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The scientific intelligentsia: Science and society in the Netherlands, 1890–1940

AT THE TURN OF THE TWENTIETH CENTURY Dutch science took a turn that some have called a “small Faustian tragedy.” The situation for science improved: Dutch government provided more funding, and research facilities were expanded. Scientists could pursue their own research projects without any interference from outside. This is supposed to be the period of the ‘ivory tower’. The result is known as the ‘Second Golden Age of Dutch Science’, marked by several Nobel Prizes.

On the other hand, scientists lost their traditional status as ‘men of culture’. This was the prize they had to pay, the Faustian element. The improvement of funding and research facilities stimulated specialisation and professionalisation. Previously, scientists used to be members of a general learned elite, the traditional class of ‘Gebildete’ that also included writers, magistrates and politicians. Scientists now turned into specialists whose expertise was limited to a small, well-defined area. Science became a profession.

In the same period, university education showed similar developments. In the nineteenth century, students were educated to become ‘men of culture’, future members of the learned elite. From the turn of the century onwards, they were to become scientific researchers, experts in one specific discipline. Hands-on research became part of their academic programme.

These scientific and academic developments were connected to other changes in society and in politics, such as rapid industrialisation, and the increasing interference of the state in society. They were also related to ongoing philosophical discussions about the limits of science. Questions such as: which phenomena are legitimate subject of scientific research, and what can science teach us concerning the metaphysical foundations of reality? became topics of intellectual discussion in many Western-European countries.

At the end of nineteenth century, scientists were often accused of having transgressed the limits of their proper domain. One of the best-known articles on this matter was published by Ferdinand Brunetière in France in 1895 about the bankruptcy of science. Debates in other countries were perhaps less fierce, but the limits of science were discussed everywhere.

Heilbron has described the reaction of many scientists as a turn to descriptionism. They renounced any claim to metaphysical truth, and settled for giving an economical description of observations. Heilbronn interpreted this as a defensive strategy: scientists withdrew from the domain of philosophy and religion. Authors like Ted Porter, however, have argued that this resignation from metaphysics served to strengthen the reputation of scientific objectivity. By separating science from philosophy, religion and politics, scientists could become neutral and disinterested experts. Their claim to authority was different from the men of culture, but no less effective. In this sense, there was no Faustian tragedy at all.

A good example of this was the development of statistics. Statistics does not claim to explain anything, and therefore it can be used anywhere without having to touch upon controversial issues, even in psychology or sociology. By giving up some depth in explanation, scientists could expand the range of subjects they could treat with their methods.

This is a very important point. Together with specialisation and professionalisation, the rhetoric of descriptionism turned scientists from men of letters into experts. Their authority was no longer based on membership of the learned elite, but on well-defined expertise. At the same time, however, the reputation of scientists as experts gave them authority to speak out on subjects of general interest even outside their

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own specific discipline. When a biologist publicly gave his opinion on the structure of society, this was clearly outside his own field, but his reputation as a scientist gave his words more credit.

Paradoxically, the ivory tower of science functioned not only as a sanctuary, but also as a solid base that provided the expert with intellectual authority even on questions of general interest. Early 20th-century scientists were just as interested in the outside world as their predecessors, but they tended to participate in it in different ways.

The changing public role of scientists marks the emergence of a new social type: the modern intellectual, by which I roughly mean professionals who tread outside their specific expertise to speak out on matters of general interest. They can be writers, artists or philosophers, and, importantly, they can also be scientists.

Recently, Stefan Collini has argued that England has had a 'tradition of denial' with respect to intellectuals. Intellectuals simply did not fit into the self-portrayal of the English as a 'pragmatic, cool, abstraction-avoiding people.' The Dutch national self-image, which often came up in debates in this period, is very similar. However, the kind of intellectual I describe here, the expert-intellectual, fit the image perfectly. It was engineers, in particular, who became the stereotypes of objective expert-intellectuals. The engineers themselves happily agreed. In the first half of the twentieth century, many engineers tried to establish themselves as public counsellors in every corner of society: politics, in private companies and in all other kinds of organisations.

The public role of engineers had been growing for decades. Already in the 19th-century, for instance, the Water Management Agency became a very powerful organisation in the Netherlands. At the end of the nineteenth century, the government passed new laws concerning housing policy, health and hygiene, and working conditions in factories. These laws were based on expert knowledge, and their implementation was also heavily dependent on experts.

The emergence of the engineer-like, neutral expert-intellectual is strongly connected to the development of 'planning,' a specific type of technocratic thinking that was very influential in 20th-century Dutch history. The remainder of my talk will be devoted to this subject. But before I do that, I have to briefly return to the discussions about the limits of science.

At the turn of the century, science was often criticized for having ignored the human factor. Critics claimed it had buried itself in mechanical explanations of matter and force. As a result of this, phenomena such as human consciousness, intuition and character were pushed outside the domain of science. A few radical nineteenth-century scientists had claimed that these phenomena were mere illusions, or else that they were just not interesting from a scientific point of view. Many others, both inside and outside science, took a different point of view. They called for a more humane science that was supposed to have an open eye for the human mind and for social issues.

As a consequence, scientists who turned away from issues of metaphysics, at the same time felt obliged to expand the range of their science beyond the merely material and mechanical. This led to pleas for new directions in science, especially in social science, and for new applications of psychology. Among the defenders of these ideas in the Netherlands were Gerard Heymans and Isaac de Vooyo.

Heymans was considered one of the most prominent Dutch intellectuals of his time. As professor of philosophy and psychology in Groningen, he was one of the first experimental psychologists, following the methods of Wilhelm Wundt. He also pioneered the use of questionnaires as a research tool. In a rather controversial speech in 1909, he argued that just as the nineteenth century had been the 'era of science,' the 20th century would be an 'era of psychology.' Psychology would change society just as fundamentally as science had. For example, the scientific classification of different personality types would help to solve many social problems.

Isaac de Vooyo is less well-known, but he is no less interesting. He was an engineer, but also a poet, a culture critic and an influential social-democrat. At the end of the First World War, De Vooyo argued that it was necessary to develop a new science of society, in order to deal with the social consequences of modern science and technology. He argued that the development of this new science was not to be left in the hands of academic scientists or politicians because they did not have the relevant practical knowledge. According to him, politicians demonstrated their incapability as leaders of modern society in the Great War. That was no surprise as most politicians were lawyers without any knowledge of science and technology. Therefore, they couldn't be expected to understand modern society of which science and technology formed such an important part.

According to De Vooyo, it was *engineers* who had both the required theoretical knowledge and practical skills to become the new leaders in society. In particular, De Vooyo referred to three engineers who had demonstrated their leadership abilities during the war: Herbert Hoover in the United States, Walther Rathenau in Germany and Leonid Krasin in Russia. They were role-models that inspired De Vooyo, and he probably hoped to put himself in a similar role in Dutch society, as well.

I will now discuss several important factors that stimulated technocratic thinking in the Netherlands in the inter-war period. The first of these is WWI.

The Netherlands was neutral in the First World War but its impact was felt nevertheless. For example, all foreign trade lines led through war zones, which inevitably led to shortages in Dutch economy. For this reason, a large part of the economy was put under direct government control. Experts thus played an important role in the regulation of economy. After the war, De Vooyo and many others were very enthusiastic about this period. They argued that the Great War was proof that expert-regulated, government-controlled economy could function perfectly. These considerations stimulated technocratic thinking.

The Great War also influenced the new social status of experts in another way. As I said earlier, many Dutch intellectuals considered the war the ultimate proof of the failure of politicians. They also felt disappointed in foreign intellectuals who had joined in the nationalistic rhetoric of their respective countries. One example of this was the ‘Aufruf an der Kulturwelt’ of German intellectuals. International contacts between scientists from the former enemies were impossible in the early twenties. Coming from a neutral country, Dutch scientists like Lorentz, de Sitter, or the mathematician Brouwer considered it their task to negotiate between German, French and English scientists. They stressed the importance of science as an international, non-controversial enterprise that could help to rebuild international networks. This was another way in which science could improve the world by being disinterested and a-political. The similarities with descriptionism are obvious.

The economic crisis of the early 1930s provided another impulse for technocratic thinking. Again, many people felt that politicians failed to react adequately to the problems of modern society. Government policy in the Netherlands was to blame for the fact that the crisis lasted longer than in most surrounding countries. Once again, expert intervention was called for. Unlike on earlier occasions, this time the call had some concrete results. For example, just after the First World War the Royal Academy of Science, chaired by Lorentz, initiated plans for a national organisation for applied scientific research, in cooperation with industry and universities. But it was only in the 1930s that the organisation was actually founded, when a group of engineers took over. De Vooyo was one of them.

In the 1930s, technocratic thinking gradually gained support from other groups in society as well, including a growing number of politicians. The Labour Plan of 1935 provides a relevant example. This large-scale plan was designed to improve the structure of Dutch economy. It was initiated by the Labour Party. The plan was authored by a group of experts, both scientists and engineers. A famous member of the group was Jan Tinbergen, who was originally trained as a physicist under Paul Ehrenfest. Tinbergen later went on to win the first Nobel Prize in economics in 1969. Although the Labour Plan was never actually implemented, it nonetheless had important consequences. It had a great influence on planning post-WWII reconstruction. And it was only after they had presented the Plan, that the Labour Party was considered a serious candidate for government.

Finally, a stimulus for technocratic thinking came from several large-scale engineering works, most notably the Dutch South Sea Works. Discussion about these plans had been going on for ages, but construction started only after World War One. The closure dam that turned the Dutch South Sea into a lake was finished in 1932. In the 1940s and 50s the large polders followed, some 1500 square kilometres of new land. The great man behind all these projects was the Minister for Water Management Cornelis Lely, an engineer. The physicist Lorentz also contributed to the Dutch South Sea Works, which earned him much popularity. These projects were considered proof that experts could successfully handle large-scale operations.

As we have seen, the change from scientists as learned men to scientists as professional experts was not just a matter of rhetoric. Universities might have looked like an ivory tower, but scientists did not turn away from society. Their public role just took a different shape: that of the specialised expert. This was a new type of intellectual, of which engineers became the typical representatives.

The new cultural authority of experts coincided with political and social developments that mutually reinforced each other. This development was particularly strong in the Netherlands. After World War II, planning became a major influence in reconstruction. The first cabinet after the war has often been called the 'cabinet of engineers' and many of its ministers had been important actors in the debates of the 1930s.

So we may conclude that what started as a rather academic discussion eventually had very concrete results.