierte Frau Combs im Jahr 2003 in der Neuroanatomie. 2009 schloss sie ihre Facharztausbildung für Strahlentherapie ab und habilitierte sich im Fach Radioonkologie und Strahlentherapie. Aus Heidelberg bringt Frau Combs jahrelange Expertise in der Behandlung mit Partikelstrahlen (Schwerionen, Protonen) mit, von der auch die Patienten am Klinikum rechts der Isar profitieren sollen.

Gabriele Moser
Institute for History and Ethics of Medicine, University of Heidelberg, Heidelberg, Deutschland

Radiology in the Nazi era: part 3

Roentgen studies and national health: radiology and roentgenology in the Nazi eugenics policy

In addition to promoting, summarizing and evaluating specialist scientific work, the articles of association of the German Roentgen Association (DRG) defined one of the DRG's tasks as "consulting and support for the Reich Physicians' Chamber in the use of Roentgen studies and radiological research towards serving national health." However, this technical support explicitly related not only to individual radiodiagnostic and radiotherapeutic patient care in free medical practice and at hospitals, but also "to purposes of national hygiene [Volkshygiene] in mass screenings and to prevention of detrimental effects in the area of eugenics."[1] In this way, traditional medical activity—focused on curing individuals—was extended by a perspective involving population medicine. Section 1 of the Reich Physicians' Regulations, dated December 13, 1935 (Reichsge-

[1] Deutsche Röntgen-Gesellschaft: Geschäftsbericht für das Kalenderjahr 1936. Satzung und Mitglieder-Verzeichnis, Stand vom Juli 1937, Leipzig 1937, p. 6.

setzblatt, RGBl, Reich Law Gazette I, p. 1433) codified this outlook for members of medical professions with the formula "service to the health of the individual and of the entire [German] people."

In the field of medicine and public health, this principle materialized as the "maintenance of health of the people as a whole taking precedence" over the protection of individuals' health and welfare, as stated by the Reich Court on June 19, 1936. The implementation of measures related to hereditary health (eugenics) and racial policy not just at the level of public law and social policy, but also in terms of medicine, fundamentally reorganized the entire society within the Nazi state. In an unprecedented manner, National Socialism managed to entrench the significance of the state as a living "national (or people's) body," a state in which—to cite a legal formulation from 1934—"the value of the individual can be measured only by that individual's degree of use to the nation in its entirety."[2]

The "Law for the Prevention of Offspring with Hereditary Diseases" dated July 14, 1933

Similar to the dealings with diseases designated as "dangerous to the public" because of their transmissibility, the argument with respect to the circle of persons slated for sterilization was also based on the "necessity" to isolate this group as indicated by the health police. On this count, the Ordinance of the Reich Ministers of the Interior and Justice pertaining to implementation of the Law for the Prevention of Offspring with Hereditary Diseases (Gesetz zur Verhütung erbkranken Nachwuchses, GzVeN) dated December 5, 1933, decreed the following: a person whose sterilization had been decided "may be dismissed or granted leave of absence from the institution only if the sterilization of said person is completed or if the decision regarding sterilization has been reversed."[3] This implicit equation of highly infectious diseases with the so-called "hereditarily diseased" as potentially "threatening the community" was aimed at underlining the justification for marginalizing this group of people—an undertaking that seems absurd against the backdrop of the usually related medical indication of "congenital feeble-mindedness." Representing a proportion far exceeding 50 % of clinical presentations, feeble-mindedness ranked ahead of all other illnesses that were clearer to define medically and psychiatrically—such as schizophrenia, manic-depressive insanity, epilepsy and Huntington's chorea; followed by hereditary blindness, deafness or physical malformation and severe alcoholism.

The "hereditary health" of the German people was to be shaped by measures involving both positive and negative eugenics. Various kinds of incentives aimed at increasing birth rates stood at the center of positive eugenics; negative eugenics was summed up by measures like commitment of the so-called "hereditarily diseased" to asylums, the ban on marriages and particularly by the elimination of the ability of persons with certain psychiatric illnesses deemed to be hereditary to reproduce. Sterilization as a means of qualitative population policy was discussed in Germany prior to 1933—not only in publications such as the Deutsche Ärzteblatt, but also in expert committees[4]—and was practiced in the United States and some European countries such as Denmark, Sweden and Switzerland (**Fig. 1**).

The special features of the sterilization policy as it was implemented in the Nazi state were the possibility of applying police force to compulsorily summon the person to be sterilized to undergo the medical procedure, and the quantitative dimension: during the Nazi period, a total of more than 300,000 persons were sterilized in the German Reich; in 1934 alone, the first year following passage of the GzVeN, the number of sterilized people amounted to 56,244.[5] The operative procedure posed no difficulties in the case of men; however, the opening of the abdominal cavity for operative sterilization of women involved a certain risk, with incidents and even fatalities occurring quite frequently. Since implementation of the GzVeN, which was considered to be the "biopolitical basic law" of National Socialism and was to be kept from falling into public disrepute at all costs, the search had been was underway for an alternative form of sterilization.

Sterilization by radiation—sterilization or castration?

Based on the Fifth Ordinance pertaining to Implementation of the Law for the Prevention of Offspring with Hereditary Diseases dated February 25, 1936[6] (**Fig. 2**), diagnostic radiologists and radiotherapists were also integrated into sterilization ("making infertile") programs to perform radiotherapy on racial hygienic as opposed to medical-therapeutic grounds; as a result, everyday roentgenology and radiology were now also entangled in unethical medical practices. At this time, many years of experience with "temporary sterilization" (menolysis, permanent exovulation, permanent X-ray amenorrhoea) with the roentgen and radium rays used particularly in gynecological therapy for various ill-

[2] Deutsches Reich: "Begründung zum Gesetz über die Vereinheitlichung des Gesundheitswesens vom 3. Juli 1934," in: Reichsgesundheitsblatt 9 (1934), no. 32, p. 665 f., p. 665.

[3] Quoted in Seyfarth, Carly: Der "Ärzte-Knigge." Über den Umgang mit Kranken und über Pflichten, Kunst und Dienst der Krankenhausärzte, Leipzig 1935, p. 67.

[4] Cf. Die Eugenik im Dienste der Volkswohlfahrt. Bericht über die Verhandlungen eines zusammengesetzten Ausschusses des Preußischen Landesgesundheitsrats vom 2. Juli 1932, Berlin 1932; ibid. "'Entwurf eines Sterilisierungsgesetzes' und Begründung," pp. 107–112. Hans Holfelder attended the deliberations as a member of the (Prussian) State Health Council.

[5] Pohlen, Kurt (ed.): Gesundheitsstatistisches Auskunftsbuch für das Deutsche Reich. Ausgabe 1936 (= Veröff. a. d. Gebiete d. Medizinalverwaltung, vol. 46, no. 4), Berlin 1936, p. 160.

[6] Pfundtner, Hans/Schlegelberger: "Fünfte Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses. Vom 25. Februar 1936," in: DAeBl 66 (1936), no. 10, p. 276.

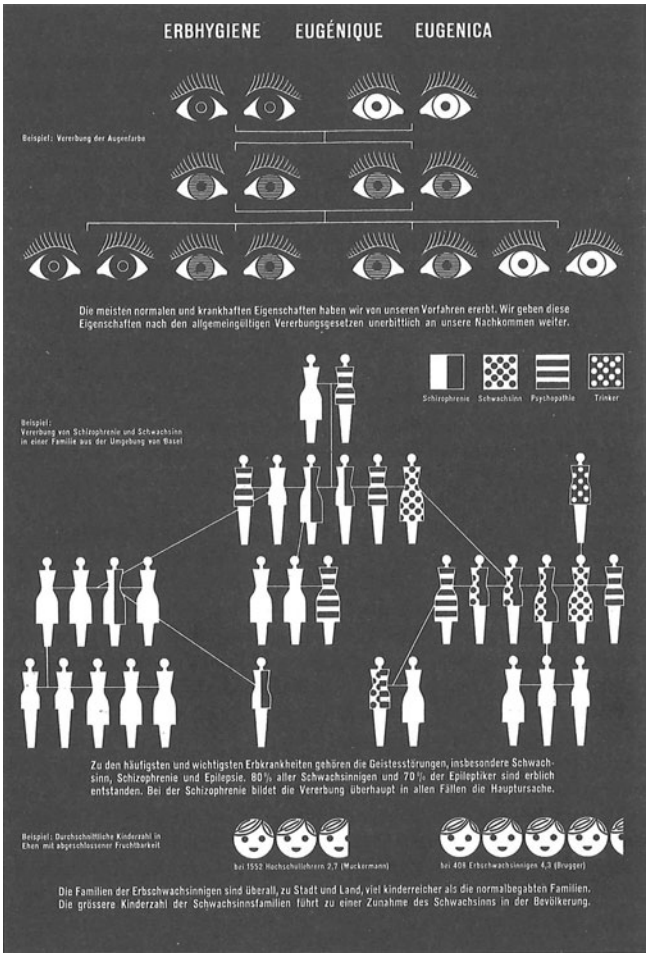


Fig. 1 ▲ Erbhygiene (hereditary hygiene or eugenics). Poster at the 1939 Swiss National Exhibition. From: Fritz de Quervain: "Die ärztliche Wissenschaft," in: Die Schweiz im Spiegel der Landesausstellung 1939, Zürich 1940, p. 361, with kind permission

nesses were already available.[7] However, since the beginning of the 1930s, the emerging genetic research community criticized this type of radiotherapy as potentially "harmful to germ cells," therefore warning against "careless" indications by medical practitioners. The importance Nazi biopolitics attached to questions of "hereditary care" and racial hygiene rendered a fundamental discussion of these contradictory scientific approaches urgent.

At a gathering of authorized experts in March 1933 in Göttingen, geneticists met with radiation researchers and radiologists. The latter group was represented by professors and DRG members Hans Holfelder (1891–1944, Frankfurt/Main), Hermann Holthusen (1886–1971, Hamburg), Heinrich Martius (1885–1965, Göttingen) and Carl Joseph Gauss (1875–1957, Würzburg; **Figs. 3 and 4**). They unanimously stated that "the danger of genetic damage by radium or roentgen rays must be taken for granted based on animal and plant experiments available to date." Therefore, when administering radiation to male and female gonads extreme caution was imperative "out of consideration for the risk to the germinal make-up of our people."[8] One remarkable facet of this resolution is the fact that it is based entirely on the orientation towards the national body and not towards the individual and his or her personal genetic damage. On the other hand, this joint statement by geneticists and DRG members practicing diagnostic radiology and radiotherapy also served to determine medical expertise as the basic prerequisite for performing the radiological application. The aim was to have only proven and trained medical experts practice in this field; if possible, persons with sound knowledge in the areas of gynecology and radiology/roentgenology.

As the 1936 annual report indicates, the DRG—as the professional association organizing medical-scientific expertise in these specialist fields—was requested to provide an experts' statement on the subject of sterilization, which the authorized experts named by the association did indeed issue.[9] In the form of its "Committee for Economic and Professional Questions," chaired in 1936 by the Hamburg specialist in radiation medicine, Prof. Dr. Fedor Haenisch (1874–1952), the DRG was probably also involved in setting the charges for performing sterilization by roentgen or radium rays[10]. Similar to other radiodiagnostic and radiotherapeutic services, these charges were payable by social insurance providers or welfare associations according to the rate negotiated jointly with the German Association of Statutory Health Insurance Physicians (KVD; **Fig. 5**). For the procedure, the Reich and Prussian Ministry of the Interior set the fees at 50 RM (reichsmark) in the case of sterilization by irradiation with roentgen rays, or 40 RM if irradiation was performed using radium; three follow-up examinations were obligatory, each remunerated with 3 RM.

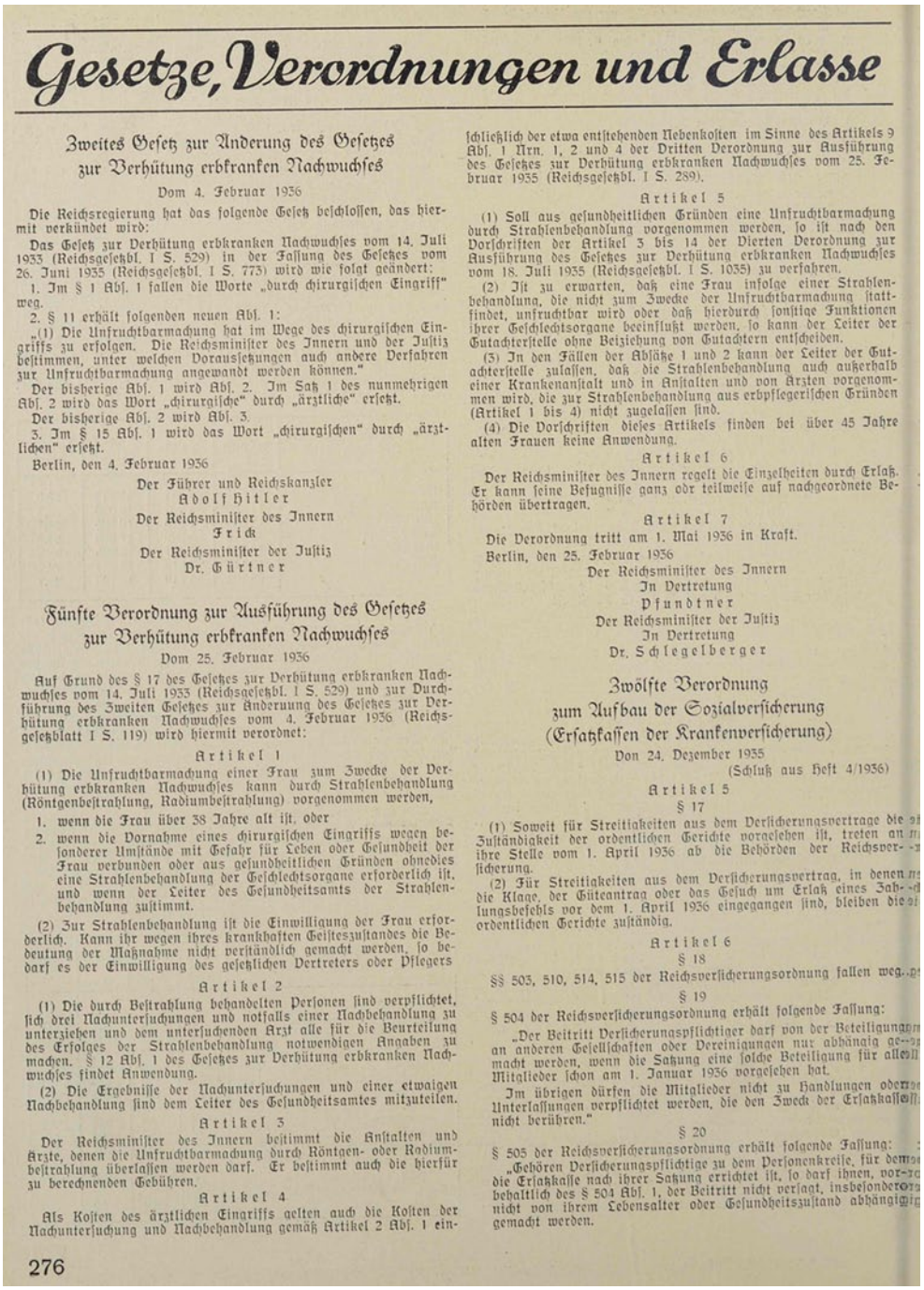
The radiation treatment, including completion of the notification form, cost 50 RM for the roentgen procedure and 40 RM using radium. The re-

[7] Cf. e.g. Schneider, Georg Heinrich: Grundriss der Röntgensterilisierung. Beobachtungen an 315 Fällen (…), Berlin 1931; the work also contains a "Compilation of sterilization tables". An important volume for specialist history is Frobenius, Wolfgang: Röntgenstrahlen statt Skalpell. Die Universitäts-Frauenklinik Erlangen und die Geschichte der gynäkologischen Radiologie von 1914–1945 (= Erlanger Forschungen, Reihe B, Naturwissenschaften und Medizin, vol. 26), Erlangen 2003.

[8] Quoted in Gerstengarbe, Sybille: Paula Hertwig—Genetikerin im 20. Jahrhundert. Eine Spurensuche (= Acta Historica Leopoldina, vol. 58), Halle/Saale, Stuttgart 2013, p. 113. I would like to express sincere thanks to Alexander von Schwerin for this important bibliographical reference.

[9] Deutsche Röntgen-Gesellschaft: Geschäftsbericht für das Kalenderjahr 1936. Satzung und Mitglieder-Verzeichnis, Stand vom Juli 1937, Leipzig 1937, p. 4. Further appraisals were produced on the draft of a roentgen ray act, employment of (female) roentgen assistants, safety regulations and standardization of image projectors (ibid.).

[10] "Kosten für Unfruchtbarmachung durch Strahlenbehandlung. Rundlass des Reichs- und Preussischen Minister des Innern vom 24. April 1936– IV A 5293/1079 f," in: DAeBl. 66 (1936) p. 616. By comparison: In 1938, a 6-day further training course in roentgenology (for surgeons and internists) in Frankfurt/Main cost 60 RM; the 8-day further training course in Hamburg on "Radiotherapy (especially deep therapy)" was 80 RM.



Gesetze, Verordnungen und Erlasse

Zweites Gesetz zur Änderung des Gesetzes zur Verhütung erbkranken Nachwuchses

Vom 4. Februar 1936

Die Reichsregierung hat das folgende Gesetz beschlossen, das hiermit verkündet wird:

Das Gesetz zur Verhütung erbkranken Nachwuchses vom 14. Juli 1933 (Reichsgesetzbl. I S. 529) in der Fassung des Gesetzes vom 26. Juni 1935 (Reichsgesetzbl. I S. 773) wird wie folgt geändert:

1. Im § 1 Abs. 1 fallen die Worte „durch chirurgischen Eingriff" weg.

2. § 11 erhält folgenden neuen Abs. 1:

„(1) Die Unfruchtbarmachung hat im Wege des chirurgischen Eingriffs zu erfolgen. Die Reichsminister des Innern und der Justiz bestimmen, unter welchen Voraussetzungen auch andere Verfahren zur Unfruchtbarmachung angewandt werden können."

Der bisherige Abs. 1 wird Abs. 2. Im Satz 1 des nunmehrigen Abs. 2 wird das Wort „chirurgische" durch „ärztliche" ersetzt.

Der bisherige Abs. 2 wird Abs. 3.

3. Im § 15 Abs. 1 wird das Wort „chirurgischen" durch „ärztlichen" ersetzt.

Berlin, den 4. Februar 1936

Der Führer und Reichskanzler
Adolf Hitler

Der Reichsminister des Innern
Frick

Der Reichsminister der Justiz
Dr. Gürtner

Fünfte Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses

Vom 25. Februar 1936

Auf Grund des § 17 des Gesetzes zur Verhütung erbkranken Nachwuchses vom 14. Juli 1933 (Reichsgesetzbl. I S. 529) und zur Durchführung des Zweiten Gesetzes zur Änderung des Gesetzes zur Verhütung erbkranken Nachwuchses vom 4. Februar 1936 (Reichsgesetzblatt I S. 119) wird hiermit verordnet:

Artikel 1

(1) Die Unfruchtbarmachung einer Frau zum Zwecke der Verhütung erbkranken Nachwuchses kann durch Strahlenbehandlung (Röntgenbestrahlung, Radiumbestrahlung) vorgenommen werden,

1. wenn die Frau über 38 Jahre alt ist, oder
2. wenn die Vornahme eines chirurgischen Eingriffs wegen besonderer Umstände mit Gefahr für Leben oder Gesundheit der Frau verbunden oder aus gesundheitlichen Gründen ohnedies eine Strahlenbehandlung der Geschlechtsorgane erforderlich ist, und wenn der Leiter des Gesundheitsamts der Strahlenbehandlung zustimmt.

(2) Zur Strahlenbehandlung ist die Einwilligung der Frau erforderlich. Kann ihr wegen ihres krankhaften Geisteszustandes die Bedeutung der Maßnahme nicht verständlich gemacht werden, so bedarf es der Einwilligung des gesetzlichen Vertreters oder Pflegers

Artikel 2

(1) Die durch Bestrahlung behandelten Personen sind verpflichtet, sich drei Nachuntersuchungen und notfalls einer Nachbehandlung zu unterziehen und dem untersuchenden Arzt alle für die Beurteilung des Erfolges der Strahlenbehandlung notwendigen Angaben zu machen. § 12 Abs. 1 des Gesetzes zur Verhütung erbkranken Nachwuchses findet Anwendung.

(2) Die Ergebnisse der Nachuntersuchungen und einer etwaigen Nachbehandlung sind dem Leiter des Gesundheitsamtes mitzuteilen.

Artikel 3

Der Reichsminister des Innern bestimmt die Anstalten und Ärzte, denen die Unfruchtbarmachung durch Röntgen- oder Radiumbestrahlung überlassen werden darf. Er bestimmt auch die hierfür zu berechnenden Gebühren.

Artikel 4

Als Kosten des ärztlichen Eingriffs gelten auch die Kosten der Nachuntersuchung und Nachbehandlung gemäß Artikel 2 Abs. 1 einschließlich der etwa entstehenden Nebenkosten im Sinne des Artikels 9 Abs. 1 Nrn. 1, 2 und 4 der Dritten Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses vom 25. Februar 1935 (Reichsgesetzbl. I S. 289).

Artikel 5

(1) Soll aus gesundheitlichen Gründen eine Unfruchtbarmachung durch Strahlenbehandlung vorgenommen werden, so ist nach den Vorschriften der Artikel 3 bis 14 der Vierten Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses vom 18. Juli 1935 (Reichsgesetzbl. I S. 1035) zu verfahren.

(2) Ist zu erwarten, daß eine Frau infolge einer Strahlenbehandlung, die nicht zum Zwecke der Unfruchtbarmachung stattfindet, unfruchtbar wird oder daß hierdurch sonstige Funktionen ihrer Geschlechtsorgane beeinflußt werden, so kann der Leiter der Gutachterstelle ohne Beiziehung von Gutachtern entscheiden.

(3) In den Fällen der Absätze 1 und 2 kann der Leiter der Gutachterstelle zulassen, daß die Strahlenbehandlung auch außerhalb einer Krankenanstalt und in Anstalten und von Ärzten vorgenommen wird, die zur Strahlenbehandlung aus erbpflegerischen Gründen (Artikel 1 bis 4) nicht zugelassen sind.

(4) Die Vorschriften dieses Artikels finden bei über 45 Jahre alten Frauen keine Anwendung.

Artikel 6

Der Reichsminister des Innern regelt die Einzelheiten durch Erlaß. Er kann seine Befugnisse ganz oder teilweise auf nachgeordnete Behörden übertragen.

Artikel 7

Die Verordnung tritt am 1. Mai 1936 in Kraft.

Berlin, den 25. Februar 1936

Der Reichsminister des Innern
In Vertretung
Pfundtner

Der Reichsminister der Justiz
In Vertretung
Dr. Schlegelberger

Zwölfte Verordnung zum Aufbau der Sozialversicherung (Ersatzkassen der Krankenversicherung)

Von 24. Dezember 1935

(Schluß aus Heft 4/1936)

Artikel 5

§ 17

(1) Soweit für Streitigkeiten aus dem Versicherungsvertrage die [illegible] Zuständigkeit der ordentlichen Gerichte vorgesehen ist, treten an [illegible] ihre Stelle vom 1. April 1936 ab die Behörden der Reichsversicherung.

(2) Für Streitigkeiten aus dem Versicherungsvertrag, in denen [illegible] die Klage, der Güteantrag oder das Gesuch um Erlaß eines Zahlungsbefehls vor dem 1. April 1936 eingegangen sind, bleiben die [illegible] ordentlichen Gerichte zuständig.

Artikel 6

§ 18

§§ 503, 510, 514, 515 der Reichsversicherungsordnung fallen weg.

§ 19

§ 504 der Reichsversicherungsordnung erhält folgende Fassung:

„Der Beitritt Versicherungspflichtiger darf von der Beteiligung an anderen Gesellschaften oder Vereinigungen nur abhängig gemacht werden, wenn die Satzung eine solche Beteiligung für alle Mitglieder schon am 1. Januar 1936 vorgesehen hat.

Im übrigen dürfen die Mitglieder nicht zu Handlungen oder Unterlassungen verpflichtet werden, die den Zweck der Ersatzkasse nicht berühren."

§ 20

§ 505 der Reichsversicherungsordnung erhält folgende Fassung:

„Gehören Versicherungspflichtige zu dem Personenkreise, für den die Ersatzkasse nach ihrer Satzung errichtet ist, so darf ihnen, vorbehaltlich des § 504 Abs. 1, der Beitritt nicht versagt, insbesondere nicht von ihrem Lebensalter oder Gesundheitszustand abhängig gemacht werden.

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Fig. 2 ▲ Based on the Fifth Ordinance pertaining to Implementation of the GzVeN dated February 25, 1936, diagnostic radiologists and radiotherapists were also integrated into sterilization programs by radiotherapy on racial hygienic grounds. Article 3 refers to the cost schedule (**Fig. 5**) and the licensing of institutions and physicians for sterilization by X-ray or radium radiation (**Fig. 7**). The Fifth Ordinance pertaining to Implementation of the Law for the Prevention of Offspring with Hereditary Diseases came into effect on May 1, 1936. It supplemented operative sterilization—hitherto solely approved and still primarily applicable—with sterilization by roentgen or radium irradiation. Sterilization by means of radiation treatment, use of which was only permitted for women, was subject to special regulations and intended for application in exceptional cases only: the requirement was that the woman to be sterilized had reached at least 38 years of age (i.e. approaching the menopause) or that an operation was ruled out on health grounds because life-threatening consequences had to be expected. The woman's consent to the sterilization, or the consent of her caregiver if she was unable to comprehend the meaning of the procedure, was necessary. Other obligatory elements were three follow-up examinations and possible follow-up treatments to ensure success of the sterilization. Only medical specialists experienced in radiation applications and working in institutions with appropriate equipment were authorized to administer the procedure (see lists in **Fig. 8**). (Source: DAeBl. 66 (1936), p. 276, with kind permission)

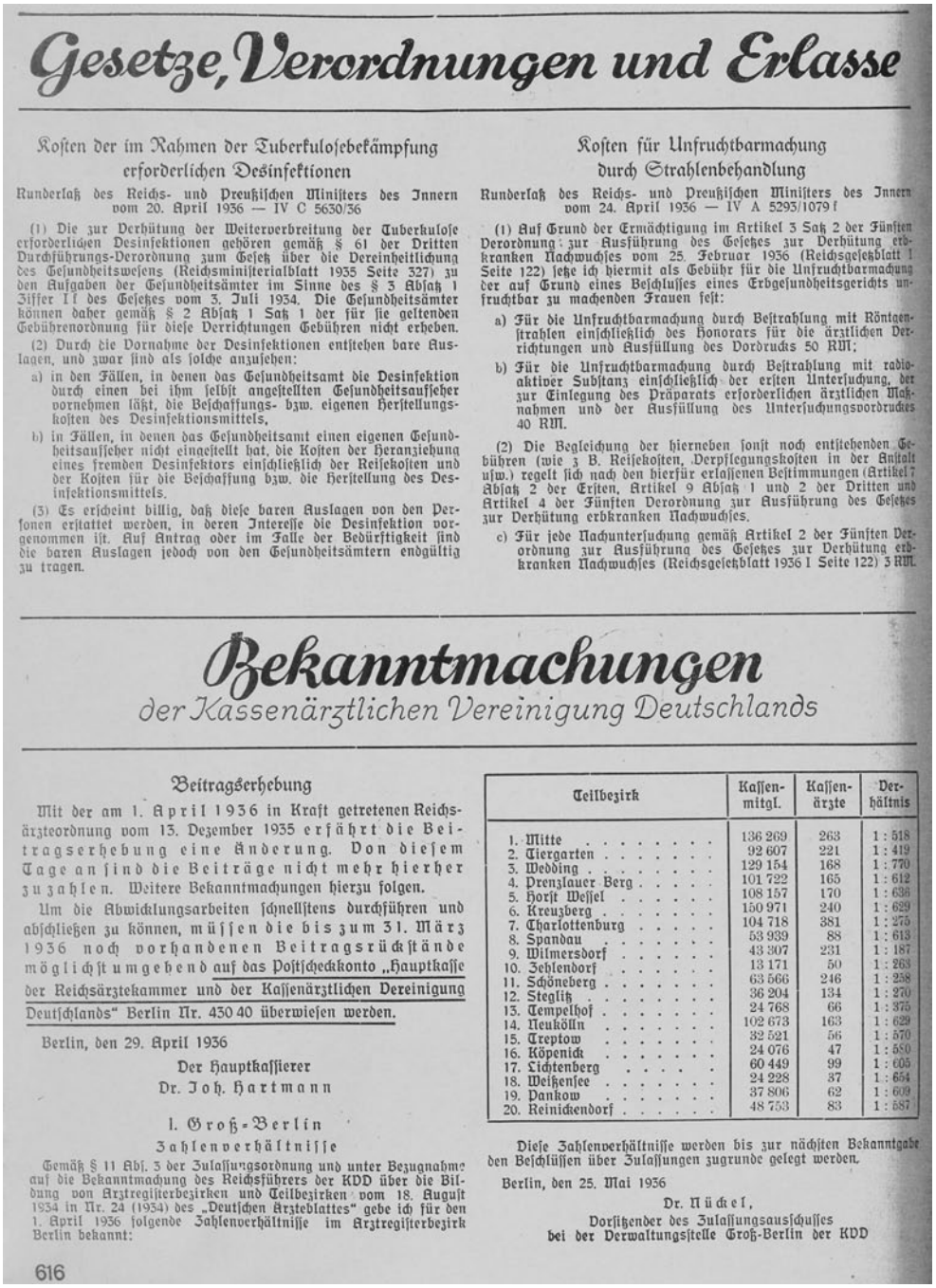
Fig. 3 ▲ Heinrich Martius (1885–1965). (Photo: Deutsches Röntgen-Museum, with kind permission)

Fig. 4 ▲ Carl Joseph Gauss (1875–1957) (Photo: Deutsches Röntgen-Museum, with kind permission)

muneration for each follow-up examination was 3 RM.

Surgical sterilization was permitted at any hospital, as well as on the sick wards of sanatoria, mental hospitals and prisons, provided a surgeon familiar with the procedures was working there.[11] Circumstances differed, however, with respect to radiation treatment, due to the complicated consideration of the applicable radiation dose (**Fig. 6**). In contrast

[11] The operative methods were presented with illustrations in the legal commentary to the GzVeN, for which the KVD had ordered obligatory subscription; cf. Gütt, Arthur et al. (ed.): Gesetz zur Verhütung erbkranken Nachwuchses vom 14. Juli 1933 (…), Munich 1934, pp. 219–223 (male), pp. 224–227 (female).



Gesetze, Verordnungen und Erlasse

Kosten der im Rahmen der Tuberkulosebekämpfung erforderlichen Desinfektionen

Runderlaß des Reichs- und Preußischen Ministers des Innern vom 20. April 1936 — IV C 5630/36

(1) Die zur Verhütung der Weiterverbreitung der Tuberkulose erforderlichen Desinfektionen gehören gemäß § 61 der Dritten Durchführungs-Verordnung zum Gesetz über die Vereinheitlichung des Gesundheitswesens (Reichsministerialblatt 1935 Seite 327) zu den Aufgaben der Gesundheitsämter im Sinne des § 3 Absatz 1 Ziffer II des Gesetzes vom 3. Juli 1934. Die Gesundheitsämter können daher gemäß § 2 Absatz 1 Satz 1 der für sie geltenden Gebührenordnung für diese Verrichtungen Gebühren nicht erheben.

(2) Durch die Vornahme der Desinfektionen entstehen bare Auslagen, und zwar sind als solche anzusehen:

a) in den Fällen, in denen das Gesundheitsamt die Desinfektion durch einen bei ihm selbst angestellten Gesundheitsaufseher vornehmen läßt, die Beschaffungs- bzw. eigenen Herstellungskosten des Desinfektionsmittels,

b) in Fällen, in denen das Gesundheitsamt einen eigenen Gesundheitsaufseher nicht eingestellt hat, die Kosten der Heranziehung eines fremden Desinfektors einschließlich der Reisekosten und der Kosten für die Beschaffung bzw. die Herstellung des Desinfektionsmittels.

(3) Es erscheint billig, daß diese baren Auslagen von den Personen erstattet werden, in deren Interesse die Desinfektion vorgenommen ist. Auf Antrag oder im Falle der Bedürftigkeit sind die baren Auslagen jedoch von den Gesundheitsämtern endgültig zu tragen.

Kosten für Unfruchtbarmachung durch Strahlenbehandlung

Runderlaß des Reichs- und Preußischen Ministers des Innern vom 24. April 1936 — IV A 5295/1079 f

(1) Auf Grund der Ermächtigung im Artikel 3 Satz 2 der Fünften Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses vom 25. Februar 1936 (Reichsgesetzblatt I Seite 122) setze ich hiermit als Gebühr für die Unfruchtbarmachung der auf Grund eines Beschlusses eines Erbgesundheitsgerichts unfruchtbar zu machenden Frauen fest:

a) Für die Unfruchtbarmachung durch Bestrahlung mit Röntgenstrahlen einschließlich des Honorars für die ärztlichen Verrichtungen und Ausfüllung des Vordrucks 50 RM;

b) Für die Unfruchtbarmachung durch Bestrahlung mit radioaktiver Substanz einschließlich der ersten Untersuchung, der zur Einlegung des Präparats erforderlichen ärztlichen Maßnahmen und der Ausfüllung des Untersuchungsvordruckes 40 RM.

(2) Die Begleichung der hierneben sonst noch entstehenden Gebühren (wie z. B. Reisekosten, Verpflegungskosten in der Anstalt usw.) regelt sich nach den hierfür erlassenen Bestimmungen (Artikel 7 Absatz 2 der Ersten, Artikel 9 Absatz 1 und 2 der Dritten und Artikel 4 der Fünften Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses.

c) Für jede Nachuntersuchung gemäß Artikel 2 der Fünften Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses (Reichsgesetzblatt 1936 I Seite 122) 3 RM.

Bekanntmachungen

der Kassenärztlichen Vereinigung Deutschlands

Beitragserhebung

Mit der am 1. April 1936 in Kraft getretenen Reichsärzteordnung vom 13. Dezember 1935 erfährt die Beitragserhebung eine Änderung. Von diesem Tage an sind die Beiträge nicht mehr hierher zuzahlen. Weitere Bekanntmachungen hierzu folgen.

Um die Abwicklungsarbeiten schnellstens durchführen und abschließen zu können, müssen die bis zum 31. März 1936 noch vorhandenen Beitragsrückstände möglichst umgehend auf das Postscheckkonto „Hauptkasse der Reichsärztekammer und der Kassenärztlichen Vereinigung Deutschlands" Berlin Nr. 430 40 überwiesen werden.

Berlin, den 29. April 1936

Der Hauptkassierer
Dr. Joh. Hartmann

I. Groß-Berlin

Zahlenverhältnisse

Gemäß § 11 Abs. 3 der Zulassungsordnung und unter Bezugnahme auf die Bekanntmachung des Reichsführers der KDD über die Bildung von Arztregisterbezirken und Teilbezirken vom 18. August 1934 in Nr. 24 (1934) des „Deutschen Ärzteblattes" gebe ich für den 1. April 1936 folgende Zahlenverhältnisse im Arztregisterbezirk Berlin bekannt:

Teilbezirk	Kassenmitgl.	Kassenärzte	Verhältnis
1. Mitte	136 269	263	1 : 518
2. Tiergarten	92 607	221	1 : 419
3. Wedding	129 154	168	1 : 770
4. Prenzlauer Berg	101 722	165	1 : 612
5. Horst Wessel	108 157	170	1 : 636
6. Kreuzberg	150 971	240	1 : 629
7. Charlottenburg	104 718	381	1 : 275
8. Spandau	53 939	88	1 : 613
9. Wilmersdorf	43 307	231	1 : 187
10. Zehlendorf	13 171	50	1 : 263
11. Schöneberg	63 566	246	1 : 258
12. Steglitz	36 204	134	1 : 270
13. Tempelhof	24 768	66	1 : 375
14. Neukölln	102 673	163	1 : 629
15. Treptow	32 521	56	1 : 570
16. Köpenick	24 076	47	1 : 580
17. Lichtenberg	60 449	99	1 : 605
18. Weißensee	24 228	37	1 : 654
19. Pankow	37 806	62	1 : 609
20. Reinickendorf	48 753	83	1 : 587

Diese Zahlenverhältnisse werden bis zur nächsten Bekanntgabe den Beschlüssen über Zulassungen zugrunde gelegt werden.

Berlin, den 25. Mai 1936

Dr. Nückel,
Vorsitzender des Zulassungsausschusses
bei der Verwaltungsstelle Groß-Berlin der KDD

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Fig. 5 ▲ Circular by the Reich and Prussian Minister of the Interior dated April 24, 1936. (Source: DAeBl. 66 (1936), p. 616, with kind permission)

to therapeutic administration, what mattered now was the reliability of the sterilizing effect, which was no longer intended to be only temporary but permanent, and, if possible, without the health consequences of a castration. A survey among 60 radiologists and gynecologists initiated by the Reich Health Office in 1934 showed that compatibility of these two goals was hardly feasible: certain sterilization was achievable only by using a higher dose of roentgen rays, the so-called "castration dose (300 R.E.)," in which case "castration consequences with all medical conditions"[12] had to be accepted, as stated by Prof. Dr. Ernst Rüdin when describing the crux of the technical dilemma faced by the radiological discipline.

"Enablement" to sterilize by radiation

With a total of 111 facilities "enabled" to carry out radiation-based sterilization, the total number of institutions was significantly smaller than the number of clinics conducting operative sterilizations, as indicated by the "directory of institutes approved and physicians enabled to conduct sterilizations by radiation" dated July 1, 1936.[13] In each instance, the specialist training of the doctor licensed for the procedure determined the method: the list of physicians from the year 1936 names 49 roentgen specialists ("only roentgenologists"). In addition, there were four gynecol-

[12] Rüdin: "Einführungsbeitrag," in: "Sachverständigenbeirat für Bevölkerungs- und Rassenpolitik im RMdI: Niederschrift über die Sitzung der Arbeitsgemeinschaft II am 11.3.1935," in: Schubert, Werner (ed.), Ausschuss für Rechtsfragen der Bevölkerungspolitik (1934–1940) (…) (= Akad. f. Dt. Recht 1933–1945. Protokolle d. Ausschüsse, vol. 12), Frankfurt/Main 2001, vol. XII pp. 352–388, p. 360.

[13] The lists were published both in the Reichsmedizinalkalender and in the Deutsche Ärzteblatt; cf. "Verzeichnis der deutschen Ärzte und Heilanstalten." Reichs-Medizinal-Kalender für Deutschland, Part II, vol. 58, Leipzig 1937, pp. 66–70 and "Verzeichnis der zur Durchführung der Unfruchtbarmachung durch Strahlenbehandlung zugelassenen Institute und ermächtigten Ärzte. Runderlass des Reichs- und Preussischen Minister des Innern vom 1. Juli 1936– IV A 8969/1079," in: DAeBl. 66 (1936), no. 34, pp. 856–860.

Fig. 6 ▲ Eine Röntgenuntersuchung in dem Münchener Krankenhaus links der Isar (1933). Bild-ID: 00041252, SZ Photo/Scherl, with kind permission

ogists authorized exclusively for the radium application, as well as 97 additional medical specialists who had probably qualified in both disciplines, permitting them to sterilize by both roentgen rays and radium packs ("also roentgenologists"). Therefore, 150 physicians altogether—none of whom were female—were authorized for sterilizing by radiation treatment in the German Reich; comparison with the 1940 DRG membership directory showed that 77 or about half of these authorized physicians were members of the DRG (**Fig. 7**).

The year 1939 saw an initial stocktaking of experience to date in Stuttgart at the 30th Conference of the DRG. Under the thematic header of "sterilization by radiation," its journal Fortschritte auf dem Gebiet der Röntgenstrahlen (today: RöFo) presented two papers by Prof. Dr. Carl Joseph Gauss (1875–1957, Würzburg) and Prof. Dr. Artur Pickhan (1887–1969, Berlin; **Fig. 8**). Gauss had inquired at all 111 institutions authorized to perform sterilization by radiation about their experience. In summary, the result of the 109 answers was as follows: three quarters of the institutes used operations and radiation side by side, operative sterilization accounting for 95 % of the procedures and radiation for only 5 %, of which roentgen irradiation made up 80 % and radium irradiation 20 %. In 75 % of cases, age was specified as the reason for the method chosen, but preselection by the Health Office played a role as well. Irradiation with roentgen rays and the use of radium showed great differences regarding the number of sessions and the dose required to achieve sterility. Negative effects on the ability to work were not observed, as Gauss emphasized. In addition, the hereditary disease prompting the sterilization was hardly ever worsened by the radiation treatment and rather appeared changed for the better. This caused the speaker to reach the assessment that irradiation in connection with the GzVeN constituted "an exceedingly important and beneficial addition to operative sterilization."[14]

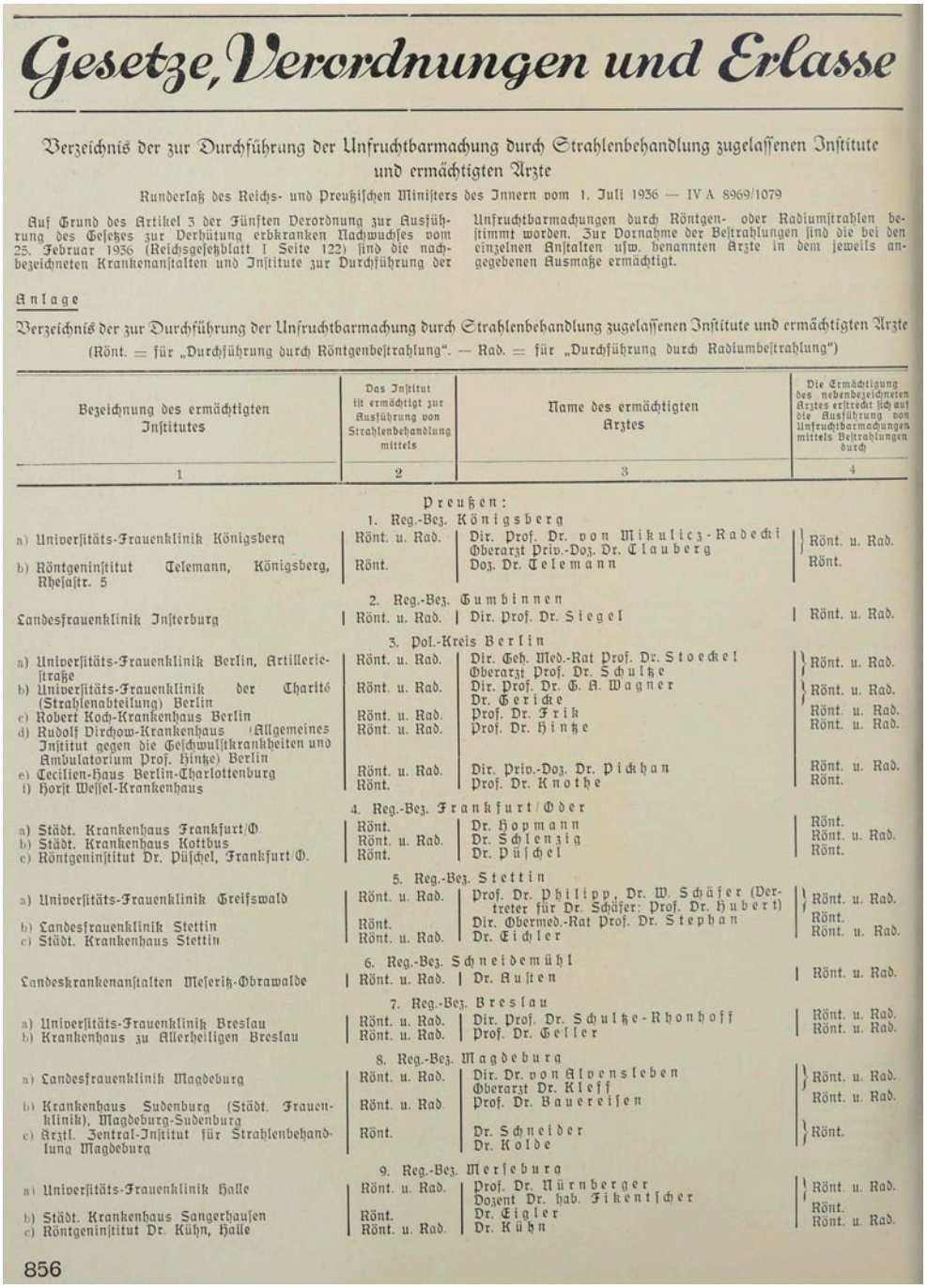
From the Cecilienhaus Gynecological Clinic in Berlin, Chief Physician Prof. Dr. Artur Pickhan reported 32 "hereditarily diseased" women, 23 of whom had been sterilized surgically and 9 by means of roentgen rays. Pickhan was not able to detect any impairment of their ability to work either, and described the effects on psychological behavior in the case of different basic ailments as positive. The speaker also found it remarkable that coercive measures "such as constraining, anesthesia, drugs and the like"[15] had turned out to be unnecessary. For reasons of reliable sterilization, the dose administered by Pickhan of approximately 360r (= roentgen = ion dose) was above the usual roentgen dose, but he nevertheless preferred sterilization by roentgen rays because it was least reminiscent of an operative procedure or one that resembled an operation. Pickhan doubted the certain incapacitation of ovarian functionality by "normal" doses, recommending great caution by stressing that the amounts of radiation required for effectiveness would involve the risk of damaging adjacent organs and the entire organism.

In summary, one can assume that fewer than 2 % of approximately 360,000 persons forcibly sterilized were subjected to sterilization by radiation treatment,[16] since the method was approved only in the third year after the GzVeN first took effect. There are only a few clues regarding the number of women subjected to radiation treatment for sterilization. Evidence that sterilizations were carried out on eugenic grounds and not for medical indications can be gathered from preliminary psychiatric diagnoses

[14] Gauss, Carl Joseph: "Die Unfruchtbarmachung durch Strahlen," in: Strahlentherapie 66 (1939), pp. 545–560, p. 560.

[15] Pickhan, Artur: "Unfruchtbarmachung durch Strahlen," in: Strahlentherapie (66) 1939, pp. 561–569, p. 0564.

[16] Estimated figure based on new studies in medical history, such as Grimm, Jana: Zwangssterilisationen von Mädchen und Frauen während des Nationalsozialismus—eine Analyse der Krankenakten der Universitäts-Frauenklinik Halle von 1934 bis 1945 (thesis in medicine), Halle-Wittenberg 2004 and Doetz, Susanne: Alltag und Praxis der Zwangssterilisation. Die Berliner Universitätsfrauenklinik unter Walter Stoeckel 1942–1944, Berlin 2011. In Munich there were reportedly 64 sterilizations by radiation overall under the supervision of Prof. Dr. Heinrich Eymer; in Würzburg, 111 under Prof. Dr. Carl Joseph Gauss (Frobenius, Wolfgang: "BGGF-Ehrenmitglieder und das 'Dritte Reich'," in: Anthuber, Christoph et al. ed., Herausforderungen. 100 Jahre Bayerische Gesellschaft für Geburtshilfe und Frauenheilkunde, Stuttgart, New York 2012, pp. 115–137, p. 128).



Gesetze, Verordnungen und Erlasse

Verzeichnis der zur Durchführung der Unfruchtbarmachung durch Strahlenbehandlung zugelassenen Institute und ermächtigten Ärzte

Runderlaß des Reichs- und Preußischen Ministers des Innern vom 1. Juli 1936 — IV A 8969/1079

Auf Grund des Artikel 3 der Fünften Verordnung zur Ausführung des Gesetzes zur Verhütung erbkranken Nachwuchses vom 25. Februar 1936 (Reichsgesetzblatt I Seite 122) sind die nachbezeichneten Krankenanstalten und Institute zur Durchführung der Unfruchtbarmachungen durch Röntgen- oder Radiumstrahlen bestimmt worden. Zur Vornahme der Bestrahlungen sind die bei den einzelnen Anstalten usw. benannten Ärzte in dem jeweils angegebenen Ausmaße ermächtigt.

Anlage

Verzeichnis der zur Durchführung der Unfruchtbarmachung durch Strahlenbehandlung zugelassenen Institute und ermächtigten Ärzte

(Rönt. = für „Durchführung durch Röntgenbestrahlung". — Rad. = für „Durchführung durch Radiumbestrahlung")

Bezeichnung des ermächtigten Institutes	Das Institut ist ermächtigt zur Ausführung von Strahlenbehandlung mittels	Name des ermächtigten Arztes	Die Ermächtigung des nebenbezeichneten Arztes erstreckt sich auf die Ausführung von Unfruchtbarmachungen mittels Bestrahlungen durch
1	2	3	4
Preußen:			
1. Reg.-Bez. Königsberg			
a) Universitäts-Frauenklinik Königsberg	Rönt. u. Rad.	Dir. Prof. Dr. von Mikulicz-Radecki	Rönt. u. Rad.
		Oberarzt Priv.-Doz. Dr. Clauberg	
b) Röntgeninstitut Telemann, Königsberg, Rhesastr. 5	Rönt.	Doz. Dr. Telemann	Rönt.
2. Reg.-Bez. Gumbinnen			
Landesfrauenklinik Insterburg	Rönt. u. Rad.	Dir. Prof. Dr. Siegel	Rönt. u. Rad.
3. Pol.-Kreis Berlin			
a) Universitäts-Frauenklinik Berlin, Artilleriestraße	Rönt. u. Rad.	Dir. Geh. Med.-Rat Prof. Dr. Stoeckel	Rönt. u. Rad.
		Oberarzt Prof. Dr. Schultze	
b) Universitäts-Frauenklinik der Charité (Strahlenabteilung) Berlin	Rönt. u. Rad.	Dir. Prof. Dr. G. A. Wagner	Rönt. u. Rad.
		Dr. Gericke	
c) Robert Koch-Krankenhaus Berlin	Rönt. u. Rad.	Prof. Dr. Frik	Rönt. u. Rad.
d) Rudolf Virchow-Krankenhaus (Allgemeines Institut gegen die Geschwulstkrankheiten und Ambulatorium Prof. Hintze) Berlin	Rönt. u. Rad.	Prof. Dr. Hintze	Rönt. u. Rad.
e) Cecilien-Haus Berlin-Charlottenburg	Rönt. u. Rad.	Dir. Priv.-Doz. Dr. Pickhan	Rönt. u. Rad.
f) Horst Wessel-Krankenhaus	Rönt.	Prof. Dr. Knothe	Rönt.
4. Reg.-Bez. Frankfurt/Oder			
a) Städt. Krankenhaus Frankfurt/O.	Rönt.	Dr. Hopmann	Rönt.
b) Städt. Krankenhaus Kottbus	Rönt. u. Rad.	Dr. Schlenzig	Rönt. u. Rad.
c) Röntgeninstitut Dr. Püschel, Frankfurt/O.	Rönt.	Dr. Püschel	Rönt.
5. Reg.-Bez. Stettin			
a) Universitäts-Frauenklinik Greifswald	Rönt. u. Rad.	Prof. Dr. Philipp, Dr. W. Schäfer (Vertreter für Dr. Schäfer: Prof. Dr. Hubert)	Rönt. u. Rad.
b) Landesfrauenklinik Stettin	Rönt.	Dir. Obermed.-Rat Prof. Dr. Stephan	Rönt.
c) Städt. Krankenhaus Stettin	Rönt. u. Rad.	Dr. Eichler	Rönt. u. Rad.
6. Reg.-Bez. Schneidemühl			
Landeskrankenanstalten Meseritz-Obrawalde	Rönt. u. Rad.	Dr. Austen	Rönt. u. Rad.
7. Reg.-Bez. Breslau			
a) Universitäts-Frauenklinik Breslau	Rönt. u. Rad.	Dir. Prof. Dr. Schultze-Rhonhoff	Rönt. u. Rad.
b) Krankenhaus zu Allerheiligen Breslau	Rönt. u. Rad.	Prof. Dr. Geller	Rönt. u. Rad.
8. Reg.-Bez. Magdeburg			
a) Landesfrauenklinik Magdeburg	Rönt. u. Rad.	Dir. Dr. von Alvensleben	Rönt. u. Rad.
		Oberarzt Dr. Kleff	
b) Krankenhaus Sudenburg (Städt. Frauenklinik), Magdeburg-Sudenburg	Rönt. u. Rad.	Prof. Dr. Bauereisen	Rönt. u. Rad.
c) Ärztl. Zentral-Institut für Strahlenbehandlung Magdeburg	Rönt.	Dr. Schneider	Rönt.
		Dr. Kolde	
9. Reg.-Bez. Merseburg			
a) Universitäts-Frauenklinik Halle	Rönt. u. Rad.	Prof. Dr. Nürnberger	Rönt. u. Rad.
		Dozent Dr. hab. Fikentscher	
b) Städt. Krankenhaus Sangerhausen	Rönt.	Dr. Eigler	Rönt.
c) Röntgeninstitut Dr. Kühn, Halle	Rönt. u. Rad.	Dr. Kühn	Rönt. u. Rad.

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Fig. 7 ▲ Directory of institutes approved and physicians enabled to conduct sterilizations by radiation. Source: DAeBl. 66 (1936), p. 856–860, printed here on p. 856, with kind permission. The circular dated July 1, 1936 does not differentiate according to medical or eugenic indications, but the reference to the Fifth Ordinance pertaining to Implementation of the Law for the Prevention of Offspring with Hereditary Diseases clarifies that it was a measure of "Erbgesundheitspflege" (hereditary health care). On May 24, 2007, the GzVeN was ostracized by the German Federal Parliament as an unjust Nazi law

noted on referral documents. Since radiotherapeutic methods were very new in the 1930s, interest in accompanying them scientifically through research work was substantial, as an extensive number of medical dissertations prove. Similar to the two speakers at the 30th Roentgen Congress in 1939, contemporary theses assessed sterilization by radiation treatment as a positive addition to the operative sterilization method[17] on the whole, withholding in this context that it constituted castration with all of the undesired, adverse health effects. Compiling a systematic survey of victims subjected to forced sterilization by radiation remains a desideratum of research.

Fig. 8 ▲ Artur Pickhan (1887–1969) (Photo: Deutsches Röntgen-Museum, with kind permission)

The original German version of this article was published in the March 2014 issue of *RöFo—Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren*.

[17] Although relying on a tentative database, Stürzbecher establishes a "substantial decrease in fatalities among sterilized women" for certain regions of Prussia based on the observation of 72 deaths in the first half of 1936 and 41 deaths in the second half of the same year, when the possibility of sterilization by radiation treatment became available for the first time; for the year 1936, the author assumes a total of 129 roentgen-based castrations of women (Stürzbecher, Manfred: "Der Vollzug des Gesetzes zur Verhütung erbkranken Nachwuchses vom 14. Juli 1933 in den Jahren 1935 und 1936," in: Das Öffentliche Gesundheitswesen (1974), pp. 350–359, p. 356).

Radiology in the Nazi era: part 4

Combating tuberculosis between "Volksröntgenkataster" and "SS-Röntgensturmbann"

"The Reich Physicians' Leadership, cooperating with the German Roentgen Society, has been working for about 2 years on a plan to utilize roentgen technology more intensively at the service of national health,"[18] reported Deputy Reich Health Leader Dr. Kurt Blome in 1938. Blome explicitly expressed his thanks to the executive board of the German Roentgen Society for their "cooperation to date on the great issues,"[19] which had obviously worked well in the area of fighting tuberculosis (TB). Within the short period of 2 years, the jointly developed strategy of comprehensive roentgen mass screenings apparently succeeded in uncovering previously unidentified infections—an achievement Blome attributed to a considerable extent to technological progress. According to Blome, joint work by radiologists such as Prof. Dr. Robert Janker[20] and the equipment manufacturing industry led to the development and production of "outstanding small instrumentation" for conducting roentgen mass screenings. Blome voiced dissatisfaction only with respect to the pricing of these devices, although expressing confidence "that the limit of what is feasible has not been reached yet (**Fig. 9**)."[21]

Roentgen mass screenings and the "Volksröntgenkataster" (People's Roentgen Cadastre)

In the mid-1930s, TB of the respiratory organs was at the top of the list of communicable diseases, both in terms of numbers[22] and in terms of disease severity; TB took second place in the cause-of-death statistics behind cardiovascular diseases, and thus even ranked ahead of cancer. Similar to most industrialized nations, the first three decades of the twentieth century had seen a decrease in mortalities caused by "pulmonary consumption" in Germany. However, the overall number of infected persons, the insidious course of the disease and, in many cases, the high costs resulting from years of treatment in sanatoria or lengthy inability to work ensured that doctors and health care politicians were fearful of TB. For these reasons, the incidence of infections and illnesses was subject to regular monitoring by state and municipal health authorities. As early as the mid-1920s, Franz Redeker, a very committed expert on combating TB, had demanded the establishment of a "Volksröntgenkataster" (People's Roentgen Cadastre).[23] The aim of this was to record and scientifically evaluate TB-related data in a central and long-term format, in order to make preventive measures more effective.

As touched upon in the previous article, National Socialist legislation in the area of public health services had fundamentally changed the position of the individual within Nazi society, causing the so-called "common good" to take precedence. During the time of the Weimar Republic, the intention was to implement public protection against health risks, while still respecting individuals and their civic rights to the greatest possible extent. By contrast, the primary interest in the Nazi state was the incidence of disease affecting the "national body." Tuberculosis inflicted damage on that national body in different ways: it reduced the productive and reproductive capacity of the living population and it impaired, as a supposed "genotoxin," the quality of the genotype, thus causing the German people to inherit a deteriorated genetic makeup in the future.

The 1935 article entitled "Die Tuberkulose als Volkskrankheit" (Tuberculosis as a national disease) by the Düsseldorf hygienist Friedrich Erhard Haag shows in an exemplary way the altered prioritization in terms of fighting causes: "Combating social adversity"—the most important central theme of TB health care in the Weimar Republic, aimed at improving working, housing and nutritional conditions—was now only in third (and last) place. It was preceded by "Combating the pathogenic agent," by which the author meant "the most severe punishment of careless germ spreaders (withdrawal of assistance, compulsory isolation)" and also "concern that everyone suffering from open tuberculosis has an individu-

[18] Blome, Kurt: "Die Aufgaben der Röntgenologie im Rahmen der Gesamtarbeit an der Volksgesundheit," in: DAeBl 68 (1938), no. 28, pp. 491–495, p. 492.

[19] Ibid., p. 495.

[20] Robert Janker (March 12, 1894–Oct. 22, 1964), roentgenologist. From 1928 in Bonn. He obtained his postdoctoral qualification in 1930, in 1933 a part-time lectureship for roentgen therapeutics and radiotherapeutics, in 1937 he managed his own roentgen institute in Bonn, cf. Zoske, Horst: "Janker, Robert," in: Neue Deutsche Biographie 10 (1974), p. 336. From May 1933 a member of the NSDAP, the National Socialist German Lecturers' League, the German Labor Front (Deutsche Arbeitsfront, DAF) and the Nationalsozialistische Volkswohlfahrt. (Nazi welfare organization—NSV), cf. Forsbach, Ralf: Die Medizinische Fakultät der Universität Bonn im "Dritten Reich," Munich 2006, p. 250, ftn. 1027.

[21] Blome 1938 (same as ftn. 1), p. 492.

[22] Pohlen, Kurt: "Die örtliche Gliederung der häufigeren anzeigepflichtigen Krankheiten im Deutschen Reich in den Jahren 1931 bis 1934," in: Reichsgesundheitsblatt 1936, no. 15, pp. 305–315, p. 312. On average, the number of TB cases reported was ten times higher than that of other notifiable diseases; cf. abdominal typhus and dysentery with approximately two to three cases per 10,000 inhabitants (ibid., p. 311 and p. 312).

[23] Redeker, Franz: "Zentrale Lenkung der Röntgen-Reihenuntersuchungen," in: Gesundheitsführung 1939, no. 3, pp. 90–98. Redeker used the term "roentgen cadastre" to describe a general roentgen card index for "overall healthcare on the homogenous national body [Volkskörper] of an entire district" (ibid., p. 91).

Fig. 9 ▲ X-ray exam of members of the Hitler Youth. (Source: Bundesarchiv, with kind permission, image 183-J08974. Photo: Hoffmann, January 1944)

al bed and separate bedroom." "Combating inferior genetic makeup" ranked at the very top of the author's catalog of measures towards TB prevention: "Sterilization of all patients suffering from progressive or advanced tuberculosis. Limited capacity to work and necessity of public assistance may serve as a criterion."[24] Only a few years later, an even more severe marginalization was meted out to so-called "asocial tuberculosis patients"[25] who refused any attempts at therapy, despite infectiousness. Labeled as psychopaths, they were committed by force to special TB wards affiliated with sanatoria and hospitals for the mentally ill, where they shared the fate of their inmates during the course of the murdering actions targeting the sick during World War II.[26]

With the Law for the Standardization of the Health Care System (Gesetz über die Vereinheitlichung des Gesundheitswesens) dated July 3, 1934, TB was defined as a notifiable disease. Based on this law, the Health Office was designated as the central reporting authority not only for Nazi hereditary health policy; the same applied to any area of intervention relating to the public health care system, including the fight against TB. Even though 80 % of health offices had an X-ray unit at their disposal for examining patients suspected of tuberculosis soon afterwards, factors limiting the maximum number of possible X-ray examinations included not only the time required for each X-ray image, but also the small number of physicians qualified in roentgenology at the health offices. On the other hand, mass production and the use of newly developed photofluorographs made it possible to organize early diagnosis of TB cases more efficiently. In conjunction with access to the personnel resources of numerous members of National Socialist German Workers' Party (Nationalsozialistische Deutsche Arbeiterpartei, NSDAP) formations, which were active in an honorary capacity and tightly organized, the head of the Berlin Health Department, Franz Redeker, even considered the "comprehensive roentgen registration" of the German population to be a task now feasible.[27]

Following the First Greater German Radiology Convention in Munich (1938), Kurt Blome, acting as commissioner of the Reich Physicians' Leader responsible for medical further training, issued an invitation "to inspect the new technique of photofluorography at Professor Janker's institute in Bonn."[28] Scientists and representatives of the X-ray device and photochemical industries convened and the aftermath saw "high-quality photofluorographs constructed by almost all German X-ray companies in a very intensive work effort."[29] In contrast to the archivable images taken by conventional X-ray units and the one-time optical perception in case of X-ray examinations, the new development stood out due to several features. A less expensive, quick-to-implement radiographic procedure, it was based on substantially improved photographic recording of the fluoroscopic screen image.

The "SS-Röntgensturmbann"

The "transportable roentgen series imager according to Abreu–Holfelder"[30] took shape after the Frankfurt specialist in radiation medicine, Prof. Dr. Hans Holfelder, returned from Argentina in the fall of 1937. Both Holfelder and Prof. Dr. Manuel de Abreu had already been interested in X-ray mass screening for some time, joining forces to work on technically advancing devices made by Siemens. This new apparatus was used for the first time at the Nuremberg Rally in 1938, where it was possible to take chest X-rays of some 10,500 SS men within 6 days. Holfelder and his colleagues declared about 1 % of these active SS members, who had already passed medical fitness exams, as being suspected of having active TB.

SS-Standartenführer (SS Regiment Leader) Prof. Dr. Hans Holfelder was highly motivated by the first success-

[24] Haag, Friedrich Erhard: "Die Tuberkulose als Volkskrankheit," in: MMW 1935, no. 35, pp. 1389–1391, p. 1392 (emphasis in the original).

[25] Ickert, Franz: "Asoziale Tuberkulöse," in: Pommersche Wohlfahrtsblätter 15 (1939), no. 1, pp. 4–7, and Kihn, Berthold: "Zur Frage der Unterbringung asozialer Kranker," in: Der Öffentliche Gesundheitsdienst, issue B 3 (1937/38), pp. 415–420.

[26] Wolters, Christine: "Der Umgang mit therapieverweigernden Tuberkulosekranken im Nationalsozialismus," in: Gesundheitswesen 70 (2008), p. 55, as well as Wolters: Tuberkulose und Menschenversuche im Nationalsozialismus. Das Netzwerk hinter den Tbc-Experimenten im Konzentrationslager Sachsenhausen, Stuttgart 2011.

[27] Redeker, Franz: "Zentrale Lenkung der Röntgen-Reihenuntersuchungen," in: Gesundheitsführung 1939, no. 3, pp. 90–98, p. 92.

[28] Knothe, Werner: "Die Röntgenschirmbildphotographie," in: DAeBl. 68 (1938), no. 36, pp. 593–595, p. 593 (emphasis in the original). Cf. also Janker, Robert: "Röntgenologie und Volksgesundheit. Die Leuchtschirmphotographie" (= Kriegsvorträge der Rhein. Friedr.-Wilh. Univ. Bonn a. Rh. Vortragsreihe: Wissenschaft im Kampf für Deutschland, issue 27), Bonn 1941 (with numerous illustrations).

[29] Redeker, Franz: "Zentrale Lenkung der Röntgen-Reihenuntersuchungen," in: Gesundheitsführung 1939, no. 3, S. 90–98, p. 93.

[30] Holfelder, Hans: "Der Volksröntgenkataster in Mecklenburg und seine Bedeutung für die planmäßige Tuberkulosebekämpfung," in: DAeBl 69 (1939), pp. 733–736, p. 734.

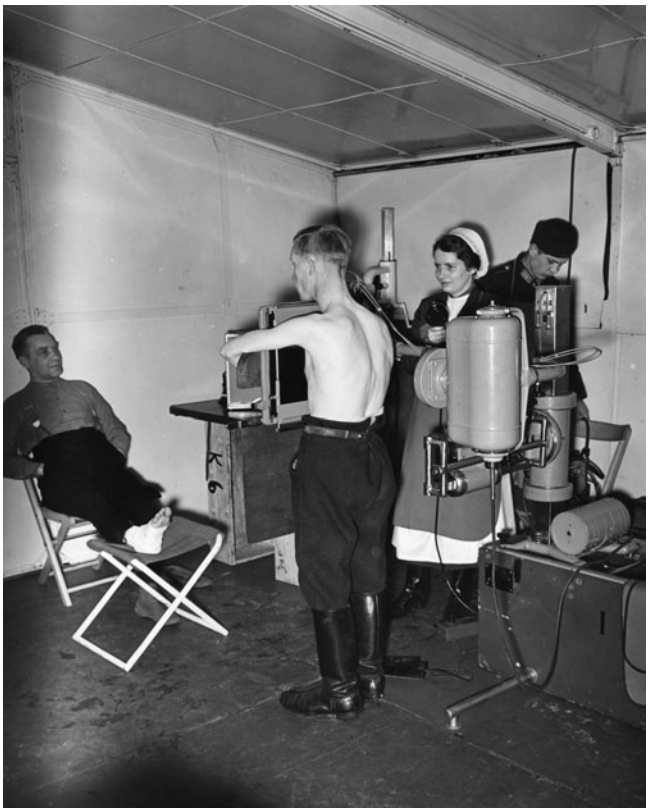

Fig. 10 ▲ In einem motorisierten Bereitschaftslazarett des DRK in Lodsch werden "heim ins Reich" geholte Umsiedler aus Ostpolen, sog. Wolhyniendeutsche, ärztlich betreut. Hier eine Untersuchung mit einem Röntgengerät (12.2.1940). Bild-ID: 00366272, SZ Photo/Scherl, with kind permission

ful use of the new X-ray mass screening technique. An extended circle of collaborators and the new spatial mobility of the roentgen installation now broadened the operational areas: "The winter 1938/39 saw construction of several additional experimental devices, a number of which were put at the author's disposal. Selected SS men from the medical corps served to form a motorized roentgen platoon deployed in the fall of 1938 for screening recruits in the Wehrmacht, SS, and Arbeitsdienst [Reich Labor Service], as well as subsequently for extended mass screenings of the "followings" [translator's note: i.e. company staff] at larger and smaller companies in the Gau Hessen-Nassau, the Gau Düsseldorf, the Gau Köln-Aachen, and the Gau Kurhessen."[31]

In contrast to individually arranged X-ray diagnostics, mass screening aimed at closely examining the largest possible groups of people, ideally the entire population, for previously undiscovered TB infections; consequently, evaluating the huge amounts of image material that accumulated now also required a new approach. At the University Roentgen Institute in Frankfurt, a trained team of physicians directed by the head of the evaluation department, Dr. Friedrich Berner[32], checked over the small format images taken by the SS-Röntgensturmbann. In the case of any conspicuous preliminary finding, the participant identified in the roentgen mass screening was referred to other authorities for clarifying the diagnosis and for possibly initiating therapy. These authorities might have included the statutory health insurance physician/family doctor in consultation with a roentgenologist; however, because this was a group-oriented procedure, the conspicuous first finding would more often have been transferred to the physician in charge at the corresponding institution—the company doctor in the case of so-called "Gefolgschaftsuntersuchungen" ("examinations of followings"), the Hitler Youth unit physician in the case of examination of Hitler Youth units, the medical officer of the relevant military unit, or the camp physician at forced labor, POW or concentration camps when the roentgen mass screening had taken place here (**Fig. 10**).[33]

In the summer of 1939, the "motorized roentgen platoon" that Holfelder had put together from SS medical staff in the fall of 1938 completed a large-scale mission lasting several weeks, conducting X-ray examinations of the entire population in the state of Mecklenburg[34]. Designated as the "Röntgensturmbann SS-Hauptamt" (Roentgen Assault Unit SS Main Office), the mobile X-ray unit was already operating that year "to deploy the photofluorographic method for compiling roentgen mass screening images in the large-scale battle against tuberculosis,"[35] as Holfelder put it. Howev-

[31] Ibid. Cf. also Köhler, Sven: Einsatz und Leistungen der Röntgendiagnostik in Wehrmacht und SS unter besonderer Berücksichtigung des von Prof. Holfelder geleiteten Röntgensturmbannes (thesis in medicine), Leipzig 1999.

[32] For reasons yet unexplained, SS-Hauptsturmführer (Chief Assault Leader) Friedrich Berner interrupted his university career as a radiologist with postdoctoral qualification in 1941, taking on the medical direction of the Hadamar Euthanasia Center. In 1943, he first followed Holfelder and his "SS-Röntgensturmbann" into occupied Poland to continue the TB investigation among the local population. Cf. now Benzenhöfer, Udo: "Friedrich Berner—Radiologe in Frankfurt, leitender Arzt des NS-'Euthanasie'-Zentrums in Hadamar," in: Benzenhöfer, Udo (ed.), Mengele, Hirt, Holfelder, Berner, von Verschuer, Kranz: Frankfurter Universitätsmediziner der NS-Zeit, Münster 2010, pp. 61–78, on Hadamar cf. Engler, Melanie: "Endstation Hadamar. Die Ermordung von Menschen mit Behinderungen und psychischen Erkrankungen in der Landesheilanstalt Hadamar (1941–1945)," in: Nurinst 6 (2012), pp. 93–108.

[33] Cf. Ekhart, W.: "Tuberkuloseabwehr bei fremdvölkischen Arbeitern," in: Risak, Erwin (ed.), Aus dem Aufgabenkreis des Lagerbetriebsarztes (…) (= Schriftenreihe für Arbeits- und Leistungsmedizin, issue 10/12), Stuttgart 1944, pp. 73–80; the "SS-Röntgensturmbann" is addressed explicitly (p. 77). Ulrich Herbert gives an account of roentgen mass screenings of 28,402 camp prisoners at Buchenwald concentration camp in May 1944 and of 11,102 prisoners at Dora concentration camp in June 1944 (Herbert, Ulrich (ed.): Die nationalsozialistischen Konzentrationslager, vol. 1, Göttingen 1998, p. 183).

[34] A small state, Mecklenburg apparently suited statistical studies particularly well; cf. also Blome, Kurt/Carl Hermann Lasch: "Krebskrankenstatistik in Mecklenburg" (lecture at the convention of the "Reichsarbeitsgemeinschaft für Krebsbekämpfung" (Reich working group for combating cancer), Karlsruhe, Dec. 10, 1937), in: DAeBl 1938, no. 6, pp. 95–98.

[35] Holfelder, Hans: "Der Einsatz des Röntgensturmbann-SS-Hauptamt zur Erstellung eines Volksröntgenkatasters und die Einsatzmöglichkeit der gleichen Truppe als Feldröntgentruppe," in: Der Deutsche Militärarzt 4 (1939), no. 11, 493–495, emphasis in the original.

Abb. 1. Ein Röntgenzug mit 3 Röntgenwagen des Röntgensturmbanns-SS-Hauptamt.

Fig. 11 ▲ A roentgen platoon with three roentgen vans of the Röntgensturmbann-SS-Hauptamt. (Source: Der Deutsche Militärarzt 4 (1939), **Fig. 1**, p. 493, Springer-Verlag, with kind permission)

er, the roentgen vans did not only travel through the German Gaue, but also followed the German Wehrmacht on its campaign of conquest toward the east. In this connection, the roentgen platoon equipment not only made it possible to carry out TB diagnostics by means of roentgen mass screening, but with the available technical installation, personnel could be used as a roentgen field unit at the same time (**Fig. 11**).

However, until the end of the Second World War, tracking down persons suspected of having TB remained the main operational purpose of the unit, which was supposed to receive "its orders for these assignments by the Reich Health Leader."[36] In 1941, the SS Leadership Main Office even increased the maximum number of troops in what was now designated the "Röntgen-Sturmbann beim SS-Führungshauptamt" (Roentgen Assault Unit assigned to the SS Leadership Main Office) to 40 leaders in medical service, 36 technical and administrative leaders, 108 Unterführer (squad leaders) and 663 men. The aim was to integrate the existing Röntgen-Sturmbann comprised of 4 leaders and 250 men into this new formation, which continued to be headed by SS-Standartenführer (SS Regiment Leader) of the General SS, Prof. Dr. Holfelder/Frankfurt a. M. At the same time, the mission of mobile combat of TB was extended beyond the frontiers of the Reich: "The assignment of the "Röntgensturmbann beim SS-Führungshauptamt" is to record the German People and other peoples by means of roentgen mass screenings using the system of Prof. Dr. Holfelder—Frankfurt a. M."[37] (**Fig. 12**).

This wording also covered mass screening for TB of the Polish population in the German-occupied western part of Poland, which took place in 1942. The so-called "Warthegau" territory not only served as an area for the German Wehrmacht to march through on its way eastward into the Soviet Union; as a formerly German territory, it was also intended for resettlement by Germans, but the TB situation was assessed as extremely dangerous. There was no consideration of treating the TB patients following their identification "according to the method of Professor Dr. Hohlfelder [sic], who has been deployed during these weeks here in the Gau with his Röntgensturmbann." Correspondence between political decision-makers at the Reich and Gau levels reveals this facet very clearly.[38] Among 230,000 Polish persons suffering from TB, estimates assumed approximately 35,000 patients with open TB, whose fates were negotiated in 1942 by Reich Governor Arthur Greiser, Heinrich Himmler and Kurt Blome acting as Deputy Leader of Main Office for National Health within the Nazi Party.

Greiser planned far in advance, inquiring in the spring of 1942 with the Reich Leader of the SS, among other things, whether he had any objections to the "special treatment" (meaning murder, G.M.) of persons seriously ill with TB that was underway among the Jewish parts of the population. By the fall of 1942, the state of affairs had been clarified: Himmler had given his consent, the Einsatzkommando Lange [translator's note: a special operations commando, i.e. death squad] stood by, but now Kurt Blome expressed doubts as to whether the timing—this soon after the officially decreed cessation of the "euthanasia" action—was such a wise choice. According to Blome, foreign countries were watching Nazi Germany closely, not missing any opportunity for "atrocity propaganda." He did not plead against killing sick Polish persons "of alien ethnicity" out of principle, but he found the "radical solution" of shooting them inappropriate for tactical political reasons. Instead, Blome suggested "establishing a reservation of the type well known from leprosy patients,"[39] where the patient's entire family should be interned as well; family members could then care for their ill relatives until their death.

To date, researchers have not produced conclusive studies on the extent to which this proposal was implemented, or on whether the fight against TB took place through different means of murdering Poles that suffered from this disease. Solid evidence is available, howev-

[36] "Schreiben des SS-Führungshauptamtes vom 7.1.1941. Betr.: Aufstellung eines Röntgen-Sturmbannes" (Bundesarchiv, Bestand Reichsführer SS, NS 19/4073, Bl. 54). The Reich Health Leader was SS-Obergruppenführer (SS Senior Group Leader) Dr. Leonardo Conti.

[37] Ibid.

[38] Correspondence relating to the killing of Polish citizens potentially infected with TB has been the topic of historical research in several instances; cf. particularly Dressen, Willi/Volker Riess: "Ausbeutung und Vernichtung. Gesundheitspolitik im Generalgouvernement," in: Frei, Norbert (ed.), Medizin und Gesundheitspolitik in der NS-Zeit, Munich 1991, pp. 157–171, as well as Aly, Götz: "Tuberkulose und 'Euthanasie'," in: Peiffer, Jürgen (ed.), Menschenverachtung und Opportunismus. Zur Medizin im Dritten Reich, Tübingen 1992, pp. 131–146. The letters themselves have been published, among other places, in Dörner, Klaus et al. (ed.): Der Nürnberger Ärzteprozess 1946/47, Munich 2000, microfiche 137, Bl. 1206–1220.

[39] Dörner et al. (ed.), see ftn. 38, Bl. 1220.

Fig. 12 ▲ Prof. Dr. med. Hans Holfelder. (Source: Deutsches Röntgenmuseum, with kind permission). Born on April 22, 1891 in Noeschenrode, Wernigerode County administrative district; father was state medical councilor. March 1910 school-leaving exam at Wernigerode Gymnasium. Starting in the summer term of 1910, study of medicine at the universities of Tübingen, Munich, Giessen and Marburg. 1916 state exam and approbation in Marburg. 1917 doctoral exam with highest distinction of "summa cum laude" in Halle. Special research fields: medical radiation research, diagnostic radiology and radiotherapy. In May 1923 in Frankfurt/Main, postdoctoral qualification in surgery and roentgenology. October 1, 1926 director of newly established and expanding radiotherapeutic institute (Roentgen Institute of the Surgical University Clinic in Frankfurt/Main). August 26, 1927 appointment to non-civil servant adjunct professor. February 16, 1929 appointment to full professor with civil-servant status. 1931 president of the German Roentgen Society. June 22, 1933 member of the Prussian State Health Council. 1931 board member of the Reich Committee for Combating Cancer (RAeK). July 14, 1933 member of the scientific committee of the RAeK. From the 1943/44 winter term onward, at the Reich University of Posen (roentgenology). 1931 Golden Mackenzie Davidson Medal of the Royal Society of Medicine, London. 1938 Albers-Schönberg-Medal of the German Roentgen Society. Honorary memberships: October 28, 1932 Vereinigung deutscher Röntgenologen und Radiologen-C.S.R. (Association of German Roentgenologists and Radiologists in the Czechoslovak Republic); July 1, 1933 Nordische Vereinigung Medizinischer Radiologen (Nordic Association of Medical Radiologists); 1936 Sociedad Argentina de Radiología (Argentine Society of Radiology) in Buenos Aires/Argentina; 1936 American College of Radiology, Romanian Society of Roentgenology and Electrotherapy, corresponding member of the Wiener Gesellschaft für Röntgenkunde (Viennese Society of Roentgenology) and of the Società Italiana di Radiologia Medica (Italian Society for Medical Roentgenology). Combatant in World War I (August 4, 1914–January 6, 1919), Iron Cross 1st Class and Iron Cross 2nd Class, Wound Badge in black, Honor Cross for Combatants, Clasp for the Iron Cross 1st Class. March–December 1919 Free Corps Halle, member of the Reichshammerbund (Reich Hammer League, a Völkisch organization; no. 3378), member of the Verband gegen die Überhebung des Judentums (League against the Presumption of Jewry; no. 963), temporarily, member of the Deutschnationale Volkspartei (German National People's Party). From 1933, member of the SS (no. 101658), member of the NSDAP (no. 1592030). Sources: Personalakte Prof. Dr. Hans Holfelder, Reich University of Posen (Archiwum Universytet A. Miekiewicza, Poznan/PL, Sygn. 78/354). Klee, Ernst: Das Personenlexikon zum Dritten Reich. Wer war was vor und nach 1945, Frankfurt a. M. 2003, p. 267 and Weiske, Katja: "Hans Holfelder—Radiologe in Frankfurt, Nationalsozialist, Gründer des SS-Röntgensturmbanns," in: Benzenhöfer, Udo (ed.): Mengele, Hirt, Holfelder, Berner, von Verschuer, Kranz: Frankfurter Universitätsmediziner der NS-Zeit, Münster 2010, p. 43–60

er, concerning the activities of the SS-Röntgensturmbann in some of the German-occupied countries of Eastern Europe. Prof. Dr. Hans Holfelder, scientifically recognized and winner of numerous awards, died in action as SS-Oberführer (Senior SS Leader) and commander of the SS-Röntgensturmbann on December 15, 1944 near Budapest/Hungary. On January 3, 1945 SS-Hauptsturmführer (SS Chief Assault Leader) Dr. Weißwange, Holfelder's former Assistant Medical Director from Frankfurt University Hospital, was appointed Holfelder's successor as commander of the SS-Röntgensturmbann.[40]

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[40] "Befehl des Reichsführers-SS, betreffend den SS-Röntgensturmbann" (Bundesarchiv, Bestand Reichsführer SS, NS 19/170, Bl. 34).