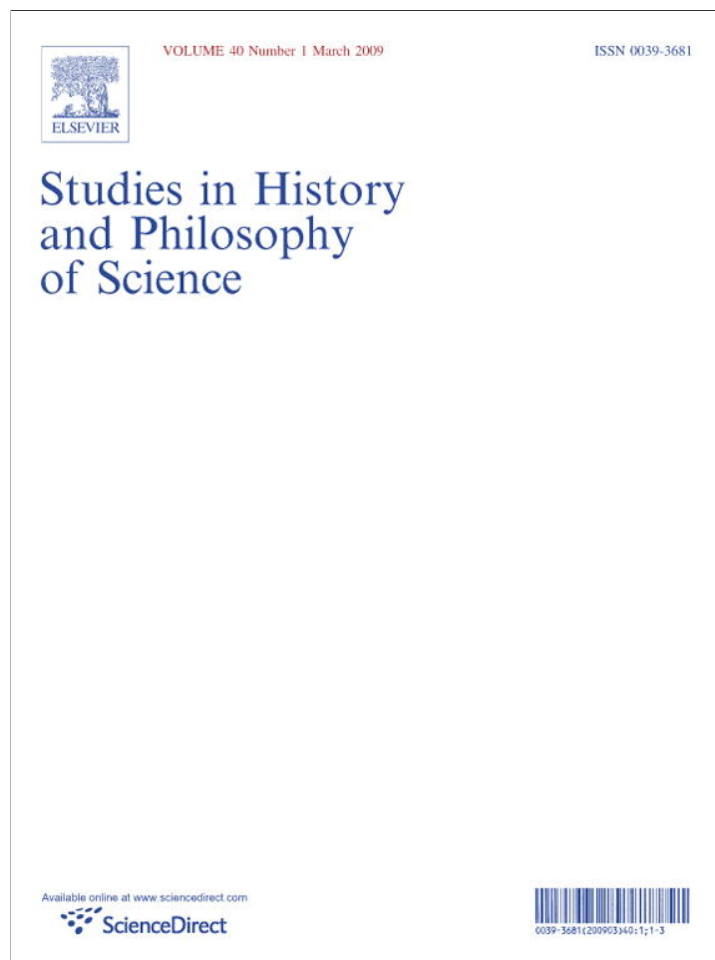




This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Contents lists available at ScienceDirect

Studies in History and Philosophy of Science

journal homepage: www.elsevier.com/locate/shpsa



The Left Vienna Circle, Part 1. Carnap, Neurath, and the Left Vienna Circle thesis

Sarah S. Richardson

Stanford University, 450 Serra Mall, Bldg. 240, Room 108, Stanford, CA 94305-2022, USA

ARTICLE INFO

Article history:

Received 28 May 2007

Received in revised form 1 August 2008

Keywords:

Vienna Circle

Rudolf Carnap

Otto Neurath

Logical empiricism

History of philosophy of science

Political philosophy of science

ABSTRACT

Recent scholarship resuscitates the history and philosophy of a 'left wing' in the Vienna Circle, offering a counterhistory to the conventional image of analytic philosophy as politically conformist. This paper disputes the historical claim that early logical empiricists developed a political philosophy of science. Though some individuals in the Vienna Circle, including Rudolf Carnap and Otto Neurath, believed strongly in the importance of science to social progress, they did not construct a political philosophy of science. Both Carnap and Neurath were committed to forms of political neutralism that run strongly against a political reading of their logical empiricism. In addition, Carnap and Neurath sharply differ on precisely the subject of the place of politics in logical empiricism, throwing into question the construct of the 'Left Vienna Circle' as a coherent, sociohistorical, programmatic unit within the Vienna Circle.

© 2008 Elsevier Ltd. All rights reserved.

When citing this paper, please use the full journal title *Studies in History and Philosophy of Science*

1. Introduction

Research on the 'left wing' of the Vienna Circle has blossomed in the last decade. Many celebrate the recovery of the Left Vienna Circle's spirited sense of its political relevance as an antidote to the neutralist self-conception of analytic philosophy of science. More recently, some scholars contend that the Left Vienna Circle offers theoretical resources for developing a politically engaged analytic philosophy of science today. Represented in the work of Don Howard, Alan Richardson, George Reisch, Ron Giere, and Thomas Uebel, this position regards the Left Vienna Circle as presenting, for its time, a political philosophy of science with implications for contemporary debates.

This paper is Part 1 of a two-part examination of Left Vienna Circle (LVC) historiography. I analyze the claim that a group within the Vienna Circle developed a critical and politically engaged version of logical empiricism. I argue that while some members of the Vienna Circle saw their work, and science, as politically important, they did not develop a 'political philosophy of science'. In Part 2, I turn to the contemporary context of LVC historiography. Why are political histories of the Vienna Circle being generated and warmly received at this time? I argue that LVC historiography

operates as a new disciplinary history reflecting disciplinary anxieties within analytic philosophy of science about the proper aims, methods, and objects of analysis of the subdiscipline.

2. The Left Vienna Circle thesis

The Vienna Circle discussions of the 1920s and 1930s are widely recognized as the source of the methods and approaches that dominated North American analytic philosophy of science in the twentieth century. The Vienna Circle originated in 1924 as a discussion group around physicist–philosopher Moritz Schlick. A number of notable scientists and philosophers participated in its discussions, including Hans Hahn, Rudolf Carnap, Herbert Feigl, Kurt Gödel, Felix Kaufman, Edgar Zilsel, and Friedrich Waismann. Karl Popper, Ludwig Wittgenstein, Carl Hempel, W. V. O. Quine, and Albert Einstein were among the well known visitors to the Circle. Several important monograph series grew out of the Vienna Circle, as well as the journal *Erkenntnis*. Its members dispersed by the mid-1930s, following Hitler's rise to power, joining a large exodus of German-speaking intellectuals to American and British universities. They brought logical empiricism with them and many former members of the Vienna Circle became key figures in the postwar develop-

E-mail address: richardson@stanford.edu

ment of the subdiscipline of analytic philosophy of science in the English-speaking academy.

Recent scholarship resuscitates the history and philosophy of a 'left wing' in the Vienna Circle, offering a counterhistory to the conventional image of analytic philosophy as politically conformist. Thomas Uebel's 'Political philosophy of science: The Left Vienna Circle' (2005) is a representative exposition of the Left Vienna Circle thesis. Uebel argues that a unit within the Vienna Circle, comprised of Otto Neurath, Rudolf Carnap, Hans Hahn, and Phillip Frank, developed a distinctive version of logical empiricism that represents an early 'political philosophy of science'. Uebel contends that 'there once existed another form of logical empiricism that was critical and politically engaged' and that 'this "other" logical empiricism was obliterated' (ibid., p. 755) in later historical narratives of analytic philosophy.

According to Uebel, LVC logical empiricism differed from the neutralist logical empiricism later popularized in North America in two principal ways. First, it admitted that philosophy has a larger 'superstructural' (ibid., p. 760) role in society. LVC members believed that by providing conceptual tools to facilitate the progress of science, philosophy may participate in the advancement of emancipatory politics. Second, the LVC allowed that the space of theory underdetermination leaves room for pragmatic considerations in the choice of logical languages or scientific models (ibid.). In theory, Uebel argues, this would permit that political concerns may legitimately influence the practice of science itself. Uebel claims that these views, taken together, indicate that the LVC held to a substantively different interpretation of the doctrine of ethical non-cognitivism than the 'politically conformist' one that is familiar in North American philosophy of science.

The doctrine of ethical non-cognitivism holds values (political, moral, and otherwise) to be 'psychological' and 'emotive', and hence non-cognitive or meaningless within a scientific idiom. In North America this doctrine would become an entrenched division between facts and values, the context of justification and the context of discovery, and internal and external questions in the philosophical study of science. Uebel associates this doctrine and the 'politically conformist' (ibid., p. 755) philosophy of science that followed from it with Hans Reichenbach. Under Reichenbachian ethical non-cognitivism, value questions were considered to have no proper place in philosophy of science. Philosophy of science would concern itself only with the formal project of rational reconstruction of scientific hypotheses by means of logical analysis. Philosophers of science, modeling themselves on an ideal of value neutrality they associated with science, would relinquish political aims and questions.

Uebel contends that Carnap, Neurath, and others were somehow less rigid about the boundaries of philosophy of science than their fellow logical empiricists. The differences Uebel sees between Reichenbachian and LVC doctrines of ethical non-cognitivism, however, are subtle matters of degree and emphasis. Like Reichenbach, the LVC held to the method of rational reconstruction and saw the context of justification as the distinctive domain of study for philosophy of science. Unlike Reichenbach, for whom scientific rationality was the exclusive domain of philosophy of science, Neurath and Carnap saw philosophy of science as only one element of the larger project of the 'empirical sciences of science', including history, sociology, and psychology, all of which may contribute to an overall account of scientific rationality (ibid., p. 766). Thus, Uebel claims, the ethical non-cognitivism of the LVC's logical empiricism 'did not *in principle* abjure social input nor concern with institutional practices' (ibid., p. 767; my emphasis), as Reichenbach's did. In addition, for the members of the LVC, Uebel argues, the fact-value distinction is not 'foundational', but a pragmatic 'proposal for philosophical language use' (ibid., p. 770).

Uebel applies the terms 'politically engaged philosophy of science' and 'political philosophy of science' to LVC logical empiri-

cism. Describing LVC logical empiricism as 'critical and politically engaged' and as a 'political philosophy of science', Uebel implies that Carnap, Neurath, and others share the theoretical interests, tools, and questions of present-day social epistemologists, feminist philosophers of science, and others interested in the possibilities of a political or politically engaged philosophy of science. Indeed, he writes that his interest in the LVC is to 'resurrect it to see how relevant it may be to our present concerns' (ibid., p. 755).

While Uebel demonstrates that LVC members were, in their time and in some degree, 'politically engaged', his case for an LVC 'political philosophy of science' relies on a creative retrospective reconstruction of such a philosophy in light of apparent resonances with contemporary projects in political philosophy of science. Uebel focuses primarily on the conviction of some members of the Vienna Circle that philosophy of science has political implications and is part of a larger progressive project. Uebel shows that LVC members were, on a continuum, comparatively less hostile toward considerations of values and politics in philosophy of science than the 'politically conformist' form of logical empiricism that later took root in North America. But this finding stops short of demonstrating that the LVC's logical empiricism invited, encouraged, or provided tools for the consideration of the social and political dimensions of science.

3. Reading between the lines

'Red Vienna', a term describing the city during its political control by the Democratic Socialist Party (SDAP) in the 1920s, forms the immediate political context of the Vienna Circle. Following World War I, Austria was newly constituted as an independent nation and Vienna was in shambles. The need for reconstruction prompted an openness to new ideas and grand social visions. Led by Otto Bauer and academic intellectuals Max Adler, Friedrich Adler, Karl Renner and Rudolf Hilferdig, the SDAP embraced a technosocialist approach to social change that came to be known as Austromarxism. Though Austromarxism drew on Marxist, Machian, and neo-Kantian ideas, the term refers to the praxis embodied in the policies of the SDAP rather than a distinctive school of Marxist critique.

During the 1920s, the SDAP and its Austromarxist leadership carried out ambitious municipal reforms to aid the new urban industrial working class, instituting libraries, schools, and parks, lecture series, vast housing complexes, sports leagues, and free medical care. The SDAP also established programs encouraging 'cultural change' among the working class, with the aim of 'turning them into conscious and self-confident actors' (Gruber, 1991, p. 6). The SDAP believed that these policies would facilitate the self-empowerment of the working class by providing workers with a 'foretaste of the socialist utopia of the future' (ibid., p. 5) in the present. Today the SDAP is remembered for its academic elitism, pressing socialist reforms without an organically organized working class. For instance, the SDAP prescribed even highly detailed lifestyle recommendations, including the way women should wear their hair, the color of clothing that should be worn, and the kinds of music that should be appreciated. In the end, this kind of 'paternalistic leadership' (ibid., p. 10) provoked opposition to the party and hastened its demise. Although credited as one of the most effective socialist governments in interwar Europe, the experiment was relatively short-lived, beginning around 1918, marked by violent worker protests against the Party by 1927, and declining from that time until suspended by the Dollfuss fascist government in early 1933.

The principal documented intersection of the Vienna Circle with the intense local politics of its day is the so-called Vienna Circle 'Manifesto', a pamphlet written by Otto Neurath and edited and co-signed by Rudolf Carnap and Hans Hahn under the title, 'The

scientific world-conception: The Vienna Circle' (Neurath et al., 1973 [1929]). The document joins manifesto literature of this period with its high political rhetoric, revolutionary ambitions, and peculiar combination of progressive socialist politics and technocratic futurism that characterized Weimar modernism. Specifically, the Manifesto expresses the self-conception of some members of the Vienna Circle of a 'kinship', 'affinity', or 'inner link' between their vision of revolutionizing philosophy by applying the tools of logic and the socialist vision of 'the conscious re-shaping of life' by rational planning. As the authors wrote:

The Vienna Circle believes that ... it fulfills a demand of the day: we have to fashion intellectual tools for everyday life, for the daily life of the scholar but also for the daily life of all those who in some way join in working at the conscious re-shaping of life. The vitality that shows itself in the efforts for a rational transformation of the social and economic order, permeates the movement for a scientific world-conception too. (Ibid., pp. 304–305)

Logical empiricism would be a 'scientific philosophy', joining the modernist revolution, breaking with metaphysics, and bringing philosophy into line with the progressive vision of a technologically based, planned socialist society.

Peter Galison's (1996) sensitive reading of the Vienna Circle's self-conception of the 'kinship' of their philosophy with left-technocratic politics of their time represents the most extensive explanation of the historical context and specificity of these claims. As Galison shows, the prominent and distinguishing feature of this politics is its faith in technology. 'The technical stood for and created a way of life, an orientation toward the world that would cleanse it of the full spectrum of irrational threats: above all clericalism, nationalism, and social divisiveness' (ibid., p. 25). Neurath's participation in the Vienna Circle, interest in architectural activism, and later work to create a universal pictorial language exemplify the spirit of European left-technocratic intellectual movements of the 1920s: the belief that a more rational, technical, or scientific 'vocabulary of expression', whether in architecture, social science, or philosophy, was a means of 'modifying thinking' (ibid., p. 31) and bringing about a 'break with the past' in the service of progressive social change. This faith in the rationalizing power of technology is on exhibit as well in Carnap's *Aufbau*, but here the 'technology' is logic. In the *Aufbau*, Carnap's ambition was to overcome the traditional problems of epistemology and metaphysics, which he saw as stagnated disputes over misunderstandings of words, by forging a new formal language in which to describe empirical objects in the world.

As Galison documents, during the 1920s logical empiricists, like many intellectuals, sought to 'harmonize their own discipline with the ... rationalism each saw embodied in what they perceived as the regularity, intelligibility, and functionality of contemporary technology' (ibid., p. 41), which at that time was strongly identified with collective struggles for democratization. In political rhetoric shared with Austromarxism, the Manifesto posed the 'scientific world-conception'—secular, empiricist, and modern—against 'metaphysical and theologizing thought' (Neurath et al., 1973, p. 301)—religious, dogmatic, and traditional. Under the fascism to follow, this faith in technology became a force for the concentration of nationalist power, and upon the emigration of the Vienna Circle logical empiricists to North America in the years 1936–1938, it became largely instrumental, a 'technical tool kit' (Galison, pp. 40–41). Galison powerfully demonstrates how the technocratic vision acquires a politically progressive patina only when positioned within a particular web of cultural meaning.

Today pointing to the Vienna Circle Manifesto is often considered sufficient to establish the political dimension of Neurath, Carnap,

and Hahn's logical empiricism. But careful attention to context legislates against this simple reading. While the socially progressive value of science was unmistakably offered by the cosigners as one of several reasons for *philosophy* to become more *scientific*, the Manifesto takes no steps toward a political philosophy of science. For the authors of the Manifesto, the link between logical empiricism and progressive, secular politics was attitudinal rather than doctrinal. 'The scientific world conception is characterized not so much by theses of its own, but rather by its basic attitude, its points of view and direction of research', wrote Neurath (Neurath et al., p. 306). Logical empiricism, the authors were careful to articulate, shared with present-day socialism not a particular set of values but a commitment to a scientific model of intersubjective, collective work proceeding on rational principles. Indeed, for the Manifesto's co-signers, a virtue of science is precisely that it participates in progressive developments while remaining ideologically neutral. Scientists aid efforts for collective, rational, secular governance regardless of whether they consider themselves politically critical or engaged. Wrote Neurath,

Of course not every single adherent of the scientific world-conception will be a fighter. Some, glad of solitude, will lead a withdrawn existence on the icy slopes of logic; some may even disdain mingling with the masses and regret the 'trivialized' form that these matters inevitably take on spreading. However, their achievements too will take a place among the historic developments. (Ibid., p. 317)

To the extent that the 'scientific world conception' and its adherents participate in the politics of the day, the authors of the Manifesto suggested, it is because historical circumstances have elevated science to a central place in any large-scale social intervention to improve the quality of human life. If Manifesto cosigners Neurath, Hahn, and Carnap had a specifically logical empiricist political vision, it was more and better science, and the spreading of a scientific way of thinking in all realms of life.

For these reasons, Uebel is forced to acknowledge that his reconstruction of an LVC philosophy of science requires some 'reading between the lines' (Uebel, 2005, p. 760), taking the limited but suggestive textual trace of the Manifesto and rereading other material in its light. Uebel therefore moves outward from the Manifesto to the period following the dissolution of the Vienna Circle in the early 1930s. Though Carnap and Neurath's interests diverged as they pursued careers in different contexts and on different continents, Uebel argues that the particular vision of a political logical empiricism that took root in the LVC continued to inform, cohere, and motivate Carnap and Neurath's philosophical programs throughout their careers.

This claim is difficult to sustain, however, if Carnap and Neurath's philosophical positions on science and politics are properly clarified, distinguished, and periodized. Carnap and Neurath did not seek to construct what Uebel calls a 'political philosophy of science'. Carnap and Neurath were both committed to forms of political neutralism that run strongly against a political reading of their logical empiricism. In addition, Neurath and Carnap sharply differed on precisely the subject of the place of politics in logical empiricism, throwing into question the construct of the 'Left Vienna Circle' as a coherent, sociohistorical, programmatic unit of the Vienna Circle.

4. Carnap

LVC historiography advances a tantalizing claim of historical contingency: that an alternative, politically engaged philosophy of science existed at the inception of analytic philosophy, which, but for a variety of historical forces, might have triumphed over

the neutralist version of logical empiricism that took hold in North America. Serving with Hans Reichenbach as a leading ambassador from the Vienna Circle, Rudolf Carnap would help establish logical empiricism in the then-forming subdiscipline of analytic philosophy of science in the American academy. For this reason, Carnap is a decisive figure for the narrative of historical contingency advanced by LVC historiography.

Carnap was a committed 'Old Leftist' throughout his life. In a 1963 autobiographical essay, he traces his radicalization to World War I, when he became interested in the international anti-war effort and, subsequently, in socialism (Carnap, 1963, pp. 10, 82). Carnap reserves the closing words of his autobiography to elaborate and affirm his lifelong commitment to 'socialism in some form' and to 'world government' (ibid., p. 83). George Reisch (2005) recently documented that Carnap was cited several times in the US socialist newspaper *The Daily Worker* on the subjects of passivism, nuclear disarmament, and unionism, and also signed a pro-Rosenberg statement. In 1954–1955, FBI agents interviewed friends of Carnap in Chicago, Princeton, and Los Angeles, and the notorious 'name-check' system was used on Carnap as late as 1962. Howard (2003, p. 36) also reports that Carnap 'traveled to Mexico in a public gesture of support for jailed Communist philosophers and ... made no secret of his support for the farm workers in southern California'.

Carnap was a firm political neutralist, however, in his philosophical work. Uebel seeks to assimilate Carnap's views to Neurath's more explicit and well-documented vision of politics and philosophy. He claims that Carnap's only 'recorded' objection to Neurath's view of politics and philosophy regarded the insertion of political aims into the construction of the 'logical-linguistic frameworks' of the 'logic of science' (Uebel, 2005, p. 759). Uebel sees this as a rejection of politics in logic, but not a more general rejection of the possibility or desirability of a political philosophy of science. But Carnap's autobiographical recollections of Vienna Circle politics and the protocol sentences debate with Neurath, and Carnap's version of ethical non-cognitivism, make clear that Carnap held his own, consistently neutralist stance on the question of science, politics, and philosophy of science.

A key source is Carnap's autobiographical essay (1963), his only text that reflects at length on his views on the relationship between logical empiricism and politics. In his autobiography, Carnap recalls the LVC's impassioned commitment to the defense and advancement of science in the service of emancipatory ends. Carnap also recounts in depth his debates with Neurath over politics and philosophy of science and details his interpretation of the implications of ethical non-cognitivism for the political role of the philosopher. The essay, though often quoted by LVC historians, clearly resists the idea that a specifically political philosophy of science was advanced within the Vienna Circle.

Significantly, Carnap characterizes the political atmosphere of the Vienna Circle as an understood, unspoken political like-mindedness. In the autobiography, Carnap describes the consensus political inclination of the Vienna Circle as an implicit secular or scientific humanism:

I think that nearly all of us shared the following three views as a matter of course which hardly needed any discussion. The first is the view that man has no supernatural protectors or enemies and that therefore whatever can be done to improve life is the task of man himself. Second, we had the conviction that mankind is able to change the conditions of life in such a way that many of the sufferings of today may be avoided and that the external and the internal situation of life for the individual, the community, and finally for humanity will be essentially improved. The third is the view that all deliberate action presupposes knowledge of the world, that the scientific method

is the best method of acquiring knowledge and that therefore science must be regarded as one of the most valuable instruments for the improvement of life. In Vienna we had no names for these views; if we look for a brief designation in American terminology for the combination of these three convictions, the best would seem to be 'scientific humanism'. (Ibid., p. 83; my emphasis)

This belief in the urgent political importance of the advancement of science, however, was a backdrop of the Vienna Circle's work and not integrated into its philosophical project. As Carnap is careful to qualify, 'These problems were discussed privately, not in the Circle which was devoted to theoretical questions' (ibid.).

Carnap also discusses his debates with Neurath over the place of politics in philosophy of science, sharply distinguishing his views from Neurath's. Some interpreters have taken Carnap's generous phrasings of Neurath's positions to indicate an underlying affinity for his philosophical program (for example Howard, 2003). Yet Carnap clearly portrays Neurath as a dissenting member of the Vienna Circle, a critical voice from whom 'all of us', 'the other members of the Vienna Circle', benefited, but with whom they differed in important ways:

All of us in the Circle were strongly interested in social and political progress. Most of us, myself included, were socialists, but we liked to keep our philosophical work separated from our political aims. In our view, logic, including applied logic, and the theory of knowledge, the analysis of language, and the methodology of science, are, like science itself, neutral with respect to practical aims, whether they are moral aims for the individual, or political aims for society. Neurath criticized strongly this neutralist attitude, which in his opinion gave aid and comfort to the enemies of social progress. We in turn insisted that the intrusion of practical and especially of political points of view would violate the purity of philosophical methods. ... Neurath rejected these doubts and warnings. He would deride those purist philosophers who sit on their icy glaciers and are afraid they might dirty their hands if they were to come down and tackle the practical problems of the world. (Carnap, 1963, p. 23; my emphasis)

Here, against Neurath's political vision for philosophy of science, Carnap affirms his strongly neutralist view that the advancement of political aims are not properly a matter for philosophical work. Carnap identifies with Neurath's politics but not with what he perceives as his attempt to bring them into philosophical discussions or to integrate them with his philosophy.

The debate with Neurath over politics in scientific philosophy became an issue of substance in the Vienna Circle's 'protocol sentences' debate, which Carnap relates at length in the autobiography. The tussle concerned the necessary properties of a scientific language of observation from which philosophical work toward a unified science could proceed. Neurath supported a strong 'physicalist' thesis that observations concern public properties of objects while Carnap argued for a 'psychological' thesis that took account of the observer's subjectivity, requiring translation between private psychological experience and public physical language.

Neurath favored a physicalist language because he believed that by avoiding the problems of solipsism raised by Carnap's more complex model, it would best facilitate the project of developing a unified science. As such, it would better serve the cause of the working class, Neurath claimed (1959b [1931]). Responding, Carnap revised his original position, arguing that both 'methods for structuring the language of science ... are possible and legitimate' (Carnap, 1932, p. 457), and that the real question is what the criteria ought to be for selecting among multiple viable languages. In turn, Neurath (1959a [1932]) argued that if indeed all else is equal,

the convention ought to be to select the language that is best for society as a whole. As Carnap recalls in the autobiography:

When I suggested that we should not discuss the theses of idealism and materialism but rather the problem of the choice of a language, Neurath accepted this point but tried to turn my weapon against me. The choice of a language form is a practical decision, he argued, just as the choice of a route for a railroad or that of a constitution for a government. He emphasized that all practical decisions are interconnected and should therefore be made from the point of view of a general goal. The decisive criterion would be how well a certain language form, or a railroad, or a constitution, could be expected to serve the community which intended to use it. His emphasis on the interdependence of all decisions, including those in theoretical fields, and his warning against isolating the deliberation of any practical question, even that of the choice of a language form, made a strong impression upon my own thinking and that of my friends. (Carnap, 1963, p. 51)

Carnap credits Neurath with making a 'strong impression' on him, and LVC historians choose to read this passage as opening a space for political considerations in theory choice. But Carnap clearly dissociates himself from Neurath's privileging of a 'practical' criterion for language choice based on social aims. As Carnap relates it, in the protocol sentences debate Neurath took Carnap by surprise, using Carnap's conventionalist approach to language choice to argue for the deliberate advancement of one language over another on the basis of political goals. While he admires Neurath's clever attempt to find shared philosophical ground for a politically motivated justification for theory choice, Carnap plainly intended his conventionalism to also be a stance of neutrality with regard to theory choice. As Carnap puts it, Neurath had 'tried to turn my weapon against me'.

In the protocol sentences debate, Carnap would ultimately concede the advantage of Neurath's physicalist observation language for facilitating intersubjective collaboration—but this does not imply acceptance of Neurath's political approach to theory choice. As Uebel has argued elsewhere, Carnap's early resistance and later capitulation to the physicalist language preferred by Neurath is not to be taken as an indicator that Carnap was at first 'scandalized' (Uebel, 1992, p. 315) by Neurath's invocation of political arguments and later came around to them. Rather, Carnap's evolution during that period towards a more syntactical and pluralist concept of logical reconstruction permitted his earlier concerns with Neurath's physicalism to be allayed.

In the concluding section of his autobiography, Carnap seeks to clarify his position on the place of politics in philosophy and science and respond to critics of the logical empiricist doctrine of ethical non-cognitivism. Critics of the doctrine charged that the distinction between 'factual questions' and 'pure value questions' marginalized questions of ethics and values in philosophical inquiry, leading to the moral, political, and ethical disengagement of philosophical research. Carnap offers three responses. The first two reiterate well established logical empiricist defenses of ethical noncognitivism. Carnap argues, first, that there is ample space for ethical inquiry within the terms of ethical non-cognitivism. Only 'absolute value statements' are non-cognitive. 'Relative or conditional value statements', which evaluate a means in terms of an end, may be empirical (Carnap, 1963, p. 81). Second, Carnap argues that ethical questions are most productively theorized when they are not wrongly conceived as being of the same class as analytical and empirical statements. The distinction between facts and values is 'fruitful' (ibid.) for philosophical analysis because it can help to clarify the nature of questions under discussion.

Third, and most revealing for the present inquiry, Carnap argues that the doctrine of ethical non-cognitivism only applies to philo-

sophical work and does not imply that the philosopher may not engage with politics in his or her personal life. This is the argument that Carnap develops at length and seems particularly concerned to impress upon the reader. Carnap opens by citing a quip from Oskar Kraus that Carnap should be 'put in jail' for advocating the thesis of ethical non-cognitivism. Carnap responds that he is 'not actually a wicked man' (ibid., p. 82) and proceeds to argue that the philosophical position of ethical non-cognitivism must be separated from the personal politics of the individual philosopher. There is a distinction, he argues, between the 'character' of a person and 'the theoretical doctrines to which they adhere' (ibid.). He further asserts that he does 'not know of any case in which the difference in attitude between [logical empiricists and pragmatists] with respect to a moral problem ever arose from the difference in their philosophical positions concerning the nature of value statements' (ibid.). Carnap continues, defending his lifetime of interest in politics:

The view that recognition of the non-cognitive nature of value statements is either conducive to or symptomatic of a loss of interest in moral or political problems seems clearly refuted by my own experience. I have maintained the thesis for about thirty years. But throughout my life, from my childhood to the present day, I have always had an intense interest in moral problems, both those concerning the life of individuals and, since the First World War, those of politics. ... I was always interested in political principles and I have never shied away from professing my point of view. (Ibid.)

Carnap's response to critics of the philosophical doctrine of ethical non-cognitivism is revealing. First, it underscores Carnap's deeply held philosophical neutralist conviction that one's politics may be held entirely apart from one's philosophy. Second, it indicates Carnap's understanding of the attacks on ethical non-cognitivism as misplaced personal attacks on his own politics.

It is certainly possible, as Uebel suggests, that Carnap's ethical non-cognitivism differed from Reichenbach's. Yet in both his framing of the objection and his response to it, Carnap sidesteps the principal pragmatist critique of ethical non-cognitivism. From its advent in North America, and certainly by the 1960s, the logical empiricist canon was built around technical topics in the internal analysis of scientific theories, largely in physics and mathematics. Dewey and pragmatists in his line, interested in popular education, political reform, and cultural studies, criticized the narrowing effect of logical empiricism on the forms of research questions considered acceptable in philosophy and the public intellectual and pedagogical role of the philosopher. Carnap's impassioned account of his own politics in response to charges that ethical noncognitivism leads to a politically disengaged philosophical worldview reads as defensive and suggests a failure of resources in answering the critique. The response makes it clear that the question of *philosophy's* engagement with politics and questions of value was either a blind spot for Carnap or a deep and unresolved tension in his own philosophy.

Uebel argues that Carnap's ethical non-cognitivism was open to a political philosophy of science. The available evidence does not support this. Carnap thought philosophers should be like scientists. They should be specialists working to contribute to the cumulative store of knowledge by only asking and answering questions in an empirical or logical idiom. On the model of the scientist, the philosopher should strive for value-neutrality and restrain from politics in his or her role as a philosopher. This is how Carnap conducted himself, even when confronted with harsh criticism. His conventionalism and pluralism permitted a space for practical matters to enter into the 'external' question of theory choice, but this was not among the issues that he attended to centrally in his own work. If philosophy of science

has a larger social role, it is in its contribution to the advancement of science. If science is the best means of aiding society, then philosophy can find its ideally politically efficacious role in lending its conceptual tools to the elimination of conceptual barriers to the advancement of science. Carnap's own description of his differences with Neurath is broader than Uebel sees it. In his autobiography, Carnap rejects the introduction of politics into philosophical disputation and argues that politics belong in another arena. Carnap's political interests, therefore, were not central to his philosophical program, nor would a specifically politically engaged philosophy of science have been consistent with his conception of scientific philosophy.

5. Neurath

It may seem that while a Carnapian political philosophy of science is less historically plausible, Otto Neurath is a safe case. Neurath was more openly and actively political in his philosophical writings than Carnap. The precise nature of his combination of politics with logical empiricism, however, presents in many ways a more complicated picture than Carnap. Neurath is a more eccentric and eclectic thinker than Carnap. Never a professional philosopher, his extensive body of work touches on many fields, speaks to many audiences, and requires reading through dated Marxist jargon. Neurath is distinctive in the Vienna Circle as the only representative of the social sciences. Trained as a political economist, Neurath worked in both academic and public administrative sectors. Neurath was active in the administration of the brief communist government of Bavaria and later in socialist Vienna. He is most widely known for developing the ISOTYPE language of pictograms, including the 'handicapped accessible' symbol familiar today, an innovation reflecting Neurath's conviction that a language of abstract visual images would offer a means of universal education and communication. Because of his profile as a public intellectual, and because his contributions to the logical empiricist literature primarily treat the social sciences, there is considerable material and context to be covered to evaluate Neurath's position on 'political philosophy of science'.

Neurath historiography must be distinguished from Carnap's in the questions that have motivated it, its institutional context, and the interpretive issues that characterize it. The 'Neurath Rediscovery', as it has been termed, has as its conceit the resurrection of a largely forgotten Vienna Circle figure. Three strands of scholarship have been most active in the Neurath Rediscovery. The first is work by Austrian philosophers and historians to defend a thesis of a distinctive 'Austrian philosophy', exemplified by Rudolf Haller (for example 1996). As Uebel writes, this scholarship sees in Neurath a figure to ground a narrative that 'places Austria, on the eve of its darkest period, in the context of the European enlightenment' (Uebel, 1991, p. 13). The second is interest in Neurath's explicit politics despite the Vienna Circle's reputation (at least at one time) as an austere, apolitical outfit. The third revives Neurath's early internal critiques of logical empiricism to explore their potential 'cash value' (ibid., p. 20) for contemporary discussions of philosophical issues in logical empiricism. This line of research is represented in the writings of Nancy Cartwright, Elizabeth Nemeth, Uebel, and Friedrich Stadler. Stadler summarizes the general thesis of this work:

many innovations of current history and philosophy of science were, in fact, anticipated in Neurath's oeuvre. The rediscovery of Neurath was therefore not merely a phenomenon of academic nostalgia, but itself constitutes research into the conditions and possibilities of changing a paradigm in the philosophy of science. (Stadler, 1996, p. 3)

These authors contend that Neurath anticipated the mid-twentieth century post-positivist critique of logical empiricism and turn to-

ward pragmatism and holism. They use terms such as pragmatism, conventionalism, holism, antifoundationalism, pluralism, and contextualism to describe Neurath's philosophical orientation, contrasting Neurath's views with the idealized, reductionist, and ahistorical theory of science often ascribed to logical empiricism (see, for example, Uebel, 1991).

In all of these areas, the historiography faces tensions and difficulties in moving between a reconstruction of Neurath's philosophical positions from his extant written work and a reconstruction of his actual role within the social and institutional reality of the Vienna Circle. Haller describes this tension revealingly:

I would like to recall some of Neurath's special contributions to philosophy and the theory of science ... 'To recall' in fact is to put it misleadingly, for there is the remarkable phenomenon that for a long time Neurath's work was fully appreciated not even by the most interested or intelligent observers. This is a case of the marginalization of the significance of an object due to its surroundings. Given the fact that for decades Neurath was only perceived in connection with his friends in the Vienna Circle and that his work ... was for the most part widely distributed, not to say scattered, in numerous small studies and notes, his contribution appeared at first glance and from the distance to be that of a commentator who now and then makes himself noticed with theses, criticisms of others and who partakes of the common theme through cooperation. But in the Scientific Community ... he was without a decisive role. (Haller, 1996, p. 32)

What must be assiduously kept in mind, then, is that Neurath's philosophical program did not trade in his various circles of interlocutors—perhaps even in Neurath's own self-conception—in the unified, reconstructed form that contemporary scholars like Uebel have made available. Recent work designed to carry Neurath's program forward to claim its contemporary 'cash value' is not necessarily the same kind of intellectual history we will need to evaluate specific, located claims about Neurath's thought in relation to Carnap during their Vienna Circle collaboration, or about what motivated changes in his position at particular moments in history. It is specific, local, periodized claims that we will need in order to evaluate Neurath's place in the sociohistorical construct Uebel has termed the 'Left Vienna Circle'.

Over forty years and three hundred publications, Neurath consistently used the term 'social engineer' to describe his vocation and the distinctive role of the social scientist. In Neurath's lexicon, the social engineer is a specialized expert in the study of social planning. The role of the social engineer is to generate possible policy solutions and to comparatively evaluate the means and consequences of social policies. Neurath began as an academic. In his early work, he was not party-political and in many cases explicitly disavowed socialist politics (see *Memories of Otto Neurath*, 1973; Cartwright et al., 1996), yet he was highly active in the social engineering movement. Neurath was an early eugenics enthusiast. In 1910, Neurath and his wife Anna Shapire-Neurath published the first German translation of Galton's eugenicist social planning tract, *Hereditary genius* (Proctor, 1991, p. 110). For Neurath, eugenics was a model and metaphor for social engineering: 'Just as we developed biotechnology [genetics] ... so we shall develop sociotechnology. We shall reach a stage at which we can manipulate life orders to a remarkable degree, that is, to structure them from the base upward according to thought-constructs', Neurath would write in 1922 (quoted in Nemeth, 1991, p. 287). War economy also interested the early Neurath. The study of state control of economies during war-time, he suggested, offers models for peace-time economic planning (Neurath, 1973c [1919]). Consistent with his model of the neutral social engineer, he asserted that the science of war economics could be practiced entirely 'independent of whether one is for or against the use of guns' (Proctor, 1991, p. 168).

Neurath maintained his self-conception as a neutral social engineer when he became active in public administration. In 1919, Neurath served as a minister in the brief socialist government of Bavaria. Presenting his socialization plan before the assembly, Neurath referred to himself as a 'technician of social construction' and took the stance of a neutral expert rather than a party administrator:

I consider my presentation as an *economic-technical* expertise concerning how certain socio-technical constructs could be carried out ... Above all ... how certain measures influence our housing, food, clothing; time of work, in short, all our conditions of life. What instruments of power would be needed to secure the success of these measures, and what distribution of power would follow from this, shall remain undiscussed; in that sense the following presentation is completely *non-political*. (Quoted in P. Neurath, 1996, p. 19, original emphasis)

Neurath was arrested for his role in the Bavarian administration, but the Austrian leader Otto Bauer arranged for his release and exile to Vienna 'with the argument that he had served merely as a 'technician' for the revolution' (Proctor, 1991, p. 168). In Vienna, he worked in the housing movement and began to develop the ISO-TYPE system, projects he would highlight in his writings as examples of rational social planning utilizing the expert knowledge of the social scientist (Neurath, 1973b [1928]).

Neurath's strong commitment to neutralism led to some peculiar proposals for social science research. Neurath defined sociology as 'social behaviorism' and proposed a science of 'felicology', the measurement of happiness for evaluating proposals for social planning and organization (Neurath, 1959b [1931]). In one exposition, Neurath argued that the abstract discourse of 'inalienable rights' would be more productively supplanted by an empirical study of how various forms of institutions may optimize 'happiness':

The American Declaration of Independence speaks of 'Life, Liberty, and the Pursuit of Happiness' and of 'inalienable rights'. I do not know how we may interpret the expression 'inalienable rights' in an empiricist way, but the question of why certain institutions are suitable to make men happier is one for empiricism. (Neurath, 1973a [1942] p. 423)

Abstract, evaluative, or metaphysical propositions would, by a happiness quotient, be rendered empirical. By strictly holding to empirical methods and deflecting questions of value, wrote Neurath, the social scientist may play a 'fundamental' (ibid., p. 427) role in the construction of a socialist society.

Intellectual context helps to illuminate Neurath's concept of the social engineer as a neutral consultant in social policy deliberation. It is well-established in the Neurath scholarship that debates over the conceptual foundations of the social sciences in the German academy in the early years of the twentieth century, particularly as represented in the work of Max Weber, were formative to Neurath's philosophy (Cartwright et al., 1996, p. 97). These debates accompanied the late-nineteenth-century emergence of the fields of psychology, political science, economics, and sociology in the German academy. At stake was the place of values and politics in social science and the proper relationship or demarcation between the social sciences and the natural sciences.

The debate over values in the social sciences reached a boiling point during Neurath's doctoral studies in political economy in Berlin (1901–1905). During this time, young political economists, led by Max Weber, 'attacked the older generation of political economists for mixing facts and values, science and politics' (Proctor, 1991, p. 86), provoking a divisive uproar known as the *Werturteilsstreit*, or controversy over values. Neurath studied under Gustav Schmoller, a representative of the older school, but 'was

an associate of Weber and the other members of the 'new generation' of the *Verein*' (Cartwright et al., 1996, p. 221) and was present at a famous 1909 meeting in which Weber forcefully called for a new, value-neutral social science and formally broke with the *Verein*, christening a new school of 'scientific sociology' (ibid.).

A brief detour into Weber's concept of value-neutralism helps to clarify the tenor and foundations of Neurath's neutralism. Weber (1949 [1919]) argued that although social science proceeds on different ontological foundations than the natural sciences, the neutral and objective attitude of the biologist, chemist, or physicist toward the study of the natural world is equally suitable for the social scientist in the study of society. The distinctive challenge for the social scientist is to remain value-neutral while studying social processes that are themselves value-laden and politically charged. Weber conceded that values are an ineliminable feature of the social sciences, since the objects of social science are embedded in 'historical experience' and 'cultural ... interests' (ibid., p. 22) and because social scientists are subjective observers, engaging in and to some degree transforming social processes by analyzing them. To open space for a neutral social science, Weber introduced Heinrich Rickert's distinction between 'value-relevance' and 'value-neutrality': the objects of social science may be 'value-relevant' while its methods and empirical data remain 'value-neutral' (ibid., p. 21; see also Anderson, 2003). The social scientist may legitimately cite 'value-relevance' in the selection of research problems. He or she, Weber wrote, may also be 'value-relevant' by playing a role in empirically informing value judgments made by others. Values themselves, however, are beyond the 'means at [the social scientist's] disposal' (ibid., p. 18) and 'cannot be discussed scientifically' (ibid., p. 3). The Weberian social scientist, then, may acknowledge the 'value-relevance' of his or her work, but will understand that empirical work 'at best ... provides an "understanding explanation"' rather than 'what should happen' (ibid., p. 14).

This was not a toothless neutralism. Importantly for the present inquiry, Weber further claimed that value-neutrality is the best position from which to be politically influential. This is so in three respects. First, value-neutrality enhances the public credibility of the scientist, should he or she choose to take on a public-intellectual role separate from scientific work:

the influence of the value-judgments of a scholar who confines himself to championing them at appropriate occasions *outside* the classroom, will *increase* when it becomes known that he does only his 'task' inside the classroom. (ibid., p. 6; original emphasis)

Second, value-neutrality contributes clarity to political discourse by teasing facts apart from values. Once we understand that values are distinct from empirical matters, argued Weber, the analysis of values may proceed on clearer ground: 'understanding what one's opponent—or one's self—really means—i.e., in understanding the evaluations which really and not merely allegedly separate the discussants' (ibid., p. 14). Third, value-neutrality may serve a politically critical function. Scientific inquirers who separate their professional selves from their political selves occupy a critical stance from which they might question 'the conventional self-evidentness of very widely accepted value-judgments' (ibid., p. 13). Under this third function Weber acknowledges a spurious form of value neutrality: 'the pseudo-*"ethically-neutral"* prophet who speaks for the dominant interests' (ibid., p. 9). Weber's interest in theorizing value-neutral methodology for the social sciences, therefore, may be seen in part as an effort to discredit a politically conservative or conformist posture of neutralism and to promote a particular style of political engagement.

That Neurath worked with some version of a Weberian conception of the value-neutrality of the social sciences and understood the politically strategic significance of this value-neutral stance is clear in his many theoretical writings on the social sciences, and is the consensus of his principal contemporary interpreters (for example Cartwright et al., 1996, p. 98). Neurath's 'social engineer' was a model of the professional, engaged social scientist envisioned by Weber. Neurath envisioned that social engineers would empirically index the quality of life and 'prepare arrays of possible solutions' (Neurath, 1973a [1942], p. 427) from which policy makers may select, and would not be 'asked to make the decisions' (ibid.). As late as 1942, Neurath would write, still, that 'we are on the eve of what some time will be called the "Planning Revolution"' (ibid., p. 422). Likening social scientists to technicians, industrial engineers, biologists, physicians, and architects, throughout his life Neurath would continue to describe the role of social scientists as 'social engineers' with the special task of determining 'to what extent new institutions and measures of a planning program are, as it were, efficient in producing Happiness' (ibid., p. 423). His social engineers would be a 'brain trust' (ibid., pp. 426–427) of neutral experts for social planning.

Should we regard Weberian value-neutrality, and Neurath's thinking at this time, as itself a 'critical and politically engaged philosophy of science'? For two reasons, no. First, Weber (and Rickert) developed the concept of 'value-relevance' to describe those dimensions of social science that distinguish it from the natural sciences, while saving the sense it may be neutral and objective like the natural sciences. According to this model, what makes social science a science is its capacity to operationalize neutrality and objectivity on the model of the natural sciences. Thus, the theoretical space afforded by the concept of value-relevance does not turn out to supply a 'philosophy of science' accounting for values, but a theory of the exceptional nature of the social sciences and historical sciences more generally. Second, the Weberian position that value neutrality is a strategic and even superior form of political engagement is an historically situated argument about the nature of expert knowledge in political discourse and the special authority of the academic scientist in society, not itself a philosophy of scientific knowledge.

While most interpreters acknowledge the Weberian influences on Neurath's thought, some Neurath scholars suggest that the later Neurath became more openly political, moving away from Weberian neutralism and embracing Marxist theory. This strand of Neurath's thinking is said to have emerged during the Vienna Circle protocol sentences debate and developed over the course of his involvement with the Unity of Science movement (Nemeth, 1991, p. 289; Cartwright et al., 1996, pp. 148, 164). Neurath's appeal to the political value of a physicalist protocol language and his lead-authorship of the Manifesto are cited as evidence of the advent of this more 'political' philosophy of science. In both of these texts, and in other work from this period, Neurath explicitly links logical empiricism to the liberation of the working classes. Cartwright et al. argue that 'For Neurath ... the unlikely combination of "Logical Empiricism" and "Marxism" spelt a critical theory of scientific practice' (ibid., p. 164) and that Marxism provided Neurath with a deeper appreciation of the historical situatedness of science. Nemeth (1991, p. 290) argues that Neurath's later 'Marxist' anti-metaphysics 'is more political than [his] earlier rejection of pseudo-rationalism' which famously asserted drawing lots or dice-rolling as the only honest alternative for guiding human action when empirical evidence did not indicate a clear direction or was unavailable.

It is not clear, however, that Neurath, in his invocations of Marxist theory beginning with his Vienna Circle period, departed from Weberian orthodoxy. In the first place, the intellectual sources and precise character of Neurath's Marxism remain unresolved in the Neurath literature. As an earlier Uebel writes, 'the relation of Neurath's socialism to his scientific metatheory ... is particularly complex, for it must be noted that it is still an open question just what kind of a Marxist Neurath was and what aspect, if any, of his Marxism is essential to his project' (Uebel, 1991, p. 20). Cartwright et al. (1996, p. 144) also concede that 'the precise shade of Neurath's Marxism is unclear'.

Neurath's invocations of Marxist ideas, therefore, ought not be superficially interpreted as a shift toward a more openly political philosophy of science. More likely, Neurath conceived of Marxism as a theoretical source for social analysis fully consistent with Weberian value-neutrality (ibid., p. 147). Robert Proctor (1991, p. 122) has coined the term 'neutral Marxism' for this brand of Marxism in German academic social science in the early twentieth century—indeed, Otto Neurath serves as Proctor's prime example of a scholar who 'typified' (ibid., p. 169) the Neutral Marxist. Neutral Marxism is an "academic Marxism" that conceived of the Marxian doctrine as a set of neutral, sociological tools, 'a natural science of society' (ibid.) applicable to any social or economic system. It was associated with Viennese Austromarxism, with its distinctive Machist element, 'eager to cleanse Marxist philosophy of all "metaphysical" elements' (ibid., p. 131). Neurath's sourcing of Marxism, then, is not itself evidence of a broader politicization of his philosophy of science, but likely continuous with his consistent commitment to a neutralist Weberian conception of the distinctive place of values in the social sciences and to maximizing the political import of science. Most likely, it reflects a change in the context and audience of his writing during the late Vienna Circle period.

My reading is that Neurath's writings on Marxism and the social sciences, while broadening the scope of his interests, do not reveal any sustained or original philosophical reflection on politics and science. Rather, the place to start is Neurath's concept of 'unified science'. The relationship of science to society was central to Neurath's thinking about unified science and logical empiricism. The concept began to appear in Neurath's work as early as the 1920s. It receives its most steady attention and development, however, with his later leadership of the Unity of Science movement, including his organization of a series of international meetings and conferences of the International Congress for the Unity of Science in 1934, founding of a Unity of Science Institute in The Hague in 1936, and initiation of the *International Encyclopedia of Unified Science* monograph series in 1937.

This work was interrupted by personal tragedy and displacement due to the war and is contemporaneous with the dispersal of the Vienna Circle, largely into the American academy. Unlike many preeminent former Vienna Circle participants, Neurath did not move to America, but worked and lived in The Hague and later in England, continuing to develop and popularize his ISOTYPE system. The Unity of Science movement would maintain professional associations between many former members of the Vienna Circle, but now also engaged an international roster of scientists and philosophers not tied to logical empiricism. In this very different professional, intellectual, and political context, Neurath began to articulate a more robust critique of the 'formalism' of logical empiricism and develop a more thoroughgoing social and political formulation of science that shares overtones with American pragmatism and Mertonian sociology of science.¹

¹ Neurath's move toward a pragmatist and naturalist theory of science during this period was provoked by his distaste for what he saw as the increasing scholasticism and formalism of work by figures such as Carnap and Schlick. It was also influenced by exposure to Deweyan pragmatism through his work on the *International Encyclopedia* (Uebel, 2003).

Neurath's locution on the topic of the political content of logical empiricism and unified science, unfortunately, comprises intermittent, inconsistent, and ambiguous commentary over several decades. This has resulted in some rather tortured attempts by his enthusiasts to reconstruct his thought on logical empiricism and politics during his Unity of Science period. For example, Stadler characterizes Neurath as evidencing an 'essential unity of his patterns of thought and action' which may be reconstructed 'by means of a kind of collage':

Towards the end of his life Neurath referred to the 'mosaic of the sciences'. In the spirit of this formulation we can arrive at an understanding of his life's work by means of a kind of collage, employing the regulative idea of the *unity of science and society*. (Stadler, 1996, p. 3)

Similarly, Uebel (1991, p. 9) generalizes Neurath's 'guiding idea' and 'central theme' as the development of a critical conception of science that would serve social ends. For Uebel, this is represented by Neurath's emphasis on rational planning in science and society alike and his 'pluralist "encyclopedic" conception of "unified science"' (ibid.). Neurath conceived of science in an antifoundationalist, holist sense, as always open to revision, which Uebel reads as implying that Neurath believed that science may legitimately be guided by practical interests. Uebel invents a Habermasian term, 'controllable rationality' (ibid.), to refer to Neurath's frequent emphasis not only on the intersubjectivity of scientific knowledge as a social ideal, but on the importance of unity of science as a kind of collective, democratic governance of the sciences. For Uebel, Neurath's thinking on unity of science and its relationship to democracy and pluralism represents a 'critical theory of knowledge' (ibid., p. 10). Finally, Nemeth (1991) has argued that Neurath's 'utopianism' holds the key to his particular combination of logical empiricism and politics. According to Nemeth, the later Neurath privileged the role of science in expanding the range of the possible, by generating possible 'utopias' (ibid., p. 288). Nemeth reads Neurath's emphasis on constructing possible theoretical languages for the sciences as indicative of an interest in the liberatory function of the sciences. Neurath's pluralist attitude toward various approaches to the study of science is here interpreted as evidence of the political tolerance and liberalism that he saw as continuous with the scientific worldview.

The main source of these speculations—and the most widely-cited, clearest, and extensive development of Neurath's position on the subject of logical empiricism and politics—is his posthumously published essay, 'The Orchestration of the Sciences by the Encyclopedism of logical empiricism' (Neurath, 1983 [1946]). In this essay, Neurath responds to a harsh denunciation of logical empiricism as politically retrogressive by the American pragmatist philosopher, cultural theorist, and art critic Horace Kallen (1946). Neurath's response to Kallen is a post-Nazi science defense of logical empiricism against the view that logical empiricism is a pernicious form of instrumentalist, formalist scientism. In his response, Neurath for the first time marshals many of his familiar claims about unified science explicitly in the service of clarifying the relationship of logical empiricism to politics.

Neurath takes Kallen to be advancing two charges. The first is that logical empiricism countenances a 'scientific totalitarianism'. Kallen argued that the logical empiricist vision of unified science is contrary to the forms of diversity and intellectual freedom that foster scientific progress. Further, to be successful, 'unified science' would require the introduction of undesirably authoritarian forms

of organization into the sciences. The second charge is that this 'scientific totalitarianism' emboldens forms of 'political totalitarianism'. In its drive for a 'Universal Jargon' of science, Kallen worried, logical empiricism promulgates an anti-democratic, 'imperialistic' form of knowledge discourse that gives aid to blind faith in science and to disturbing movements toward scientizing or rationalizing all of human life. Kallen pointed to the role of Nazi science in the rhetoric and forms of political control of German Democratic Socialism during World War II to advance his claim that there is a connection between 'scientific totalitarianism' and 'political totalitarianism'.

Neurath's defense of logical empiricism against Kallen's critique evidences significant evolution in Neurath's thinking on the subject of the relationship between logical empiricism and politics between the publication of the 1929 Vienna Circle Manifesto and the 1940s, which I suggest follows upon the changing conditions of his intellectual work over this period. In the Manifesto, recall, the sense in which logical empiricism participates in emancipatory politics is given by its alliance with secular Enlightenment modes of thinking against 'traditional attitudes of metaphysics and theology' (Neurath et al., 1973, p. 317). By 1946, Neurath appears to have revised this worldview:

I do not think the line of division runs between people with secular and those with transcendental creeds, but rather between people with a centralized and dominating zeal which may possibly lead to self-sacrifice and the sacrifice of others, without tolerance in principle, and people who are tolerant on principle, having perhaps some transcendental creed, or because they, as empiricists, see the multiplicity of all arguing. (Neurath, 1983 [1946], p. 239)

In a post-Nazi world the divisions Neurath sees are not between scientific types and theological types, but between democratic and totalitarian ones. Further, there is none of Neurath's familiar talk of logical empiricism as naturally closer to the 'working classes'. The Marxist rhetoric is now supplanted by a pluralist, humanist left-liberalism, and the socialist ideal of rational planning receives only brief mention. Whereas in the 1929 Manifesto, Neurath saw logical empiricism's political valence in its alliance with socialist movements that draw on the power of science in the 'shaping of economic and social life according to rational principles' (Neurath et al., 1973, p. 318), in the 1946 response to Kallen, it is logical empiricism's commitment to a democratic model of the sciences, and by extension to democracy more generally, that provides this political valence.²

The principal way in which logical empiricism embraces a 'democratic attitude', Neurath argues in 1946, is that it 'acknowledges from the start a multiplicity of possibilities' (Neurath, 1983 [1946], p. 236). Neurath terms this a 'skeptical pluralism' (ibid., p. 238). The Unity of Science movement does not seek to impose a single, 'imperialist' or 'absolutist' system on all scientific statements, Neurath claims, but, referencing Duhem and Poincaré, aims to elaborate possible languages within the 'local ... historically given situation' (ibid., pp. 231–232). 'Tolerance' and 'pluralism' will guide the development of a 'Universal Jargon' for communication between scientists, he argues. Unified science, Neurath continues, also requires structures of democratic governance in science. The 'Universal Jargon' enabling unified science would not be authoritatively imposed, Neurath writes, but arrived at by 'decision' (ibid., p. 235). Neurath envisions Unity of Science as an international movement of scientists building the deliberative models, standards of

² Neurath's new rhetoric of democracy in the 1940s evidences the influence of American pragmatist philosophy of science in the Deweyan tradition on his views of science and politics (Howard, 2003, pp. 46–52). It is also consistent with the predominant Western discourse around science and democracy in the post-World War II era. This period is characterized by an upsurge in intellectual interest in science's cultural, social, and economic role in protecting free democratic societies against the threats of fascism and communism.

communication, and physical conditions of cooperative work—journals and conferences, perhaps—to sustain the ‘democratic’ self-governance of the scientific community (ibid., p. 236).³

Neurath’s response to the challenge of Nazi science raised by Kallen, however, lays bare the extent and limits of the logical empiricist philosophy of science, even liberally interpreted by Neurath, in taking account of the social and political dimensions of scientific knowledge. Nazi race theory, Neurath begins, is a fringe science or pseudoscience, like ‘the telepathy business’—it is not ‘serious’ (ibid., p. 241) science. Nazi science could never ‘spread’ and ‘infect’ (ibid., p. 242) science more generally. Neurath asserts it implausible that scientists would sanction Nazi race theory as a ‘serious’ field of research. Neurath, however, does not envision scientists using the structures of unified science to regulate research in accordance with standards of ethics. Rather, Nazi race theory is just bad science, ‘distorted empiricism’ or ‘muddle’, as Neurath puts it (ibid., pp. 238, 242). Neurath’s view, then, is that the key to rooting out ‘totalitarian’ uses of science is the same as that required to root out bad science—totalitarian science is bad science.

The second issue raised by Kallen, the proliferation of fascist systems of governance even in technologically advanced societies, is addressed in a similarly dismissive and cursory manner. Neurath asserts that logical empiricism stands opposed to Nazism and all forms of totalitarianism by nature of its scientific way of thinking. Logical empiricism is committed to a ‘skeptical empiricism’ that is instinctually anti-authoritarian:

Since the encyclopedism of logical empiricism challenges any intellectual authority which pretends to preach the truth ... *it is out of the question* that it should not challenge any attempt to misuse any kind of distorted empiricism for creating a similar authority. (Ibid., p. 238; my emphasis)

What permitted the rise of Nazism, in Neurath’s view, was a lack of cultivation of empiricist ways of thinking in Germany. Neurath claims that Nazism would be much less likely in ‘the Anglo-Saxon atmosphere’ which is characterized by ‘empiricist utilitarianism’ (ibid.). Since logical empiricism contributes to the advancement of empiricist ways of thinking, it is allied with democracy and against fascism.

On the one hand, science, as a skeptical and pluralist form of knowledge, is simply defined by Neurath as fundamentally anti-totalitarian. Science, in its elemental, instrumental form, is naturally a force for democracy. On the other, there is a realization that science may not always live up to this ideal and an emphasis on the need to secure some additional communicative quality in the practice of science, in the form, perhaps, of an international, democratically-governed organization of scientists. The former is uncritical and unengaged in that it regards science as a neutral instrument that is by definition incapable of sustained exploitation by authoritarian societies. The latter interpretation would spell the beginning of a critical and politically engaged philosophy of science, as it would systematically tie science into regulative democratic structures and enroll it in democratizing efforts. This reading is preferred by LVC scholars, including Uebel, Nemeth, Stadler, and Cartwright, among others. It must be admitted, however, that this reading is not uncontroversially supported by the available sources. Further, the idea of the regulative function of democratic structures in science is not developed to any degree that would permit real consideration of Neurath’s position. Even in his most mature contemplation of politics and logical empiricism,

problems of genuine ambiguity, underdevelopment, and even inconsistency, prohibit any decisive result.

To conclude, in Neurath’s formulation of the political importance of the ‘unity of science’ concept, particularly in his late writings and most especially in his response to Kallen’s challenge of Nazi science, we find his most serious consideration of logical empiricism as a critical theory of knowledge with larger implications for the building of democratic societies. Ascribing a ‘critical and politically engaged philosophy of science’ to the Vienna Circle-era Neurath is therefore at best a highly equivocal matter. If we can find such a thing in Neurath’s thought, it is in his later post-Vienna Circle work, in debates around the concept of unified science. Even then, ambiguities persist and concrete details are few and far between.

6. Conclusion

Is there a Vienna Circle political philosophy of science that sits, obscured by history, for our rediscovery and reconstruction? It is evident that Carnap and Neurath, as well as Frank and Hahn, were socialists and politically active to varying degrees. All thought and cared deeply about politics. Uebel is correct that both Carnap and Neurath permitted that philosophy of science is politically relevant ‘in a larger framework’ (2005, p. 756), that facilitating the work of science is one of the surest means to improving the well-being of society, and even that politics may play a certain role in science itself, in the form of pragmatic considerations within the space of underdetermination. For Uebel’s purposes, however, it is not sufficient to show that some members of the Vienna Circle believed that science, and by extension philosophy of science, was of great social value, nor that some personally held politically progressive values. In the end, both Carnap and Neurath held faithfully to a doctrine of ethical non-cognitivism that entailed forms of neutralism that would prevent serious consideration or development of a ‘political philosophy of science’. In this extended examination of the life and work of both Carnap and Neurath, particularly during the Vienna Circle period, I find little evidence of a theory of science and politics within their respective conceptions of logical empiricism.

This is not to paint Carnap and Neurath as toothless neutralists. The LVC presents the tongue-twisting problem of historical figures whose explicitly theorized political neutralism allowed them, in their time, to also be in some sense substantively politically engaged. Since science was in a certain time and place regarded as a form of politics by other means, a specifically political philosophy of science was not called for. We may acknowledge the political resonance of their neutralism, however, while still seeing that their philosophy of science itself simply does not offer critical conceptual tools for, nor prescribe, the philosophical treatment of the question of social values in science.

Carnap and Neurath had different forms of neutralism. For Carnap, politics were personally important, but they were peripheral to his philosophy. Philosophy was a politics-free zone devoted to the reconstruction and explication of concepts. In Red Vienna, this neutralism did not prohibit an explicit political agenda alongside the philosophical one. In North America, this neutralism took on a more austere and disengaged form with the increasing professionalization of the discipline of philosophy, the changed political climate, and the more cautious scientism of the post-atom bomb, post-Nazi science era (see Reisch, 2005).

³ It is not clear whether Neurath supported a specifically democratic mechanism for bringing about consensus in a scientific community, nor is it clear what role Neurath saw philosophy of science playing in this consensus-building process. In his response to Kallen, Neurath seems disinclined to permit the unified language itself to be submitted to a democratic process. He writes, for example, ‘If people ask how we test our Universal Jargon as the best ... we have to answer that such a test cannot be carried out ... Some people think that “testing” in social life is a rather democratic activity and deplore the fact that we do not apply it here’ (Neurath, 1983 [1946], pp. 235–236).

For Neurath, politics were at the center of his personal, professional, and intellectual life. Yet he, too, balked at explicitly theorizing his politics. Particularly if we look at his Vienna Circle period, there is little by way of a Neurathian philosophy of science at all, let alone a distinctive conception of the relationship between science and politics. Neurath appears to have held to a strongly instrumentalist and neutralist concept of science throughout his life. Political values are admitted in the external space of underdetermination, but these values are non-cognitive; adjudication among them would amount to a form of 'pseudorationalism', in his lexicon. In later work, Neurath took initial steps toward articulating how logical empiricism could offer a theory of the relationship between science and society, focusing on science's model of intersubjective rational discourse, while still holding back from any larger ethical or politically critical reflection on science itself.

The significant differences between the methods and problems that Carnap and Neurath took up in their philosophical research, and their different conceptions of scientific philosophy's political dimension, put pressure on the sociohistorical construct of an 'LVC'. Transformations in their methods, doctrines, and professional context beginning in the mid-1930s upon the dispersal of the Vienna Circle compound this problem. LVC scholars draw liberally from Carnap and Neurath's oeuvres to reconstruct an LVC political philosophy of science. But which period of Neurath and Carnap's work qualifies as a contribution to the putative political logical empiricism? Carnap appears to have been peripheral to the 'left wing' and definitively drifted away from it beginning in the early 1930s. In the case of Neurath, his theoretical interest in politics and philosophy of science developed principally in the mid-1930s, contemporary with a split with Carnap and a turn toward Deweyan pragmatism, and was never systematically elaborated before his early death.

I find the viability of the historical thesis of an 'LVC' diminished by these observations. Rather than a programmatic 'Left Vienna Circle political philosophy of science', the historical record suggests a far more modest characterization: some individuals in the Vienna Circle were more or less engaged in the political life of 1920s Red Vienna, believed strongly in the importance of science to social progress, and were interested in the relationship of their philosophical work to ongoing political struggles. Though LVC historians have not demonstrated the existence of a forgotten political philosophy of science, they have discovered something equally interesting and significant: that the tensions and gaps in the logical empiricist account of science due to its effacement of the social, ideological, and historical dimensions of science, thought to have become evident only recently, were in fact manifest in some form during its earliest days.

In Part 2, to follow, I explore the disciplinary dimensions of LVC historiography, its contemporary program, and its reception.

References

- Anderson, L. (2003). The debate over the *Geisteswissenschaften* in German philosophy: 1880–1910. In T. Baldwin (Ed.), *The Cambridge history of philosophy: 1870–1945* (pp. 221–234). Cambridge: Cambridge University Press.
- Carnap, R. (1932). On protocol sentences. *Noûs*, 21, 457–470.
- Carnap, R. (1963). Autobiography. In P. A. Schilpp (Ed.), *The philosophy of Rudolf Carnap* (pp. 3–84). Open Court: La Salle, IL.
- Cartwright, N., Cat, J., Fleck, L., & Uebel, T. E. (1996). *Otto Neurath: Philosophy between science and politics*. New York: Cambridge University Press.
- Galison, P. (1996). Constructing modernism: The cultural location of *Aufbau*. In R. N. Giere & A. W. Richardson (Eds.), *Origins of logical empiricism* (pp. 17–44). Minneapolis: University of Minnesota Press.
- Gruber, H. (1991). *Red Vienna: Experiment in working-class culture, 1919–1934*. New York: Oxford University Press.
- Haller, R. (1996). Otto Neurath—for and against. In E. Nemeth & F. Stadler (Eds.), *Encyclopedia and utopia: The life and work of Otto Neurath (1882–1945)* (pp. 29–38). Boston: Kluwer.
- Howard, D. (2003). Two left turns make a right: On the curious political career of North American philosophy of science at midcentury. In G. L. Hardcastle & A. W. Richardson (Eds.), *Logical empiricism in North America* (pp. 25–93). Minneapolis: University of Minnesota Press.
- Kallen, H. M. (1946). The meanings of 'unity' among the sciences, once more. *Philosophy and Phenomenological Research*, 6(4), 493–496.
- Memories of Otto Neurath (1973). In O. Neurath, M. Neurath, & R. S. Cohen (Eds.), *Empiricism and sociology* (pp. 1–83). Dordrecht: Reidel.
- Nemeth, E. (1991). Otto Neurath's utopias—the will to hope. In T. E. Uebel (Ed.), *Rediscovering the forgotten Vienna Circle: Austrian studies on Otto Neurath and the Vienna Circle* (pp. 285–294). Boston: Kluwer.
- Neurath, O. (1959a). Protocol sentences (G. Schick, Trans.). In A. J. Ayer (Ed.), *Logical positivism* (pp. 199–208). New York: Free Press. (First published 1932)
- Neurath, O. (1959b). Sociology and physicalism (M. Magnus, & R. Raico, Trans.). In A. J. Ayer (Ed.), *Logical positivism* (pp. 282–317). New York: Free Press. (First published 1931)
- Neurath, O. (1973a). International planning for freedom. In O. Neurath, M. Neurath, & R. S. Cohen (Eds.), *Empiricism and sociology* (pp. 422–440). Dordrecht: Reidel. (First published 1942)
- Neurath, O. (1973b). Personal life and class struggle. In O. Neurath, M. Neurath, & R. S. Cohen (Eds.), *Empiricism and sociology* (pp. 249–297). Dordrecht: Reidel. (First published 1928)
- Neurath, O. (1973c). Through war economy to economy in kind. In O. Neurath, M. Neurath, & R. S. Cohen (Eds.), *Empiricism and sociology* (pp. 123–157). Dordrecht: Reidel. (First published 1919)
- Neurath, O. (1983). The orchestration of the sciences by the encyclopedism of logical empiricism. In R. S. Cohen, M. Neurath, & C. R. Fawcett (Eds.), *Otto Neurath: Philosophical papers, 1913–1946* (pp. 230–242). Boston: Riedel. (First published 1946)
- Neurath, O., Carnap, R., & Hahn, H. (1973). The scientific world-conception: The Vienna Circle. In O. Neurath, M. Neurath, & R. S. Cohen (Eds.), *Empiricism and sociology* (pp. 299–318). Dordrecht: Riedel. (First published 1929)
- Neurath, P. (1996). Otto Neurath (1882–1945)—life and work. In E. Nemeth & F. Stadler (Eds.), *Encyclopedia and utopia: The life and work of Otto Neurath (1882–1945)* (pp. 15–28). Boston: Kluwer.
- Proctor, R. (1991). *Value-free science?: Purity and power in modern knowledge*. Cambridge, MA: Harvard University Press.
- Reisch, G. A. (2005). *How the Cold War transformed philosophy of science: To the icy slopes of logic*. New York: Cambridge University Press.
- Stadler, F. (1996). Otto Neurath—encyclopedia and utopia. In E. Nemeth & F. Stadler (Eds.), *Encyclopedia and utopia: The life and work of Otto Neurath (1882–1945)* (pp. 1–6). Boston: Kluwer.
- Uebel, T. E. (1991). Otto Neurath and the Neurath reception: Puzzle and promise. In idem (Ed.), *Rediscovering the forgotten Vienna Circle: Austrian studies on Otto Neurath and the Vienna Circle* (pp. 3–23). Boston: Kluwer.
- Uebel, T. E. (1992). *Overcoming logical positivism from within: The emergence of Neurath's naturalism in the Vienna Circle's protocol sentence debate*. Atlanta: Rodopi.
- Uebel, T. E. (2003). Philipp Frank's history of the Vienna Circle: A programmatic retrospective. In G. L. Hardcastle & A. W. Richardson (Eds.), *Logical empiricism in North America* (pp. 149–169). Minneapolis: University of Minnesota Press.
- Uebel, T. E. (2005). Political philosophy of science in logical empiricism: The left Vienna Circle. *Studies in History and Philosophy of Science*, 36, 754–773.
- Weber, M. (1949). The meaning of 'ethical neutrality' in sociology and economics. In E. Shils & H. A. Finch (Eds.), *The methodology of the social sciences* (pp. 1–47). Glencoe, IL: Free Press. (First published 1919)