

Chapter Title: 'A New Scientific Conception of the Human World' Anton Pannekoek's
Understanding of Scientific Socialism
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Book Title: Anton Pannekoek
Book Subtitle: Ways of Viewing Science and Society
Book Editor(s): Chaokang Tai, Bart van der Steen, Jeroen van Dongen
Published by: Amsterdam University Press. (2019)
Stable URL: <https://www.jstor.org/stable/j.ctvp7d57c.9>

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7 'A New Scientific Conception of the Human World'

Anton Pannekoek's Understanding of Scientific Socialism

Bart van der Steen

Abstract

This paper sets out to reconstruct Pannekoek's understanding of scientific socialism in order to reconnect Pannekoek's political and astronomical work. It does so through a close reading of Pannekoek's early socialist essays, where he repeatedly referred to socialism's scientific character, explaining it in various ways. From this reading, three different but closely related conceptions of scientific socialism can be abstracted. For Pannekoek, socialism was scientific in that it embraced modern science, in that it supposedly uncovered the laws of societal development, and in that it foretold the advent of socialism. The paper shows how, for Pannekoek, socialism was the only ideology with a true interest in scientific research and findings. This line of reasoning allowed Pannekoek to connect his astronomical and socialist persona.

Keywords: Anton Pannekoek, scientific socialism, Isaac Asimov, scientific worldview

The Role of Science in the Two Lives of Anton Pannekoek

Anton Pannekoek was both a renowned astronomer and a famous socialist, but few attempts have been made to connect his two fields of work. One possible way to do so is by analysing his understanding of the word 'science', because Pannekoek did not only see his astronomical work as a scientific undertaking – he also defined his brand of socialism as 'scientific'. This chapter therefore sets out to reconstruct Pannekoek's understanding of

Tai, Chaokang, Bart van der Steen, and Jeroen van Dongen (eds), *Anton Pannekoek: Ways of Viewing Science and Society*. Amsterdam, Amsterdam University Press 2019

DOI: 10.5117/9789462984349_CH07

scientific socialism and asks what the term 'science' meant in this context. It does so through a close reading of Pannekoek's early socialist essays, where he repeatedly referred to socialism's scientific character, explaining it in various ways. From this reading, three different but closely related conceptions of scientific socialism can be abstracted, which reinforce each other to a certain extent.

From the early 1900s to the early 1920s, Pannekoek was an internationally renowned socialist.¹ Before the outbreak of World War I, he taught at the cadre school of the Social Democratic Party of Germany (SPD) in Berlin and published in Karl Kautsky's *Die Neue Zeit*, the main theoretical journal of the international socialist movement. There, Pannekoek debated issues of socialist politics and theory with the likes of Kautsky, Rosa Luxemburg, and Eduard Bernstein. Soon after the Russian Revolution, Pannekoek became one of the most prominent radical socialist critics of Leninism, which he denounced as authoritarian and elitist. As an alternative, he developed a strand of revolutionary thinking called council communism, which emphasized workers' self-emancipation and organization in councils that should act independently of trade unions and political parties. After his break with Leninism, Pannekoek was marginalized within the labour movement, his influence limited to the small groups of council communists that remained politically active throughout the interwar period and after.² Nevertheless, Pannekoek remained committed to revolutionary politics throughout his life and continued to analyse and comment on the problems of socialist politics and theory until his death in 1960.

While Pannekoek's fame within the socialist labour movement declined, he became an ever more prominent astronomer. In 1919, he gained a position at the University of Amsterdam, after which he became endowed professor in 1919 and full professor in 1932. As a scientist, he not only endeavoured to map the Milky Way and analyse stellar spectra, but also authored various works on the history of astronomy and the philosophy of science.³

Pannekoek thus specialized in two disparate fields of work, and his biographers have found it difficult to reconcile the two. The fact that the history of socialism and the history of science have traditionally been remote and distinct fields of research have made this all the more difficult. Most

1 Gerber 1989; van Berkel 2001; Welcker 1986.

2 For Anton Pannekoek and the history of council communism, see: Bock 1993; Bourrinet 2017; Gerber 1988; 1989; Kool 1970; Mergner 1971.

3 van den Heuvel 1982; Tai 2017.

historical research has focused on Pannekoek's political life. As a result, traditional historiography has upheld a divide that was originally introduced by Pannekoek himself. From World War I onwards, he rigidly separated his two fields of work, especially to the outside world. He started to publish his political work under pseudonyms, and in 1944 he authored two different autobiographies; a political and an astronomical one.⁴ In explaining Pannekoek's division of political and astronomical persona, various contributors in this volume – most notably Klaas van Berkel, David Baneke, and Edward van den Heuvel – have pointed out that Pannekoek's scientific career was hampered at various moments because of political controversies.⁵ Only recently attempts have been made to integrate the two historiographies on Pannekoek and to move beyond the divide. In fact, this volume counts as one of the first attempts to reconnect Pannekoek's two fields of work.

Chaokang Tai, who is currently preparing a new biographical study of Pannekoek, is right in pointing at Pannekoek's theory of knowledge as a way to reconnect Pannekoek's political and astronomical work.⁶ Both in his socialist writings and in his writings on (the history of) astronomy, Joseph Dietzgen (1828-1888) and his theory of knowledge acted as a source of inspiration. Dietzgen was a tanner and self-educated worker-philosopher who had corresponded with Marx and coined the term dialectical materialism.⁷ Pannekoek was heavily influenced by the works of Dietzgen, who had claimed, mainly in *Das Wesen der menschlichen Kopfarbeit* (1869), that the human mind organized knowledge by abstracting continuously from the particular to the general.⁸ This principle not only informed Pannekoek's theory of knowledge, but also his conception of scientific research. Pannekoek even claimed that Dietzgen had transformed philosophy from a speculative endeavour into a 'natural science', stating: 'It is the merit of

4 The two autobiographies were published in 1982 in one volume with two separate, biographical introductions. Pannekoek 1982; Sijes 1982; van den Heuvel 1982. Some of Pannekoek's most important texts were published anonymously or under pseudonyms, for example, as Aartsz 1946. It should not be overlooked, however, that other factors played a role in this process as well. Within the council communist movement, for example, texts were published anonymously as a rule to show that the texts were outcomes of collective ideological labour and discussions. See Brendel 1974.

5 Klaas van Berkel, 'Utopianism in Anton Pannekoek's Socialism and Astronomy', in this volume, 75-86; David Baneke, 'Pannekoek's One Revolution', in this volume, 87-108; Edward P.J. van den Heuvel, 'Anton Pannekoek's Astronomy in Relation to his Political Activities, and the Founding of the Astronomical Institute of the University of Amsterdam', in this volume, 25-50. See also Baneke 2004.

6 Tai 2017; Tai and van Dongen 2016.

7 Burns 2002; Schaaf 1993.

8 Bock 1992; Schaaf 1978.

Dietzgen to have raised philosophy to the position of a natural science, the same as Marx did with history.⁹

The last paragraph may serve to illustrate that, next to Pannekoek's theory of knowledge, his concept of science offers another way of bridging the gap between the socialist Pannekoek and the astronomer Pannekoek. It has often been overlooked that Pannekoek published his first history of astronomy, 'Die Entwicklung des Weltalls', as a feuilleton in *Die Neue Zeit*.¹⁰ Approaching the topic from another angle, it is hard to miss that Pannekoek's 1951 *History of Astronomy* ended with an overt political statement:

It is about time that man, by establishing a free, self-governing world community of productive labour and by assuring itself of material prosperity in abundance, liberates all spiritual forces for the perfection of its knowledge of nature and especially the science of the universe.¹¹

Both examples suggest that, for Pannekoek, the boundaries between the two fields of work were not as strong as has often been suggested by his biographers.

This chapter analyses and contextualizes Pannekoek's definitions of scientific socialism through a close reading of Pannekoek's early socialist works, with a focus on his writings from before 1918. After 1918, Pannekoek remained politically active, but his conception of scientific socialism did not change significantly. Pannekoek's politics changed, from supporting social democracy to Bolshevism to council communism. His aversion to formal organization grew and he emphasized ever more the need for workers to act and organize independently. Even so, his commitment to orthodox Marxist principles remained and his way of analysing political situations stayed basically the same. In breaking with Lenin, for example, Pannekoek argued that Russia was industrially underdeveloped so that it could not spawn a true workers' revolt, which according to him also explained Lenin's 'backward' ideas of a hierarchically organized vanguard revolutionary party. His political break with Lenin and his emphasis on workers' councils was

9 Pannekoek 1906c, 28. Compared with the German version, Pannekoek 1903. Digitized versions of many publications of Pannekoek can be found on the website of the Association Archives Antonie Pannekoek: www.aaap.be (accessed 16 March 2018).

10 Pannekoek 1908-1909.

11 Pannekoek 1951, 432. This was brought to my attention by Klaas van Berkel, 'Utopianism in Anton Pannekoek's Socialism and Astronomy', in this volume, 75-86.

politically innovative, but rooted in orthodox Marxist ideology.¹² The latter, his conception of socialism as a system, is the focus of this contribution. Pannekoek emphasized socialism's scientific character most strongly in his early works, which is the reason for the focus on these works in this contribution. It needs to be taken into account that his works were published in various languages, and that the word 'science' had different connotations in these languages. This potential problem is corrected by comparing the same texts in different languages.¹³

Debating Science in Socialism and Academia

When Pannekoek became politically active in the late nineteenth century, what should count as science was very much in flux. This is exemplified by two debates on science that Pannekoek responded to with his texts: one within the labour movement and one among academics. First of all, the term 'science' was used within the socialist labour movement to discern between (orthodox) Marxists and ethical or utopian socialists, with the former accusing the latter of merely 'dreaming up' alternative social models of society instead of truly engaging with contemporary social conflicts. In this context, the Marxists often criticized attempts by 'utopian' socialists to set up self-sustaining and thus isolated socialist communes. According to the Marxists, the utopian socialists thus reduced socialism to blueprints of ideal society, while they themselves based their actions on (scientific interpretations of) current social developments. The main point that Marxists wanted to make was that socialism was, in their view, no longer one social ideal amongst many others, but a future society that would organically grow out of the old, through social developments and conflicts that could be measured, analysed, and anticipated upon.¹⁴ These claims reflected the growing authority of (natural) science in society, and the growing belief that science had a role to play in politics.

12 van der Steen 2006.

13 Such a comparison between versions uncovers interesting differences. In the English translation of Pannekoek's *Marxism and Darwinism* by Nathan Weiser, it is stated: '[T]he teachings of Darwin and of Marx, the one in the domain of the organic world and the other upon the field of human society, raised the theory of evolution to a positive science.' Pannekoek 1912b, 18. The Dutch and German version give the term scientific a different twist, which becomes clear when we re-translate the German passage: 'The scientific meaning of both Marxism and Darwinism lies in their implementation of the principle of evolution, here in the organic world, there in the field of society.' Pannekoek 1909b, 12. Weiser's translation gives the text a bolder character, by speaking of Darwinism and Marxism as a 'positive science' rather than of their 'scientific meaning'.

14 Engels 1880.

The second debate was closely related to the first, but developed in a different setting, namely that of academia. Among social scientists and historians there was a dispute on the works and claims of the positivist philosopher Auguste Comte. An important claim in Comte's philosophy was that the social sciences and history could and should adhere to the same scientific parameters as the natural sciences. In other words, Comte believed that society developed according to certain laws that functioned in the same way as laws of nature – and he felt it was the task of social scientists to uncover these laws. His followers claimed that, ultimately, the social sciences were to develop into a natural science of society, which implied that it could formulate laws of social development, with both the power to explain past developments and forecast future ones. Others, however, heavily criticized this stance. They emphasized the different nature of both fields and claimed that the social sciences could only produce (inherently contested) interpretations and 'images' of society.

In both debates, Pannekoek clearly took his stance, claiming that Marx had transformed both socialism and the social sciences into natural sciences. Even more so, John Gerber notes that Pannekoek 'uses the terms Marxism, spiritual science, social science, and historical materialism interchangeably'.¹⁵ Pannekoek believed that this transformation of the social sciences enabled him and others to abstract 'certain laws and rules' from the past, in order to 'say something about future developments'.¹⁶

Scientific Socialism in Pannekoek's Era

The concept of scientific socialism was introduced by Marx and Engels. In the brochure *Socialism: Utopian and Scientific* (1880), Engels claimed that two 'great discoveries' by Marx had turned socialism into a science: Historical materialism and class struggle. As a result, socialism was 'no longer an accidental discovery of this or that ingenious brain'.¹⁷ Instead, historical materialism explained 'the historico-economic succession of events' as a result of class struggle, and even identified 'the means of ending the conflict' – a socialist revolution after which the progress of mankind could unfold unhampered. 'With these discoveries', Engels thus

¹⁵ Gerber 1989, 20.

¹⁶ Pannekoek 1906a, 25. Compared with the Dutch translation, Pannekoek 1907.

¹⁷ Engels 1880.

stated confidently, 'socialism became a science'. Engels saw scientific socialism as 'the theoretical expression of the proletarian movement'. Its task was 'to impart' on the movement that 'universal emancipation is the historical mission of the modern proletariat'. There is a duality in this line of reasoning. Scientific socialism is both a means to understand how historical developments lead to the advent of socialism, and the task of discerning this message to the proletariat. The importance of the latter for the former is emphasized by Pannekoek's claim that the proletariat's knowledge of its coming triumph is crucial for its success in struggle. Pannekoek's writings on scientific socialism are thus characterized by a similar duality.

The extent to which Marx and Engels themselves saw their socialism as scientific and were convinced that socialism was imminent has been a topic of debate. Charles Elkins, for example has vehemently opposed such a view, stating: 'Marx and Engels never claimed for their theories the status of "exact science". They were always careful to describe the "laws" of historical development as "tendencies".'¹⁸ At the same time, Marx and Engels themselves contributed to such confusion, among others by titling a pamphlet *Socialism: Utopian and Scientific*.

Either way, the generation of Marxists that followed *did* see Marxism as (an almost natural) science, stressing the imminence of socialism and its explanatory power. A central aspect of Marxism in Pannekoek's era was the premise that human consciousness was determined by social conditions, and that changes in the latter would ultimately bring about a revolution in the former. Could social and cultural developments thus be explained by changes in the economy alone? Even among prominent Marxists this sometimes led to confusion. In one instance, for example, Engels felt forced to nuance the relationship between social conditions and consciousness. In a letter to Joseph Bloch, Engels wrote: 'According to the materialist conception of history, the *ultimately* determining element in history is the production and reproduction of real life. Other than this neither Marx nor I have ever asserted.'¹⁹

Still, confusion remained and critics lashed out at Marxism, writing it off as a reductionist and determinist philosophy. Rudolf Stammler, for example, compared the Marxist labour movement of the 1890s to a cult that strove to bring about a lunar eclipse, asking why socialists would labour for a

¹⁸ Elkins 1976, 32.

¹⁹ Engels to Bloch, 21 September 1890, quoted in: Marx, Engels, and Lenin 1972, 294-296; emphasis in the original. See also: Lukács 1923.

revolution that was bound to unfold either way.²⁰ Marxists shrugged off these criticisms as reactionary and bourgeois. But even so, some of it must have stuck, for Pannekoek was not entirely convinced by Marxism at first. Only after reading Dietzgen, Pannekoek was fully convinced: 'Here I found for the first time everything that I had been looking for [...] I was able to completely clarify my conception of the mutual relationship between Marxism and a theory of knowledge and develop it into a unified whole.'²¹ Scholars such as Hans Manfred Bock have claimed that the 'Marx-Dietzgen-Synthesis' of Pannekoek enabled him to overcome the pitfalls of classical Marxism.²² Pannekoek's early socialist writings, however, show that he remained firmly within the boundaries of orthodox Marxism: He remained committed to the idea that social conditions determined consciousness, that societies pass through certain stages of development, and that socialism would be the ultimate outcome of class struggle.²³

Socialism as Scientific Certainty

Pannekoek stressed the scientific character of his socialism in his early works. According to him, Marx had turned socialism into a science that could make claims on social developments in the same way as the natural sciences. In 1912, he described socialism as 'a new scientific conception of the human world',²⁴ but his equation of socialism with natural sciences reached its apex in 1906, when he stated that scientific socialism was able to 'make some prediction about the future':

When we speak about the future [...] we do not ask: how do we wish to shape the future? Instead, we ask: what will happen in the future. Scientific socialism is the teaching of social development. It has won certain views from the history of society, abstracted certain laws and rules, and these rules and laws allow us to make some prediction about the future, and draw conclusions about how society will be by that time, independent of our desires and wishes.²⁵

20 The Russian Marxist Georgi Plekhanov tried to rebuke the critique, but several of the abovementioned issues remained a source of debate well into the 1930s. See Plekhanov 1898.

21 Pannekoek 1982, 94.

22 Bock 1992.

23 van der Steen 2006.

24 Pannekoek 1912a, 4.

25 Pannekoek 1906a, 25.

In another text from the same year, Pannekoek reasserted his views:

Many have dreamed [...] of a better and brotherly future world [...] without knowing our worldview. The most outstanding quality of the proletarian view of life and [political] struggle lies not in the fact that we want a socialist society, but in the fact that we can see it coming and predict its advent with scientific certainty. Not the wish, but the knowledge that the wish will be fulfilled, and in what way, is the most valuable of our views.²⁶

Even so, there was a circular side to his line of reasoning, because Pannekoek believed that 'we can only triumph by fully developing our means of struggle', the most important of which was 'the education [Aufklärung] of the masses'.²⁷ Scientific socialism taught that the proletariat would bring about revolution, but it could only do so after it had learned that it would ultimately do so. Even more so, Pannekoek at one time seemingly suggested that socialism's scientific character lay exactly in the fact that it could convince the proletariat that their triumph was imminent:

The proletariat not only needs to long for [herbeisehnen] a better order; historical materialism gives the proletariat the certainty that such an order will come, since the development of the economy contributes to and makes possible its attainment. In this manner, socialism ceases to be a utopia and becomes a science.²⁸

For Pannekoek, socialism's scientific character lay not in the certainty that socialism would come, but in its analysis of social developments, which 'showed' that socialism was imminent. Even so, the certainty of socialism's coming and socialism's scientific character were closely connected.

Pannekoek was not unique in voicing such claims. In fact, the idea that historical materialism had enabled socialists to abstract certain laws of social development from history formed the mainstay of Marxist thinking well into the 1930s. But Pannekoek was also an astronomer, who had practical experience with natural science research. This raises the question why he never specified these laws of historical development. His own natural scientific background could have caused him to see the differences between socialism and natural science, rather than their similarities. Asking this question and looking further

26 Pannekoek 1906b, 20-21; Compared with Dutch version, Pannekoek 1905, 31.

27 Pannekoek 1906b, 6. Compared with Dutch version, Pannekoek 1905, 6.

28 Pannekoek 1915.

into Pannekoek's definitions of socialism's scientific character reveals that Pannekoek defined scientific socialism in three different ways: as a science that 'proved' that socialist revolution is imminent, as a method for analysing past and present social developments, and as a worldview that strove for truth in scientific research. It is the first definition of scientific socialism that is most controversial. While Pannekoek's other two definitions emphasize the worldview and method of his socialism, the first one is most ambitious and raises most questions. For if socialism claims the ability to abstract laws from past development and project them onto the future, a future in which socialism reigns supreme, the question inherently comes up why socialists have not been able to determine these laws and predict future developments.

Marxism as Science: The Concept of Psycho-history

As mentioned, scientific socialism claimed to reveal the laws of social development, but these laws were never precisely articulated, nor were these laws ever operationalized by anyone, including Pannekoek. This divide between the claims of scientific socialism and its practice can be illustrated through the concept of psycho-history, which was introduced by the American science fiction author Isaac Asimov in the early 1940s. Between 1942 and 1950, Asimov wrote a series of stories that would eventually result in the Foundation trilogy, and ultimately into the Foundation saga – 'One of the most staggering achievements in modern SF' according to *The Times*.²⁹ These stories revolved around the work of Hari Seldon, who had developed an advanced method of mathematical deduction in order to calculate future developments – akin to what we would now call 'big data' science. Dubbing this fictional science 'psycho-history', Asimov explained its essence as follows: 'Psycho-history was the quintessence of sociology, it was the science of human behaviour reduced to mathematical equations'. Its basic principle was that 'the individual human being is unpredictable, but the reactions of human mobs [...] could be treated statistically'.³⁰ In this

29 The original stories were published in *Astounding Science Fiction* between 1942 and 1950 and subsequently published in book form as: *Foundation* (1951), *Foundation and Empire* (1952), *Second Foundation* (1953). In the late 1980s and early 1990s, two sequels and two preludes were published: *Foundation's Edge* (1982), *Foundation and Earth* (1986), *Prelude to Foundation* (1988), *Forward the Foundation* (1993). Subsequent quotes stem from the 2010 omnibus version, Asimov 2010. For Asimov's life and writings, see Asimov 2002; and Freedman 2005. For an interesting analysis of the foundation novels, see Käkälä 2016.

30 Asimov 2010, 411.

way, Asimov's character Seldon could predict future developments with a probability of up to 94%. Seldon could do so, because psycho-history 'could forecast reactions to stimuli with something of the accuracy that a lesser science could bring to the forecast of a rebound of a billiard ball'.³¹

Asimov's psycho-history was an allusion to historical materialism, the Marxist notion that social developments are not random, but the result of larger social processes, which unfold according to a certain logic. Because of this, laws of development can be abstracted from the past and projected onto the future. Several authors have claimed this earlier, among them Donald Wollheim, who stated that 'Asimov took the basic premise of Marx and Engels, said to himself that there was a point there – that the movements of human mass must be subject to the laws of motion and interaction, and that a science could be developed based upon mathematics and utilizing all the known data'. For Wollheim, psycho-history therefore was the fictional science that 'Marxism thought it was and never could be'.³² Still, psycho-history was not so much intended as a parody, but rather as a thought experiment. What if it were actually possible to discern laws of social development from society's history? How would these laws work and how could they be made operational? With his Foundation novels, Asimov provided one possible answer, in which the laws of social development could be ascertained through statistical methods; an answer that continues to fascinate and inspire authors and scientists to this day.³³

Moving from Asimov's fictional science to the real existing historical notion of historical materialism, we are confronted with a striking paradox. Orthodox Marxists such as Pannekoek claimed that, indeed, laws of social development could be abstracted from the past – and even used to forecast future developments. Friedrich Engels stated at Marx's funeral: 'Marx discovered the law of evolution in human history [...] Marx also discovered the special law of motion governing the present day capitalist method of production and the bourgeois society that this method of production has created.'³⁴ This, in turn, led Lenin to conclude that 'Marx drew attention and indicated the way to a scientific study of history as a single process which, with all its immense variety and contradictions, is governed by

31 Asimov 2010, 205.

32 David Wollheim, as quoted in Elkins 1976, 32. Elkins' contribution offers an original and thought-provoking critique of Asimov's work. At the same time, however, as he neatly lays out the differences between Asimov's (and Wollheim's) 'crude caricature of Marxism' and the supposedly 'real' ideas of Marx and Engels, his article tends to be rather dogmatic itself.

33 See, for example, *The Economist* 2013.

34 Engels 1883.

definite laws.³⁵ Pannekoek went one step further and at one time claimed that these laws ‘allow us to make some prediction about the future’.³⁶ Even so, this scientific method and, more importantly, these laws were never made explicit. This raises the question why Pannekoek did not reflect more explicitly on the differences between social and natural sciences, and the searing divide between the claims of historical materialism – i.e. scientific socialism – and the realization of these claims.

Nuancing the Scientific Claims of Socialism

In his early works, Pannekoek subscribed to the idea that Marxism could make predictions about the future, especially in forecasting the advent of socialism. As scientific socialism embraced empirical research, it was supposedly able to uncover societal laws of development, which foretold the outbreak of socialist revolution. The last step in this line of reasoning, however, led to tension. In 1906, for example, Pannekoek stated that socialism could provide information on ‘what according to our contemporary knowledge *will* be the course of *imminent* social developments’.³⁷ Yet, at the same time, Pannekoek stated that the forms that the coming revolution would take were ‘hard to determine beforehand’.³⁸ The tension between both these claims was left unresolved in the text. In his 1919 *Historical Materialism*, Pannekoek even explicitly denounced determinist views of how the future would unfold.³⁹ The other two premises of Pannekoek’s socialism remained.

But already by 1909, Pannekoek proposed a different way in which Marxism could be scientific in his well-known treatise *Marxism and Darwinism* (1909).⁴⁰ In *Marxism and Darwinism*, Pannekoek held that academic disciplines such as history become scientific when they are able to explain the ‘origin and meaning’ of phenomena. Along those lines, even ethics could become a science, when this ‘science of ethics’ would aim to explain and understand the ‘origin and essence of ethical phenomena’. In a similar vein, philosophy could become a science, as long as it was premised on the notion that ‘the human spirit [religion, art, science, philosophy] is conditioned in

35 Lenin, as quoted in Elkins 1976, 29.

36 Pannekoek 1906a, 25.

37 Pannekoek 1906a, 28.

38 Pannekoek 1906a, 28.

39 Pannekoek [1919] 1972.

40 Pannekoek 1912b. Dutch original and German translation: 1909a; 1909b.

all its expressions by the outside world'. When the human spirit 'simply becomes a part of nature, the humanities turn into natural science.'⁴¹

This 'social-science-as-a-natural-science', however, did not embody specific well-defined methods or laws such as Asimov suggested in his Foundation novels. Rather, it proposed a general idea of how the social sciences should be conceived. For Pannekoek, the focus should be on explaining social developments. Pannekoek explained this in his comparison between Marxism and Darwinism. Conceding that evolution theory could not be observed directly or be tested in a laboratory, Pannekoek reasoned:

The best proof for the correctness of this theory would have been to have an actual transformation from one animal kind to another take place before our eyes, so that we could observe it. But this is impossible. How then is it at all possible to prove that animal forms are really changing into new forms? This can be done by showing the cause, the propelling force of such development. This Darwin did.⁴²

Pannekoek then continued to claim that Marxism worked along the same principles: 'If we turn to Marxism we immediately see a great conformity with Darwinism. As with Darwin, the scientific importance of Marx's work consists in this, that he discovered the propelling force, the cause of social development.'⁴³ Scientific socialism thus became a way of understanding and explaining social developments; developments that were moving towards socialism. In this way, scientific socialism as a prediction and as a method were closely linked. When Pannekoek renounced the imminence of socialism, he upheld that Marxism could explain the past and present, but not predict the future.

Scientific Worldview and Education of the Masses

Pannekoek thus characterized his socialism as scientific because it foretold the advent of socialism, but also because it provided a way to understand social developments. In other works, he defined socialism as a 'scientific conception of the human world'.⁴⁴ In 1903, Pannekoek suggested that socialism was not so much one scientific discipline among others, but rather a

41 Pannekoek 1906c, 20.

42 Pannekoek 1912b, 10-11. Compared with 1909a, 10; and 1909b, 7.

43 Pannekoek 1912b, 35.

44 Pannekoek 1912a, 4.

worldview. Dietzgen's 'theory of cognition' was the basis of this 'theory of society and man'. According to Pannekoek, 'anything outside of them is mere fantasy'. In the German version, it even reads: '[O]utside of it, there is only delusion, it forms a satisfying and harmonic worldview.'⁴⁵ This third definition implied that scientific socialism was an attitude rather than anything else. This scientific way of looking at the world meant a willingness to engage in scientific endeavours without any class-related prejudices standing in the way, an eagerness to gather and process empirical data, since scientific development was an integral part of the socialist project of human liberation.

In this context, Pannekoek made a sharp distinction between bourgeois science and real science. The former was 'merely the servant of capitalism': 'Not the discovery of truth, but the reassurance of an increasingly superfluous class of parasites is the object of this science. No wonder that it comes into conflict with the truth.'⁴⁶ Pannekoek believed that capitalist (or: bourgeois) society was doomed, but that members of the capitalist class were not willing to accept this. As a result, they were not interested in truth, but sought relief in pseudo-scientific endeavours. Pannekoek gave the example of the physician, biologist, and politician Rudolf Virchow, who had supposedly 'assailed the Darwinian theory on the ground that it supported Socialism'. Pannekoek relayed Virchow's response as follows: 'Be careful of this theory'. And Pannekoek concluded: 'What shall be said, however, of the science of a professor who attacks Darwinism with the argument that it is not correct because it is dangerous!'⁴⁷

From this and other examples, Pannekoek concluded: 'Bourgeois thinking cannot solve the mysteries of the world.'⁴⁸ The working class, on the other hand, had a different relation towards science. It saw the development of science as a means to further its cause. Pannekoek thus stated:

Only the physical and natural sciences are admired and honoured by both classes [capitalists and workers]. Their content is identical for both. But science does have a different meaning to different classes. But how different from the attitude of the bourgeois classes, is that of the worker who has recognized these sciences as the basis of his absolute rule over nature and over his destiny in the future socialist society.⁴⁹

45 Pannekoek 1906c, 31; 1903, 24.

46 Pannekoek 1909c, 320.

47 Pannekoek 1912b, 28.

48 Pannekoek 1905, 34.

49 Pannekoek 1912a, 25.

In another text, Pannekoek claimed in a similar manner: 'The Socialist theory restores clearness and scientific exactness by concentrating attention upon the natural divisions of society.'⁵⁰ This third line of reasoning is distinct but connected to the other two. The reason that the proletariat strives for truth in science rather than 'reassurance', is that it knows that this truth will help it bring about 'his absolute rule over nature and over his destiny'.⁵¹ Here, the line of reasoning again runs the risk of becoming circular: striving for truth in science leads to a method of explaining past and future developments, which show the advent of socialism, which leads to a dedication to scientific exactness and striving for truth in science.

Conclusion

This essay has been an attempt at deconstructing Pannekoek's views on scientific socialism, distilling from his early socialist works three distinct but closely linked definitions. For Pannekoek, socialism was scientific in that it embraced modern science, in that it supposedly uncovered the laws of societal development, and in that it foretold the advent of socialism.

Moreover, this essay reveals that the three definitions can strengthen each other in the sense that a scientific worldview could lead to a method of explaining social developments, thus leading to the certainty that socialism is imminent. The three are also linked because the education of the masses takes a central place in all three of them. At the same time however, its weakness and contradictory character is laid bare when Pannekoek is first ambiguous and then denies socialism's predictive powers. If scientific socialism can explain past and present developments in a scientific way, the reason why this method cannot be extrapolated into the future needs to be explained. Therefore, the interlinkage between the three conceptions of scientific socialism falls apart when the last line of reasoning is denounced.

The three definitions of scientific socialism are also linked in a different way. During his whole career as a socialist, Pannekoek emphasized the importance of the 'mental struggles which accompany the social struggles of today'.⁵² Thus he stated: 'The material power, which the proletariat possesses due to its size and significance in the production process, would not

⁵⁰ Pannekoek 1909c, 320-321.

⁵¹ Pannekoek 1912a, 25.

⁵² Pannekoek 1912b, 7.

help it very much, if it were not complemented by its mental superiority.⁵³ According to Pannekoek, the proletariat's mental superiority lay in its dedication to truth in scientific endeavours, for the proletariat 'recognized these sciences as the basis of his absolute rule over nature and over his destiny in the future socialist society'.⁵⁴ Pannekoek emphasized that this superiority was to be strengthened by 'educating the masses' and instilling on them 'the knowledge that the wish [socialist revolution] will be fulfilled', by 'giving the proletariat the certainty that such an order [socialism] will come'.⁵⁵

For Pannekoek, a divide of his scientific socialism into three separate definitions would not have made a lot of sense. He never spoke of scientific socialism's different meanings, and for him, the three definitions would rather have been aspects of one coherent worldview. Even so, taking the term apart this way reveals the inconsistencies mentioned above.

Pannekoek's views on science can offer a way to connect Pannekoek-the-Astronomer and Pannekoek-the-Socialist. Pannekoek saw both his political work and his astronomical work as scientific endeavours. Although being very different fields, Pannekoek united them by a theory of knowledge, inspired by Dietzgen, that allowed him to approach both fields with a similar attitude and line of reasoning. Even so, scientific socialism adhered to scientific principles only to a certain extent. Deconstructing his lines of argument leads to a number of contradictions. This leaves open the question why it was so important for Pannekoek that his socialism was scientific. First of all, for Pannekoek it showed that socialism was not an 'accidental discovery', but had a different position from other ideologies. Furthermore, for a long time it provided political certainty – the imminence of socialism – and a clear line of political reasoning. But most important was perhaps that for Pannekoek, socialism was the only ideology with a true interest in scientific research and findings. While conservative ideologies, according to Pannekoek, had a functionalist relationship towards science, using its findings when appropriate and denouncing them when they threatened their position, Pannekoek believed that socialism 'restores clearness and scientific exactness'. It was this line of reasoning, above all, that allowed Pannekoek to connect his astronomical and socialist persona.

53 Pannekoek 1906b, 6.

54 Pannekoek 1912a, 25.

55 Pannekoek 1906b, 20-21; 1915.

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