

# The First World War and Dutch Scientific Culture

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## ABSTRACT

The centennial has revived attention for the First World War. Because of the Netherlands' neutral position, the influence of the horrendous war in this nation has long been qualified as marginal. In the last two decades, this perspective has gradually changed and several studies were published on developments in the Netherlands in 1914–1918. In these studies the Great War has either been understood as a watershed moment in Dutch history or, adversely, as a continuation of previous times. In this special issue, we present five case-studies of the influence of the First World War on various scientific cultures in the Netherlands. These studies indicate that this interaction transcends the dichotomous image of either continuity or discontinuity.

*Keywords:* First World War, neutrality, science and humanities

## Introduction

Only a few months after the beginning of hostilities in 1914, a German newspaper, *Die Vossische Zeitung*, interviewed the Dutch Nobel prize winner Hendrik Lorentz. They asked the world-famous physicist how he valued German science. 'Very highly, very highly', he answered, 'without the accomplishments of German research, physics would not have reached the heights it has these days'.<sup>1</sup> This was a fair assessment, in agreement with the well-known history of early twentieth-century physics. Just a few years earlier, Lorentz might have settled for that answer. But now he continued by adding that of course the very same could be said of French and British science. Surely, he was deeply impressed by the thoroughness

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<sup>1</sup> 'Prof. Lorentz en de internationale wetenschap', *Algemeen Handelsblad* (2 January 1915).

and profoundness of German science, but the clarity of the French and the originality of the British scientists were equally admirable. Lorentz continued that he did not mean to imply that Germans lacked originality. The well-respected chairman of the physics department of the *Royal Netherlands Academy of Arts and Sciences* (KNAW) must have felt he was treading on thin ice here.

And indeed he was. Soon after the guns had fired their first shots in August 1914, a battle broke out within the scientific world as well. It was small and innocent at first, but the publication of the manifesto *An die Kulturwelt!* by 93 German scientists triggered prolonged academic mudslinging between German and Allied scientists. Their engagement in the war was not restricted to intellectual name-calling, however. Scientists on both sides were asked by their governments to contribute to the application of scientific knowledge for warfare purposes. British, French and American scientists did not only exchange warfare technology; their increased budgets also gave them the opportunity to catch up with their German counterparts and to compete with them in the scientific domain. In American and European laboratories, 'a contest among scientists for global leadership in the post-war world' had broken out.<sup>2</sup> At the same time, scholars from non-fighting, neutral countries – such as Lorentz – found themselves in a difficult position. As the sciences became increasingly important for warfare, these 'neutral' scholars believed that they could and should help to preserve European civilization.

In what ways were Dutch scholars and their scientific disciplines affected by the war? Did they benefit from the war, or was their work impeded? And how do the answers to these questions reflect on the concept of neutrality? This issue of *Studium* presents five articles on developments within the sciences and humanities in the Netherlands during the First World War.

### *Who is to blame?*

Over the last decades, an increasing interest in the First World War has resulted in an impressive number of historiographical studies. Fed by the temporary burst of centennial memorial books and the debates about the alleged similarities between 1914 and 2014, this historiographical collection is still growing. Thus far, consensus has not been reached on the right answer to a central question: who was actually to blame for the war? The influential British historian Niall Ferguson has argued that the intervention of the United Kingdom in the war has been 'the biggest error in modern history'. He also holds British politicians accountable for having recklessly turned a local conflict into the 'Seminal Catastrophe' of the twentieth century.<sup>3</sup> Another perspective has recently been given by historian Christopher Clark, who argued that European politicians entered the war 'sleepwalking'.<sup>4</sup> This is in contrast to the much older thesis of Fritz Fischer, who saw the German nation in 1914 as the real and only aggressor.<sup>5</sup> At that time – in 1961 – this was a controversial proposition because of a fairly

2 R. Macleod, 'Chapter 17 – Scientists', in: J. Winter (ed.), *The Cambridge History of the First World War* (Cambridge 2014) 434–459, esp. 438.

3 N. Ferguson, *The Pity of War: Explaining World War One*, 1998. See for Fergusons recent statement about 'the biggest error in modern history', *The Guardian* (30 January 2014). American historian and diplomat George F. Kennan coined the term 'Seminal Catastrophe'.

4 C. Clark, *Sleepwalkers: How Europe Went to War in 1914* (London 2012).

5 F. Fischer, *Griff nach der Weltmacht. Die Kriegszielpolitik des kaiserlichen Deutschland 1914–1918* (Düsseldorf 1961).

widespread belief that the war had been the outcome of a series of ‘occupational accidents’ (*Betriebsunfälle*).<sup>6</sup>

*What about science?*

Before the First World War, international relations between scientists are usually perceived to have been pretty clear-cut. Most leading scientists were on friendly terms with their international colleagues.<sup>7</sup> Around the turn of the century, in the era of the so-called ‘second scientific revolution’, scientists were seen as the bearers of the impressive technological progress in the second half of the nineteenth century. The role of science and scientists’ attitudes and practices during the First World War have been covered extensively.<sup>8</sup>

If we focus on the Netherlands, however, a slightly different historiographical pattern emerges. Several studies have been published since Maarten Brands noted in 1997 that the First World War was a blind spot in Dutch historiography.<sup>9</sup> Today, a hundred years after the crisis of July 1914, this has resulted in valuable insights by Dutch historians concerning social and economic, diplomatic and intellectual developments during the First World War.<sup>10</sup>

*Dutch sciences and World War One: discontinuity or continuity?*

Neutrality plays an important role in understanding the relation between the First World War and the Netherlands. The concept of neutrality not only refers to the Dutch geo-political position, but also to the intrinsic objectivity attributed to science.<sup>11</sup> The Netherlands

6 For a scholarly overview see: H. Pogge von Strandmann, ‘The Political and Historical Significance of the Fischer Controversy’, *Journal of Contemporary History* 48 (2013) 251–270.

7 The combination of internationalist ideals and chauvinist trends within the scientific community, is shown in: Elisabeth T. Crawford, Terry Shinn, Sverker Sörlin, ‘The nationalizing and denationalizing of the science: an introductory essay’, in: Elisabeth T. Crawford, Terry Shinn, Sverker Sörlin (eds.), *Denationalizing Science. The Contexts of International Scientific Practice*, 1 (Dordrecht 1993). Otterspeer and Schuller tot Peursum-Meijer sketch the growing scientific network around 1900, whereby they point to the national interests on which the political support for internationalistic cooperation was based. Cf. W. Otterspeer en J. Schuller tot Peursum-Meijer, *Wetenschap en wereldvrede. De Koninklijke Akademie van Wetenschappen en het herstel van de internationale wetenschap tijdens het Interbellum* (Amsterdam 1997) 19–21. That the internationalization of science could work out very well for one discipline is argued in a reconstruction of the famous first Solvay meeting. Frits Berends and Franklin Lambert, ‘Einstein’s witches’ sabbath: the first Solvay council on physics’, *Europhysics News* 42:5 (2011) 15–17.

8 Macleod, ‘Chapter 17’ (n. 2); E. Mendelsohn, ‘Science, scientist, and the military’, in: J. Krige & D. Pestre (eds.), *Companion Encyclopedia of Science in the Twentieth Century* (Amsterdam 2003) 175–202; D.S.L. Cardwell, ‘Science and World War I’, *Proceedings of the Royal Society of London. Series A, Mathematical and Physical Sciences*, 342:1631 (1975) 447–456.

9 M.C. Brands, ‘The Great War die aan ons voorbijging. De blinde vlek in het historisch bewustzijn van Nederland’, Berman [et al.] (eds.), *Het belang van de Tweede Wereldoorlog*. (Den Haag 1997) 9–20; A solid overview is given in: P. Moeyes, *Buiten Schot. Nederland tijdens de Eerste Wereldoorlog 1914–1918* (Amsterdam 2001). In 2002 J.H.J. Andriessen, M. Ros and P. Pierik edited the first edition of the serie *De Grote Oorlog 1914–1918. Essays over de Eerste Wereldoorlog*. In 2014 number 28 was published. Other literature includes: M. Frey, *Der Erste Weltkrieg und die Niederlande* (Berlin 1998); M. Kraaijestein & P. Schulten (eds.), *Wankel Evenwicht. Neutraal Nederland en de Eerste Wereldoorlog* (Soesterberg 2007); H. Binneveld [et al.] (eds.), *Leven naast de catastrofe. Nederland tijdens de Eerste Wereldoorlog* (Hilversum 2001); H.P. van Tuyl van Serooskerken, *The Netherlands and World War I. Espionage, Diplomacy and Survival* (Leiden 2001); I. Kuypers, *In de Schaduw van de Grote Oorlog. De Nederlandse arbeidersbeweging en de overheid, 1914–1920* (Amsterdam 2002).

10 W. Klinkert, S. Kruijzinga & P. Moeyes, *Nederland neutraal. De Eerste Wereldoorlog 1914–1918* (Amsterdam 2014).

11 In her detailed study on this topic, Maartje Abbenhuis-Ash touched upon many subjects centred around the Dutch neutrality, but science is not one of them. Cf. M. Abbenhuis, *The art of staying neutral. The Netherlands in the First World War, 1914–1918* (Amsterdam 2006).

were neutral in political terms, and several Dutch scientists played an important role in mediation attempts afterwards. In their 1996 study on the role of the *Royal Academy* in these post-war mediating activities, Otterspeer and Schuller tot Peursum-Meijer have shed some light on the significance of the war for Dutch science. The divisive character of the war was felt among Dutch academics, of whom quite a number quickly took either a pro-Anglo-French, or a pro-German position.<sup>12</sup>

Tames (2006) has investigated how the identity of the Netherlands was discussed among scholars during the First World War itself.<sup>13</sup> She revealed interesting details about wartime academic life in the Netherlands, such as the infiltration of Dutch academia by German propaganda organizations. In her study *Oorlog voor onze gedachten*, Tames showed that the intellectual debate on the Dutch identity changed slowly yet steadily. Before the war, it was inspired by internationalist ideals and centred on ideas regarding law and neutrality. During the war, however, neutrality gradually became a contested concept, to be replaced by themes such as mediation and plurality.

More recently, Letteval, Somsen and Widmalm have pointed out that neutrality – constructed as a cultural and scientific resource – became a source of prestige for smaller countries.<sup>14</sup> These historians argued that, by using their scientific forces instead of their military ones, small countries could claim a mediating position. In the Netherlands, for example, nationalism played a less important role, enabling scholars like Lorentz to focus on research for the preservation of civilization. Thus, these more neutral scholars could distance themselves from the war.<sup>15</sup> Still, war and science remained intimately interconnected, as Wim Klinkert has shown. This historian of military science very recently published a reconstruction of the scientific-military-industrial network in the Netherlands during the Great War.<sup>16</sup>

These studies suggest that the First World War influenced the Dutch academic world considerably. However, other studies indicate that the influence of the war should not be exaggerated. In 2008, David Baneke shed light on the ways in which Dutch scholars reacted to the cultural and political fragmentation that characterized the *Fin de Siècle* up until at least the Second World War. One of the main arguments of his comprehensive and detailed study, *Synthetisch denken*, is that the First World War was *not* a watershed period. Baneke carefully reconstructed a wide variety of debates in scientific and intellectual circles about science and modernity. He concluded that for the Netherlands the war years did not stand out as particularly important in any sense.<sup>17</sup> Van Berkel, in his study of the *Royal Netherlands Academy of Arts and Sciences*, joined Baneke's line of thought. Ideas about science and

12 Otterspeer & Schuller tot Peursum-Meijer, *Wetenschap en wereldvrede* (n. 8).

13 I. Tames, *Oorlog voor onze gedachten*, 2006. See also Ismee Tames, 'War on our Minds'. War, neutrality and identity in Dutch public debate during the First World War, *First World War Studies*, 3:2 (2012) 201–216.

14 R. Letteval, G. Somsen and S. Widmalm, 'Introduction', R. Letteval, G. Somsen and S. Widmalm (eds.), *Neutrality in Twentieth-Century Europe. Intersections of Science, Culture, and Politics after the First World War*, London/New York 2012, 1–15.

15 D. Edgerton, 'British scientific intellectuals and the relations of science, technology and war', in: P. Forman and J.M. Sanchez-Ron (eds.), *National Military Establishments and the Advancement of Science: Studies in Twentieth Century History*, Dordrecht 1996, 1–35.

16 W. Klinkert, 'L.A. van Royen. De meester-netwerker', in: Klinkert [et al.] (eds.), *Nederland neutraal* (n. 10) 281–326. See also other work of Klinkert, for instance: W. Klinkert, *Van Waterloo tot Uruzgan. De militaire identiteit van Nederland* (Amsterdam 2008).

17 David Baneke, *Synthetisch denken. Natuurwetenschappers over hun rol in een moderne maatschappij, 1900–1940* (Hilversum 2008).

society had already begun to change before the war, Van Berkel argues, and started to have a noticeable effect on the organization of Dutch science after the war.<sup>18</sup>

Nineteenth-century developments such as the professionalization of the sciences, the institutionalization of the academic world and the successes of the Dutch ‘Second Golden Age’ have received ample attention from historians, as has the inter-war period.<sup>19</sup> Yet detailed treatment of the Dutch academic world around the First World War is still lacking. This special issue of *Studium* is a first attempt to fill this hiatus.

#### *Five case studies*

How were Dutch scholars affected by the grand and horrific changes brought about by the war in their long-term research programs, in their ideas or in their daily routine? What was the impact of the war on Dutch scholarship and scientific practice? The papers presented here will try to provide an answer to these questions. They are based on research done during the History and Philosophy of Science Master course ‘Science and the Dilemmas of Modernity’ at the University of Utrecht, given in the years 2011–2013. Of course, this small collection of papers does not claim to present a complete overview of the Dutch academic world during the First World War. But the narratives do shed some light on the influence of the war on a variety of scientific disciplines and their scholars. The specific case studies that we present in this issue, are often based on unique archival documents.

All contributions address the issue of continuity and discontinuity – emphasizing the multi-layered relationship between the First World War and the academic intellectual world. Within the neutral Netherlands, the experiences of scientists differed from those in Great Britain, France and Germany. Obviously Dutch science was not mobilized for warfare on any scale comparable to the German or Allied efforts.<sup>20</sup> And in the absence of direct war experiences and nationalistic propaganda, the majority of the scholars could easily continue their day to day activities. But these five case studies demonstrate that the First World War certainly did not leave Dutch scholars unaffected.

This special issue opens with two papers focusing on the medical sciences. At the end of the First World War a new world-wide tragedy took shape: the 1918–1919 ‘Spanish’ influenza pandemic. In her paper Floor Haalboom focuses upon the research that was undertaken in order to explain and hopefully find a cure for this mysterious and highly infectious disease that killed even more people than the war had done. Influenza affects both humans and animals. Haalboom is specifically interested in ideas about animals with influenza in the 1910s, in order to counter the tendency of historians to restrict themselves to the human aspects and meanings of a disease such as influenza. Haalboom’s contribution is all the more relevant since present-day microbiologists use historical sources to learn more about

18 K. van Berkel, *De stem van de wetenschap; Geschiedenis van de Koninklijke Nederlandse Akademie van Wetenschappen. Deel 2 1914–2008* (Amsterdam 2011) 222.

19 For a comprehensive account of the heydays of the Dutch sciences around 1900, when not only Hendrik Lorentz became a Nobel-laureate, but also Jacobus van ‘t Hoff, Johannes Diderik van der Waals, Heike Kamerlingh Onnes and Pieter Zeeman, see: B. Willink, *De tweede Gouden Eeuw* (Amsterdam 1998). Over the 30 last years, Dutch scholars, such as Klaas van Berkel, Leen Dorsman, Peter Jan Knegtmans, Frans van Lunteren and Bert Theunissen, have published several studies on the history of Dutch science, covering both the nineteenth century as well as the interwar period.

20 J. Winter and J. Robert (eds.), *Capital Cities at War. Paris, London, Berlin, 1914–1919* (Cambridge 2007); Macleod, ‘Chapter 17’ (n. 2).

the origins of novel influenza pandemics in animal populations. In her paper, she demonstrates that such historical evidence should be dealt with carefully since it emerged in a specific historical context. She illustrates this by focusing upon the work of military horse veterinarian Emile Bemelmans. This Dutchman was able to link the ‘Spanish’ flu among humans to horse flu because of his life-long experience in the army. Doing so, Haalboom shows how the context of the First World War influenced scientific ideas and practices in Dutch influenza research.

Because of the large-scale mobilization that started in the summer of 1914, the Netherlands were directly affected by the war in many ways. In her paper, Noortje Jacobs focuses specifically on the role of physicians. With the mobilization of Dutch armed forces, military and civilian medicine came in close contact with each other. This led to interesting confrontations of the different public and private roles ascribed to physicians. Based on discussions in the *Nederlandsch Tijdschrift voor Geneeskunde* (the Dutch Journal of Medicine) about the ‘physician’s oath’, Jacobs reconstructs the revival of the debate on medical confidentiality in the Netherlands during the First World War. Between 1914 and 1918, among medical doctors in the Dutch army, as well as among their civilian colleagues, a heated debate was conducted about the first responsibility of (wartime) doctors. Was their first responsibility to serve the Fatherland, or should they always uphold the *secret absolu* codified in the physician’s oath? Using the First World War as an example, Jacobs’ contribution illustrates how the professional identity of physicians is always situated in and influenced by both the private and the public realm. Especially in a growing modern bureaucratic state, this two-sided professional identity comes to the fore, as Jacobs demonstrates.

Mobilization was one of the few practical consequences of the First World War for the Netherlands. But the tragedies of the war also sparked many moral intellectual debates. In her contribution, Ingrid Kloosterman focuses on how Dutch psychical research emerged after the war. Before the First World War, Dutch spiritualism had a profound ‘ideological’ nature, focusing mainly on the moral and Christian implications of the manifestations of spirits rather than on ‘scientifically proving’ the reality of the phenomena. Kloosterman argues that, during the war, Dutch spiritualism continued to develop along the lines set out in this pre-war period. After the war, Dutch psychologists and psychiatrists looked for a new and optimistic science of the soul in order to eliminate the past horrors. Contrary to earlier periods, these critical scholars shared – to a certain extent – their positive expectations about the unconscious with spiritualist ideas regarding the human spirit. In 1919, the Dutch *Studievereniging for Psychical Research* was established, marking the beginning of Dutch academic psychical research. On its first board – under presidency of the esteemed Gerard Heymans – psychologists and psychiatrists sat next to spiritualists. The tragedies and horrors of the First World War affected the moral intellectual debates in the Netherlands and eventually influenced the emergence of a new science.

For most spiritualists, the First World War constituted the apotheosis of ‘a disrupting and sickening materialism’. But for more conventional institutions – like the protestant Churches – the situation was not as clear-cut. This is demonstrated by Robbert Striekwold, who investigated the reactions of Dutch theologians to the war. Interestingly, they did not have much trouble reconciling Christianity with the idea of war. Authors such as Herman Bavinck, Alexander Frederik de Savornin Lohman and Abraham Kuyper all rejected pacifism. And although they did not simply defend the war, they tried to imbue it with meaning from a Christian worldview. This turned out to be a problematic endeavour. Because the

Protestant Churches were unable to formulate an adequate answer to the horrors of the First World War, they lost – to a certain extent – their relevance and appeal to the Dutch people. With his contribution, Striekwold advances our understanding of the complicated relationship neo-Calvinism had with modernity. Recently, historian of science Ab Flipse published a comprehensive account of science and religion in the Netherlands.<sup>21</sup> He reconstructed carefully both the neo-Calvinists' claim for 'their own science' before the war, and the way their internal discussions about science and religion came to a dead end in the 1920s and 1930s. Striekwold reveals how Dutch Protestant theologians were struggling with the ambition to consolidate their Christian ideas in the changing circumstances of modernity. The way in which they dealt with the First World War might have been representative in this regard.

The final contribution of this special issue concerns a subtle redefinition of the role of neutral mediator adopted by some Dutch chemists after the war. Since the First World War was to a large extent a 'Chemists War', the international community of chemists had become severely fragmented. And precisely because of the contested nature of chemistry one would not expect mediators to successfully 'clear the poisonous clouds that were still obscuring the international chemical community', as one of the mediators described the post-war situation. However, in his paper Jorrit Smit shows that the Dutch chemists Ernst Cohen and Hugo Kruyt were surprisingly successful in their mediating endeavors – even compared to attempts by other nations and in other sciences. Based on extensive archival research Smit's account describes in detail the proceedings of the 1922 *International Chemical Reunion in Utrecht*, a 'curious convention' organized by Cohen and Kruyt. In this small and informal scientific workshop, Austrian, German, British and American chemists were brought together for the very first time after the war. The author argues that the organization of this reunion should be understood as a demonstration of the mediating skills of the Dutch chemists, and specifically of Cohen and Kruyt. Their efforts contributed to the rebuilding of an international community of chemists.

What do these five contributions reveal about the influence of the First World War upon the Dutch sciences? And to what extent do the concepts of continuity or discontinuity suffice to define this interaction? In all of these case studies, previous debates reoccur and profound changes simultaneously start to emerge. Whether we are talking about veterinarians continuing to strive for full medical recognition while at the same time coining new ideas about the nature of diseases; or about the ongoing struggle of physicians with their public and private roles, while at the same time incorporating these different roles more and more into their professional identities; or about the perpetuation of *fin-de-siècle* ideas expressed by Dutch spiritualists, who simultaneously contributed to the new science of psychical research; or about the continuing use of previous justifications of war by the Protestant Churches, just when the general public could relate less and less to these standpoints; or whether we talk about the Dutch chemists who wanted to rebuild the pre-war international community, by subscribing to a new 'mediating' role, a concurrence of continuous and discontinuous elements becomes obvious.

This constant duality is in fact represented by the First World War itself, if understood as both an accumulation of existing societal tendencies as well as the end of an era. It is on these *dilemmas of modernity* that we hope to shed some light with this special issue.

21 A. Flipse, *Christelijke wetenschap. Nederlandse rooms-katholieken en gereformeerden over de natuurwetenschappen, 1880–1940* (Hilversum 2014).