



## Editorial

## Röntgen's last will



## 1. Introduction

2023 marks the 100th anniversary of Wilhelm Conrad Röntgen's death. His breakthrough discovery of the X-rays was made in 1895 and was one of the most important scientific events around 1900. It triggered more than 1000 publications in the following 12 months [1,2]. From 1888, Röntgen was professor for physics at the University of Würzburg, Germany, when he discovered the X-rays. For his discovery, he was awarded the first Nobel Prize in Physics in 1901. In 1900, he obtained the physics chair at the Ludwig-Maximilians-Universität of Munich, Germany, where he died on 10th February 1923 at the age of 77. Rather than a complete overview, previously published biographies mention only selected details of his last will. By evaluating the original documents, this work might help to enlighten details of Röntgen's social life and clear some questions arising from the biographies.

## 2. Last will documents and legacies

Röntgen's last will is archived in the Bavarian State Archive in Munich [3]. It consists of several documents, which are described hereafter.

In 1911 Röntgen and his wife Bertha established their last will, dating on 17th December. Röntgen wrote this document by his own hand. Bertha Röntgen added one paragraph that everything written by her husband corresponds to her own will. They confirmed each other the surviving part to be sole heir. The adopted daughter Bertha Donges (maiden name Röntgen-Ludwig), a niece of Bertha Röntgen, was determined as the common main heir. In the first paragraph of the document, the Röntgen couple asked two friends to act as executors: Counsel (Justizrat) Medicus and professor A. v. Hippel. All provisions were of financial character, with the most important including the following:

- 200.000 Marks (M) should be administered by a foundation, ruled by the Physikalisch-Technische Reichsanstalt (national metrology institute of the German Empire). This foundation should support purely scientific physical investigations.
- 30.000 M were for the municipality of Lennep, the city of Röntgen's birth. This amount should support charitable purpose.
- A total of 19.000 M in four parts between 3.000 M and 7.500 M should be distributed to other charitable institutions.
- Single persons and families, friends, relatives and service staff should obtain a pecuniary legacy of between 500 M and 60.000 M.
- The adopted daughter Bertha Donges should obtain a pecuniary legacy of 100.000 M.

In addition to the last point Röntgen wrote an explanation: If there would be an excess of more than 1.000 M this should be equally distributed to the heirs of the third and fifth point above; if there would be less than 100.000 M left for the daughter these parts should equally be reduced.

In 1914 and 1915, the married couple Röntgen wrote addenda to their document of 1911 with minor effects only. The amounts for the foundation, the municipality of Lennep and the contribution for their daughter remained unchanged. In the 1914 addendum, some heritage amounts and some persons were changed. The 1915 addendum explained that the executors should act only if first, Bertha Röntgen were the surviving part; second, in the case that the heritages of point 3–5 must be reduced as described above, Röntgen demonstrated an example assuming a given entire property and calculated the resulting legacies.

In 1915, Wilhelm Conrad and Bertha Röntgen handed over their last will from 1911 with the two addenda of 1914 and 1915 to the notary Josef Hellmaier.

Wilhelm Conrad Röntgen wrote and signed the last will of 1916 alone. The reason is that it referred to one single object, which Röntgen regarded as his very own property: a bust of himself, made by the artist professor von Hildebrand. This bust had been funded by a collection of his friends and acquaintances at the occasion of his 70th birthday. Theodor Boveri, a close friend and one of the initiators of the collection had once proposed to give the bust to the Glyptothek in Munich to make it accessible for the public [1]. Röntgen captured this idea in his last will with a small adjustment: if his wife would survive him, the bust should stay in her possession until her death.

In 1919 Röntgen's wife Bertha died. Thereafter, in 1920 Röntgen rewrote the complete testament. However, he emphasized in the introduction that the changes followed a decision in the assumed consent of his wife. Repetitions made by Röntgen were only to improve the clarity of the document. The executors of the first testament had died, therefore, Röntgen mandated three alternates: Marcella Boveri, the widow of his friend Theodor, who had died in 1915; Dr. Rudolf Cohen, former assistant of Röntgen in Würzburg; and the lawyer Alexander Dünkelsbühler.

A conspicuous alteration concerned the great sum in the first point of the 1911 testament: no longer should it be administered by a foundation. Röntgen now dedicated it to the physical institute of the University of Würzburg for scientific physical purposes. The legacy for the municipality of Lennep remained unchanged.

The highest amount for a single person (besides the daughter) was now 40.000 M for Miss Margarete Boveri, the daughter of Röntgen's friend Theodor Boveri. She mentioned this legacy in her autobiography [4]. After Theodor's death, Röntgen held close contact to his widow and

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daughter.

In 1921, Röntgen ruled the distribution of personal items. On thirteen squared notecards, he listed valuable articles like dishes and cutlery of silver or jewelry to whom these should be dedicated. Besides valuable articles, Röntgen listed some needlework of his wife Bertha. It is possible the recipients had a special relationship to her. Similarly, he willed his rifle shotgun to his hunting assistant A. Lauterbacher. For most items, Röntgen added the page number in an index of valuable articles in his household. This index however, was not part of the testament documents. In 1922, Röntgen signed another notecard increasing the legacy for the chambermaid Kätchen Fuchs from 10.000 M to 50.000 M.

In the same year as Röntgen wrote the notecards, 1921, he added some further wishes to his last will. This document has already been published: Professor Ludwig Zehnder, who had completed his doctorate at Röntgen's institute in 1887, edited the correspondence with Röntgen in a book [5] and included the text of this document. The reason was as follows: Röntgen had promised to return the letters he had received from Zehnder. However, Zehnder noticed that some of these letters were missing and therefore asked for a copy of the last will document pertaining to these articles to understand why his collection of letters was incomplete.

The main contents of this last will document were: Röntgen declared that his and his wife's ashes should be buried in his parents' grave in Gießen. He confirmed that he wanted his bust to become part of the collection at the Glyptothek. Röntgen transferred diplomas, medals, certificates and addresses to the archive of the University of Würzburg. All papers in the mahogany cabinet in the corridor of his Munich apartment should be burnt.

### 3. Considerations

An important process during Röntgen's last years and in the year of his death was the rapidly increasing inflation of the German currency after World War I. In November after his death, one trillion Reichsmarks (M) became one Rentenmark by monetary reform. All financial provisions stated in the testament lost most of their value [4]. This particularly affected the legacies of the documents from 1911, 1914, and 1915. Some biographers mentioned that Röntgen bequeathed the money of the Nobel Prize to the University of Würzburg [1,6–9]. However, the testament does not contain any hint of that. Although the amount dedicated to the physical institute of the University of Würzburg nearly corresponds to the Nobel Prize amount, this is not explicitly mentioned. Some oral interpretation via the executors may have led to this statement. The sum of the Nobel Prize amount was 150.782 Swedish Kronors [10] and is wrongly stated as 50.000 SK in three of the above mentioned biographies [1,6,9].

It can be assumed that the items of the last wishes notecards of 1921 were distributed according the last will. However, the Bavarian State Archive does not contain these results.

Further evidence exists about the outcome of the last, as described in the following paragraphs [5].

The family grave in Gießen is still existent. It is rather of the desired character and thus corresponds to Röntgen's will, who wanted it modest. However, why the initial "K" shortens Wilhelm Conrad Röntgen's second name remains an open question.

His bust created by von Hildebrand is not publicly accessible in the Glyptothek, as was written in Röntgen's last will, but instead ended up in the archive of the Pinakothek in Munich.

A series of medals, diplomas and addresses are stored in the archive of the University of Würzburg [11], first and foremost the Nobel Prize medal and certificate. It might be worthwhile to investigate whether this collection is complete. Some missing pieces are documented: Röntgen himself donated both Rutherford medals, the large original made of gold and the smaller duplicate made of silver, to the Red Cross [7].

Most regrettable for historic investigations is the incineration of

many documents. Obviously Röntgen himself started burning letters and possibly other documents as he himself described in a letter to Marcella Boveri in 1921 [1]. As previously noted, Zehnder was missing some of letters, which he had written to Röntgen. The explanation he received from the daughter of the executor Marcella Boveri, was that it had been Röntgen's last will to burn all papers and letters from the "time of the discovery" [5]. However, Röntgen specified the documents to be burned in his last will by the location where they were stored and not the date they were written. It is possible that Röntgen deposited all these documents from the period of discovery in the cited furniture or burned parts of them himself. There might again have been some oral explanation given to the executors, which lead to this interpretation. A reason for Röntgen's decision might be found in his character: he had always wanted to publish only clear descriptions and evident results which had been thoroughly investigated. As such, he might have been afraid that after his death some papers and letters of more tentative nature could be published. Another reason might have been that Röntgen wanted to avoid a misuse against him [12].

In summary, the last will documents show Röntgen and his wife as people with close social and familiar relations, providing some details that have not been described before in biographies. Few changes of mind are discernible over the course of his final years. From a historic point of view, more sensitivity in the burning of papers would have been desirable.

### Declaration of Competing Interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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