Physics as a Calling, Science for Society

Studies in Honour of A.J. Kox

Edited by

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Cover illustration: Albert Einstein and Hendrik Antoon Lorentz, photographed by Paul Ehrenfest in front of his home in Leiden in 1921. Source: Museum Boerhaave, Leiden.

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7 Ernst Laqueur (1880-1947): The career of an outsider[1]

Peter Jan Knegtmans

When Ernst Laqueur was appointed Professor of Pharmacology at the Municipal University of Amsterdam in 1920, he did not have a specific research plan or programme. He only had some vague ideas about looking for a cure for cancer; but, after the discovery of insulin, in 1921, he jumped at the chance to produce insulin, as quickly and as purely as possible. To do this he needed large amounts of pancreases, but first of all he needed a laboratory of his own. Until then, pharmacology had been a part of the teaching commitment of the Professor of General Pathology or of Internal Medicine. For these Professors, pharmacology had not been a research topic. So in 1921, Laqueur and the City of Amsterdam entered into negotiations about the construction of a new pharmacological laboratory. The official who acted on behalf of the City, Dr Jacques van Oss, happened to be a consultant to a large meatpacking factory in the little Southern Dutch town of Oss. When Van Oss understood what kind of research Laqueur wanted to do and what the requirements for his laboratory were, he introduced him to the owner of this meatpacking factory, Saal van Zwanenberg. Van Oss knew that Van Zwanenberg was looking for ways to make his offal productive. In 1923, the three of them founded a pharmaceutical company: Organon.[2] This company was among the first in Europe to succeed in producing insulin on a mass scale. In its first decade it also produced coated tablets containing vitamins A and D (called Davitamon), a remedy against pernicious anaemia (Pernaemon), and several other medications. In addition, Laqueur and Organon tried to extract female and male hormones from animal sex organs and the urine of pregnant women. The offal required for this research also came from Van Zwanenberg's meatpacking factory. In trying to turn these hormones into medicines, they were quite successful. In 1933, it occurred to Laqueur and Marius Tausk, the young general manager of Organon, that they had managed to produce a contraceptive. However, they did not dare embark upon the adventure of producing it commercially: they believed that Dutch society was too conservative for a contraceptive, and they did not know how to properly test it clinically.

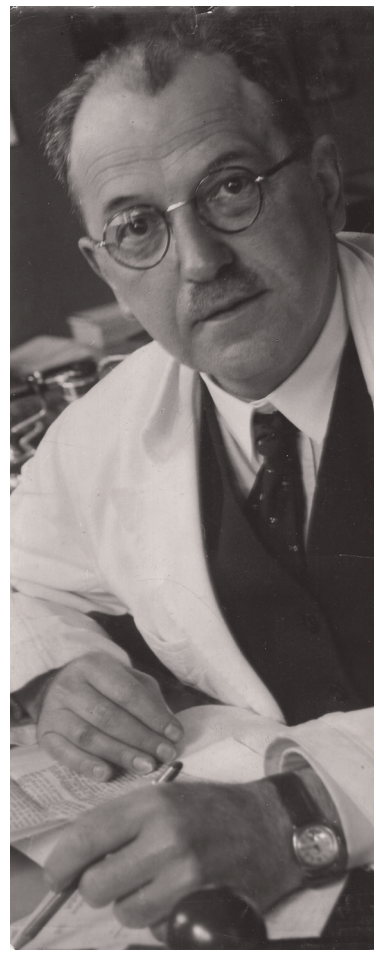

Fig. 1 – Ernst Laqueur in the 1930s. Source: Helly Oestreicher, Amsterdam

The cooperation of Laqueur, Tausk and Van Zwanenberg was a tremendous success: Organon produced and sold insulin as a medication for diabetes at a reasonable price. Not only did Laqueur's shares in Organon start to pay considerable dividends in the 1930s, on account of the increase in sales, Organon's success also offered him an opportunity to show his commercial and organizational talents. Many people who were on Organon's payroll, participated in the research in Laqueur's laboratory at the University of Amsterdam. In the 1930s, some twenty people were formally employed by the University; but, according to Laqueur's right-hand man, Janos Freud, usually seventy or more people were actually working there. Thus, the laboratory was large enough to compete in the international race for the isolation of hormones. In 1935, Janos Freud was the first to isolate testosterone. This was another proof of the successful way in which Laqueur

managed his research, and it made his name in the international academic world. He travelled to Germany, Switzerland, Austria, France, the United Kingdom, Czechoslovakia, Hungary, Italy, the United States and Canada and the Soviet Union, and he was a member of many executive committees. His international reputation opened many doors for Organon. The company had alliances with the German company A.G. Schering and with Ciba and Hoffmann-La Roche in Switzerland; it had branches in Germany and in the United Kingdom, a joint venture in the United States, and it had sales offices in many other countries.

Yet, the alliance also had a serious disadvantage. At some point, an advertisement by Organon had alarmed the Board of the University of Amsterdam.[3] In this advertisement, Laqueur guaranteed the quality of Organon's preparations and the University Board wondered how Laqueur could do this in a laboratory that was intended for the teaching of students? Did this mean that he used the laboratory to do routine checks on the quality of products made by a commercial company? Did this turn the university into an extension of this company? The Board was only partly reassured by Laqueur's explanation that the checks were carried out by chemical analysts who were paid by Organon and that their work did not interfere with the teaching of students. He also plainly deceived them by saying that he did not have a vested interest in Organon.

It was not only the Board that was sceptical about Laqueur's alliance with Organon; the university's professors were critical too. In their view, a professor ought to devote himself to fundamental science in a disinterested way. Applied science was acceptable in some cases, but mainly as a personal hobby. An alliance with a commercial company filled them with dread and distrust because they were afraid it might affect the independence and neutrality of scientific research and of the university. However, Laqueur was not the only professor, and certainly not the first one in the Netherlands or in Amsterdam who cooperated with trade and industry.[4] Some acted as well-paid consultants; others accepted assignments from commercial companies to do research on their behalf. Laqueur was the first, though, to found a company specifically to serve his purposes. As a result of these misgivings on the part of his academic colleagues, he felt only half-accepted by them. For a long time, this made Laqueur feel like an outsider. He probably did not feel fully accepted by his fellow professors until he was appointed Chancellor of the University in 1936, despite being well-known throughout Europe and abroad.

Being treated like an outsider had been a particularly sore point for a long time, since the Laqueurs were Jews. Ernst Laqueur was born near Breslau in Germany (now Wroclaw in Poland). He grew up in a Breslau family that, like so many others, had embraced German culture but stuck to its Jewish identity. Jews in Germany could now be doctors, lawyers or journalists, and many of them were businessmen; but in the academic world they were still outsiders. Since the end of the nineteenth century, German academics had almost completely closed their

ranks to Jews. A Jew could be a *Privatdozent*, or maybe an underpaid Extraordinary Professor, but he had to be a genius, and very lucky, to achieve a full professorship.[5] As a twenty-year old student, Laqueur had already been thinking of an academic career, and such a career would not be real without a professorship. He knew that, in order to become a professor, he would have to convert to Christianity.

Laqueur had studied medicine in Breslau and Heidelberg. His first publication was in the field of the chemistry of proteins. It was the result of some research he had done with his friend Otto Sackur, a promising student of chemistry. In 1905, Laqueur received his Medical Doctorate, based on a follow-up of this research. Though still an outsider, his magna cum laude opened a window of opportunity in the academic world. He found a place as an unpaid Assistant in Heidelberg, at the Institute of the famous Physiology Professor Alfred Kossel, who was honoured with a Nobel Prize in 1910. To his regret, Laqueur did not get a chance to do any experimental research here, so he moved to the Pharmacological Institute in Heidelberg. Here, Professor Rudolf Gottlieb encouraged Laqueur to do some serious research. It resulted in two articles for specialized journals: one on the effect of quinine on several enzymes, and another one in which he experimentally confirmed a theory on the disintegration of fats by enzymes in the stomach. To this second article he later added a literature review.

In the meantime, Laqueur had married his first cousin Grete Loewenthal. Together they had moved to Heidelberg where, at the beginning of 1906, their first child was born. Soon afterwards, the small family was baptized in an Evangelical church in Heidelberg. Now Laqueur was ready to start a serious academic career, which happened to be in physiology. In 1906, he found a place as Second Assistant in the Physiological Institute of the University of Königsberg. He had become 'an outsider within'.[6]

Königsberg was not a very well-known university, but it was generally considered a good place to start. When, a year later, the opportunity presented itself to go to the university in Halle, the Laqueurs moved. Laqueur had met the anatomy professor, Wilhelm Roux, sometime before and had become interested in Roux' anatomical specialization, which at that time was called *Entwicklungsmechanik* and is now known as experimental embryology.[7] Roux had offered him a position as First Assistant. Given the shortage of able assistants in anatomy at the time, this might open a direct route to a professorship for Laqueur. After only one term in Halle, he changed his mind, though, and decided that he wanted to be a physiologist after all, so he returned to Königsberg in time for the Winter term of 1907. In Königsberg, he was admitted as *Privatdozent* of physiology, in particular of chemical physiology, and he continued the kind of research he had started in Heidelberg.

In spite of his quick departure, Laqueur had left a good impression in Halle. He had impressed upon the medical faculty the importance of chemical physiology.

In 1910 he was called to Halle to fill a position with the prospect of becoming a professor. In answer to this call, the family with two children moved back to Halle. What happened next is not quite clear. Probably, the physiology professor, Julius Bernstein, retired before Laqueur had managed to make a name for himself in chemical physiology. At any rate, Emil Abderhalden was appointed as the new Professor of Physiology, instead of Laqueur.[8] Soon it became obvious that Abderhalden and Laqueur were both young and ambitious, but that they did not get along. At the end of 1911, Laqueur resigned.

It is not impossible that, before he resigned, Laqueur already knew that in Groningen in the Netherlands the Physiology Professor, Hamburger, had been looking for a new assistant for some time. However, it is more likely that Otto Magnus, Laqueur's former mentor in Professor Gottlieb's laboratory in Heidelberg brought him to Hamburger's attention. In 1908, Magnus had preceded Laqueur in going to the Netherlands.[9] He had become Professor of Pharmacology in Utrecht and he probably knew Hamburger very well. In any case, within an extremely short time Laqueur was appointed Assistant in Hamburger's institute. He started in Groningen at the beginning of 1912. Here, he was able, for the first time, to develop all his talents. He started a new line of research in using laboratory animals on a large scale for research into the metabolism of mammals. Moreover, he proved to be a good teacher and, together with Professor Hamburger, he organized the Ninth International Physiological Congress, which was held in Groningen in 1913. The following year he was given the position of Lector.

This appointment came in the Spring of 1914. A few months later, the First World War broke out. At that moment, the Laqueur family was enjoying a holiday in Germany. Immediately, Laqueur reported for active service in the army. He was stationed as military doctor in a field artillery regiment in Wolfenbüttel, near Brunswick. Here, he served in a reserve unit until the Summer of 1916, when he was posted to the *Kaiser-Wilhelms-Akademie für das militärärztliche Bildungswesen*, the training college for military doctors in Berlin. For the second time, he owed his post to Rudolf Magnus. Both Magnus and Laqueur worked in the Army Gas School in Berlin, teaching officers and military doctors, and both cooperated with the *Kaiser-Wilhelm-Institut* in Berlin, led by Professor Fritz Haber.[10]

Until then, most of Laqueur's work had been in the field of chemical physiology. In Berlin he switched to pharmacology. But his job there was certainly not innocent: Fritz Haber was the man who made poison gas into a weapon of mass destruction. Haber was assigned to supervise its industrial production and in his institute new poison gases were developed. Together with a group of biologists, physiologists and pharmacists in Haber's institute, Magnus and Laqueur did experimental research into the toxicity of the poison gas phosgene. On the one hand, this was meant to find ways to cure gas victims, but on the other hand the work established the toxicity and the effectiveness of phosgene as a poison gas.

Laqueur stayed in Berlin for only one year. In the Autumn of 1917, he was posted to a military hospital in Ghent in occupied Belgium. This was only an activity on the side, as he had also been appointed Professor of Pharmacology and Physiology at the Flemish University in Ghent. Now, at last, he had his professorship. Yet, it was in a university that had been established by the Germans with the help of a small group of Flemish 'activists'. As a German professor in what was considered a quisling university by most Belgians, he found himself an outsider again. During the retreat of the German armies, in 1918, Laqueur contracted typhus and returned to Germany in a hospital train. In 1920, he was sentenced in absentia to fifteen years hard labour in Belgium.

By then, Laqueur was on the verge of being appointed professor in Amsterdam. This had come about thanks to Isidore Snapper, a former fellow assistant in Groningen. Snapper was now Professor of General Pathology in Amsterdam. He had called Laqueur to Amsterdam as First Assistant in 1919. A year later, Snapper wanted to relieve himself of part of his large teaching commitment, so in 1920 the teaching of pharmacology was assigned to Laqueur. In Amsterdam he proved to be a successful research manager and entrepreneur, as we have seen earlier.

For Laqueur, this successful phase of his life came to an end with the outbreak of the Second World War. Laqueur had not been oblivious to the threat of Nazism. In 1933 he had established – together with Professors Paul Scholten and Herman Frijda – a fund to help Jewish and intellectual refugees from Germany, and later from Austria. One of the main sponsors of this fund was Organon. Many refugees received small amounts of money to travel; others, who stayed in the Netherlands, were assisted financially or with more or less suitable work. Several of these refugees found a place in Laqueur's laboratory in Amsterdam, or in Organon's laboratory in Oss and some even stayed on during the war.

In 1938, Laqueur's daughter Gerda and her husband Felix Oestreicher fled to the Netherlands from Carlsbad (Karlovy Vary) in the Sudeten part of Czechoslovakia, where they lived. When the Nazi threat grew stronger, Laqueur sent his eldest son to Argentina to manage Organon's sales office in Buenos Aires. Both Organon and Laqueur had also transferred part of their assets to the United Kingdom and the United States; but, for some reason, Laqueur decided to stay in the Netherlands.

After the occupation of Netherlands in May 1940, the 'Jewish' company Organon was placed in trust with an agent of the German pharmaceutical company A.G. Schering. Schering wanted to buy Organon in a proper way, in order to gain control of its subsidiary companies and its patents in Great Britain and the United States. Since Organon's largest shareholder Van Zwanenberg had escaped The Netherlands in time, Schering had to make do with Laqueur's share of 15 per cent. Laqueur was prepared to sell his shares, in exchange for a visa for him and his family to leave Europe, but the negotiations over this deal did not lead to anything. In the meantime, his position weakened. Altough he had become a Dutch

subject in 1932, Dutchmen saw him as a German, while to the Germans he was a Jew, an outlaw. He must have paid vast sums to provide his youngest son Hein with false papers that gave him the status of a 'half-Jew', to buy 'safe' identity cards for the rest of his family, to be exempted from the obligation to wear a yellow star, and to get his daughters Gerda and Renate and their husbands and children, who had ended up in Bergen-Belsen, out to Palestine. His daughter Gerda and her husband died in June 1945 before they were able to return home from Germany.

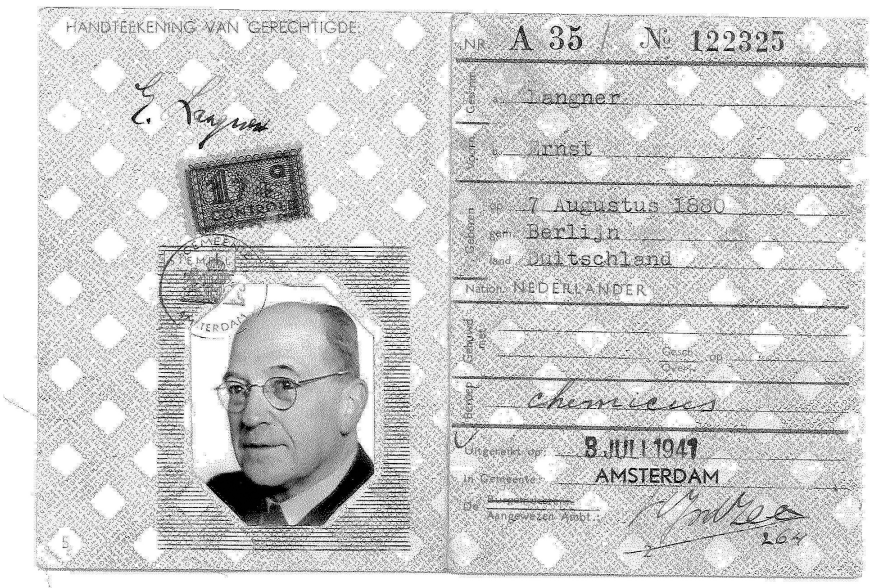

Fig. 2 – Laqueur's forged identity card in the name of Ernst Langner, chemist, born in Berlin. Source: courtesy of Helly Oestreicher

At the end of the war, Laqueur's reputation in the Allied countries had not faded. On 8 May 1945, even before the main Canadian forces had reached Amsterdam, the Laqueurs found an English major on their doorstep. He had been commissioned by the Allied Headquarters to find Laqueur and the Physiology Professor B.C.P. Jansen, who was famous for his research into vitamins, and to take possession of their laboratories in order to protect them against theft. But Laqueur was mentally and physically a broken man. On a business trip to Argentina, he fell seriously ill and had to remain in hospital for a long time. After his recovery, he travelled on to the United States. However, he was not able to resume his research and his position at Organon as he had done before the war. Worse still, the once close bond with Van Zwanenberg ended in a rift. This may have happened because Van Zwanenberg no longer trusted Laqueur after he had heard of Laqueur's

deal with the Germans to obtain visa to leave Europe, or because he did not want a German on the Board of Organon after the war. Laqueur died during a vacation to Switzerland in the Summer of 1947.

Thus, Laqueur ended his life in the same state as it had started: as an outsider. Thanks to his enormous ambition he had negotiated many obstacles in embarking on an eventually successful career. Nevertheless, his life was marked by the European drama of the twentieth century with its two world wars and its massive wave of anti-Semitism.

Notes

1. This article is based on my biography of Laqueur, which will be published (in Dutch) in the Autumn of 2014. For this biography I explored the Laqueur Family Collection in the Leo Baeck Institute in New York City, and the collections of Laqueur's great-grandson, J.P. Laqueur (Somers, NY); his granddaughter, Irene Cramer (Newton, MA) and his grandson, David Cramer (Penn Valley, PA) in the USA; the Oestreicher Family Archive in the Amsterdam City Archive; the University Archives in Wroclaw (Poland); Heidelberg and Halle (Germany); Ghent (Belgium); Groningen and Amsterdam (the Netherlands); the NIOD Institute for War, Holocaust and Genocide Studies in Amsterdam; the Historical Company Archive of Organon (now part of MSD Oss) in Oss (the Netherlands), and several other archives.
2. For the history of the company, see: Tausk (1984) and Verhoog (1998).
3. For the history of the University of Amsterdam, see: Knegtmans (1998), particularly pp. 162-169 and 200-219.
4. For a survey, see: Huijnen (2007).
5. Volkov (1990).
6. This concept of the outsider-within was originally developed by Patricia Hill Collins to indicate the position of African Americans in the United States.
7. On Roux: Hedwig (1952).
8. On Abderhalden: Kaasch (1995).
9. For Magnus, see: Magnus (2002).
10. Szöllösi-Janze (1998).

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