THE AMERICAN RECEPTION OF LOGICAL POSITIVISM: FIRST ENCOUNTERS, 1929–1932

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This article reconstructs the American reception of logical positivism in the early 1930s. I argue that Moritz Schlick (who had visiting positions at Stanford and Berkeley in 1929 and 1931–32) and Herbert Feigl (who visited Harvard in the 1930–31 academic year) played a crucial role in promoting the *wissenschaftliche Weltauffassung*, years before members of the Vienna Circle, the Berlin Group, and the Lvov-Warsaw school would seek refuge in the United States. Building on archive material from the Wiener Kreis Archiv, the Harvard University Archives, and the Herbert Feigl Papers, as well as a large number of publications in American philosophy journals from the early 1930s, I reconstruct the subtle transformation of the American philosophical landscape in the years immediately preceding the European exodus. I argue that (1) American philosophical discussions about meaning and significance and (2) internal dynamics in the Vienna Circle between 1929 and 1931 had a significant impact on the way US philosophers came to perceive logical positivism.

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1. Introduction

The history of mid-twentieth-century American philosophy is often depicted as a history of the rapidly growing influence of logical positivism. In the years before World War II, a small number of European philosophers of science sought refuge in the United States, among them Rudolf Carnap, Carl Hempel, and Hans Reichenbach.[1] Within a few years, they had significantly reshaped the American philosophical landscape. Whereas US philosophy had been dominated by pragmatism, realism, and naturalism in the first decades of the twentieth century, many American philosophers began to develop views about method, meaning, and metaphysics that were heavily indebted to the scientific philosophy that originated in Europe.

Although the American reception of logical positivism (and, later, logical empiricism) has been thoroughly documented and studied, surprisingly little is known about the years that immediately preceded the European exodus.[2] Still, there are many signs that this period played a formative role in the development of US philosophy. Not only were there frequent contacts between American and European philosophers in the late 1920s and early 1930s—Moritz Schlick and Herbert Feigl both had visiting positions in the United States between 1929 and 1932—American publications like Percy Williams Bridgman's *The Logic of Modern Physics* (1927) and Clarence Irving Lewis's *Mind and the World-Order* (1929) seem to have paved the way for some of the views that would come to dominate US philosophy.[3]

This article takes some first steps toward reconstructing the American responses to logical positivism in the years leading up to the arrival of the first continental émigrés. When did American philosophers first learn about the views of their European colleagues? How did they respond? And how was the reception of logical positivism shaped by the visits of Schlick and Feigl? Building on a large set of publications in American philosophy journals from the early 1930s as well as the academic archives of Schlick, Feigl, and Bridgman, I reconstruct the subtle transformation of American philosophy in the early 1930s, arguing that (1) American philosophical discussions about meaning and significance and

1. For a reconstruction, see Dahms (1987) and Stadler (2015, chap. 10).

2. On the American reception, see, e.g., Giere (1996), Galison (1998), Butts (2000), Kuklick (2002), Richardson (2003), Reisch (2005), Limbeck-Lilienau (2012), Katzav and Vaesen (2017), and Pihlström et al. (2017).

3. It is quite surprising that this period has been largely ignored thus far. Even the excellent collection *Logical Empiricism in North America* (Hardcastle and Richardson 2003) spends only a few pages on Euro-American influences in the years leading up to the first wave of continental immigrants. Gerard Holton (1992) extensively reconstructs the "fortunes of positivism in America" but focuses primarily on Ernst Mach's influence on US philosophy.

(2) internal dynamics in the Vienna Circle between 1929 and 1931 significantly affected the way in which US philosophers came to perceive logical positivism.[4]

This article is structured as follows. After a sketch of the American philosophical landscape in the late 1920s, when Schlick had a temporary position at Stanford University (sec. 2), I outline the views defended by members of the Vienna Circle after Schlick's return in September 1929 (secs. 3 and 4).[5] Next, I discuss the events leading up to Feigl's decision to move to the United States (sec. 5) and reconstruct the impact of his Harvard visit in the 1930–31 academic year (sec. 6). Finally, I discuss Schlick's year as a Mills Professor at Berkeley (sec. 8) and analyze the reception of logical positivism in response to Feigl's and Schlick's efforts to promote the scientific world conception (secs. 7 and 9).[6]

2. American Philosophy in the Late 1920s

The 1928–29 academic year has often been described as the year in which the Vienna Circle gradually moved from its private into its public phase.[7] Whereas the views of Schlick and his colleagues had been largely confined to a private discussion group in the mid-1920s, the circle started to spread its scientific world conception actively via public lectures organized by the Verein Ernst Mach (founded on November 23, 1928), the publication of the book series Schriften zur wissenschaftlichen Weltauffassung (the first publications appeared in 1928 and 1929), and the preparation of an international congress on the epistemology

4. The Moritz Schlick Papers (MSP) are part of the Wiener Kreis Archiv (collection 373) at Haarlem's Noord-Hollands Archief; the Herbert Feigl Papers (HFP) are stored at the University of Minnesota Archives, Minneapolis; the P. W. Bridgman Papers (PWBP) can be accessed at the Harvard University Archives, Cambridge, MA (collection HUG 4234.xx); and the W. V. Quine Papers are found at the Houghton Library, Harvard University Archives (collection MS Am 2587). Documents from these collections will be referred to by date of creation (if known) and box, folder, and item number. In transcribing or translating notes, drafts, and letters, I have aimed to minimize editorial interference and chosen not to correct ungrammatical shorthand. All translations from archival sources are mine unless otherwise indicated.

5. In doing so, I mostly (but not exclusively) focus on the Vienna Circle's quickly evolving views about meaning, content, and significance. For, as we will see, these views played a crucial role in the reception of logical positivism in the United States.

6. One important caveat: in reconstructing the American responses to logical positivism, I will largely ignore the converse question of how the views of Feigl, Schlick, and (a few years later) the European immigrants changed in response to their interactions with American culture. For a more extensive discussion of the way in which the views of the Vienna Circle were affected by their increasing knowledge about the American philosophical landscape and American political culture, see Dahms (1992), Howard (2003), Uebel (2003, 2015, 2016), Reisch (2005), Richardson (2007), Limbeck-Lilienau (2012), Neuber (2012), and Misak (2016).

7. See, e.g., Stadler (2015, chaps. 3 and 4). Mulder (1968) was the first to draw the distinction between the two phases.

of the exact sciences (held in Prague, September 15–17, 1929).[8] Looking back on this period, Philipp Frank remembers: "In 1929, we had the feeling that from the cooperation that was centered in Vienna a definite new type of philosophy had emerged. As every father likes to show photographs of his baby, we were looking for means of communication. We wanted to present our brainchild to the world at large, to find out its reaction and to receive new stimulation" (1949, 38).

Whether the Circle's urge to show its "brainchild to the world at large" also included a plan to promote the scientific world conception in the United States is unclear. Still, 1929 is also the year in which Schlick, the leader of the Viennese discussion circle and the president of the newly founded Verein Ernst Mach, traveled to the United States to take up a position as acting professor of philosophy at Stanford University for the summer quarter of 1929.[9] The invitation seems to have been initiated by H. W. Stuart, the head of Stanford's philosophy department at the time. In a letter, Stuart explained that he had been reading the English translation of Schlick's exposition of Einstein's theory of relativity in *Raum und Zeit in der gegenwärtigen Physik* (1917) and that Karl Bühler—the Viennese psychologist who visited Stanford in the summer of 1927—had told him that Schlick would probably "be willing to undertake the long voyage to California."[10]

Whatever Schlick's exact reasons for accepting the Stanford invitation, his decision was a fortunate one.[11] For in 1929 the American philosophical community was actively debating some of the very issues that played an important role in the Circle's world conception. Central to the American debate was a book by the physicist Percy Williams Bridgman, who, like Schlick, was well known for explicating the implications of Einstein's theory of relativity. In *The Logic of Modern Physics*, Bridgman appears to propose a radically new theory of meaning, arguing that "we mean by any concept nothing more than a set of operations; *the concept is synonymous with the corresponding set of operations*" (1927, 5).[12]

8. For a history of the Verein, see Stadler (1982, pt. 2). The first two publications in the Schriften zur wissenschaftlichen Weltauffassung series were von Mises (1928) and Carnap (1929).

9. For an announcement of Schlick's position, see the *Stanford Daily*, October 15, 1928.

10. October 2, 1928, MSP, 118/Stua-1. Conversely, Schlick's decision to accept the Stanford invitation might have been influenced by Bühler's experiences as well. See, e.g., the postcard Bühler sent to Schlick from Stanford (July 15, 1927, MSP, 93/BUE/K-2).

11. Although the precise timeline of the Circle's transition into the public phase is somewhat unclear, Schlick's acceptance of the invitation likely preceded the Viennese efforts to promote their world conception. Schlick's acceptance letter is lost, but his *Nachlass* contains a letter from John Sellards, the director of Stanford University's summer quarter, that suggests that Schlick accepted the visiting position as early as May 13, 1928 (Sellards to Schlick, May 30, 1928, MSP, 118/Stan-1).

12. I added the qualifier 'appears' because it is highly controversial whether Bridgman actually aimed to develop a theory of meaning or a criterion of significance in *The Logic of Modern Physics*. Although he

Bridgman's book was mostly a plea for conceptual hygiene: if Einstein's revolution in physics has taught us anything, Bridgman argued, it is that the concepts of physics are inadequate.[13] Einstein's revolt would not have been necessary if physicists had been more careful in their use of the concepts 'time' and 'simultaneity'—if they had adopted a more "critical attitude toward our whole conceptual structure" (Bridgman 1927, 1). For, Bridgman argued, we did not require any experimental discovery to establish what Einstein discovered; an operational analysis of the concept of 'simultaneity' would have sufficed to at least leave open the possibility that simultaneity is not absolute, a conclusion that would have prevented Newton from building his physics on an unwarranted assumption. As a result, if we want to circumvent crises in the foundations of physics in the future, we have to be more careful—we have to submit the concepts of physics to an operational analysis.

To explain what he means when he urges that 'operational analyses' be used, Bridgman discusses the concept of 'length' extensively in the first chapter of *The Logic of Modern Physics*.[14] If we analyze thoroughly the operations we use in measuring length, Bridgman argues, we have to conclude that even our use of this very basic concept rests on unwarranted assumptions: we use different operations to measure length in different circumstances, without asking ourselves whether we can maintain that all these operations are measuring the same 'property'. In ordinary situations we use rods and rulers to measure length, whereas, in astronomy, distance is measured by trigonometric triangulation, which is an entirely different operation: "We thus see that in the extension from terrestrial to great stellar distances the concept of length has changed completely in character. To say that a certain star is 10^5 light years distant is actually and conceptually an entire different *kind* of thing from saying that a certain goal post is 100 meters distant" (Bridgman 1927, 17–18). If we cannot show that these different procedures yield similar results in similar circumstances, Bridgman concludes, we have to accept that we are dealing with different notions. We cannot just assume that 'ruler length' and 'triangular length' are the same concept.

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opens his book with a definition that seems to entail a strict criterion of empirical significance, he has always denied that he aimed to develop such a criterion. See, e.g., Bridgman (1928), Moyer (1991a, 1991b), and Verhaegh (2020b). I will ignore this caveat in what follows, however, because virtually everyone in the philosophical community, including the members of the Vienna Circle, read Bridgman's book as offering a theory of meaning and significance.

13. This and the following two paragraphs are built on my manuscript (Verhaegh 2020b).

14. Ironically, Bridgman believed that we cannot define what an operational analysis is. We can see what the operational point of view entails only by applying it to specific concepts. See, e.g., Bridgman's letter to Hornell Hart: "I have never given a formal definition of what the operation is. This has been deliberate on my part. . . . The best way of learning what the operational approach is, is to see it in action as applied to concrete examples" (May 27, 1953, PWBP, 4234.10, box 3, folder 8).

Bridgman's book was an immediate success. The American Library Association selected *The Logic of Modern Physics* as one of the "Forty Notable American Books of 1927," and the book was favorably reviewed in a wide range of journals, including general periodicals like the *Nation*, the *Observer*, and the *Saturday Review*.[15] The *New York Times Book Review* even described Bridgman's *Logic* as "a new edition of Mach and Poincaré combined," arguing that the latters' views required updating after the revolutionary development of relativity and quantum theory (March 4, 1929).

The responses of the academic world were equally positive.[16] In philosophy, Bridgman's views were especially influential in pragmatist circles. A great many responses to *The Logic of Modern Physics* in American philosophy journals from the late 1920s explicitly draw a connection between Bridgman's theory of meaning and Charles S. Peirce's 'pragmatic maxim'.[17] Ernest Nagel, who would later come to play an important role in spreading the logical positivists' message (see sec. 9), saw Bridgman's theory of meaning as an explication of Peirce's maxim: "Many years ago Peirce made clear that our ideas are to mean all the experimentally verifiable consequences which follow our acting upon them. Since Peirce was bred in the laboratory and since his philosophy was largely a crystallization of scientific method, it is not surprising that critically conscious scientists should have, independently, voiced a full-throated endorsement of many of his positions. . . . With Bridgman we may say that 'the concept is synonymous with the corresponding set of operations'" (1929, 172).

Nagel was not the only one to draw a connection between Bridgman's operational perspective and pragmatist approaches to meaning. Julius S. Bixler viewed Bridgman's "new physics" as confirming the "pragmatic theory that knowledge is directed toward the consequences of experimental operations" (1930, 214), Frederick J. E. Woodbridge alluded to Peirce in claiming that Bridgman's "pragmatic analysis" renders a great service "in helping to make ideas

15. MacMillan to Bridgman, August 4, 1928, PWBP, 4234.12, folder 1, and see the reviews collected in PWBP, 4234.12, folder 2.

16. Somewhat to his surprise, Bridgman's book was especially influential in psychology. A great many American psychologists who would later come to sympathize with logical positivism adopted the view that psychological concepts require operational definitions as well—that psychology can become a rigorous science, like physics, only if concepts like 'experience', 'consciousness', and 'sensation' are strictly defined in terms of public and repeatable operations. Stanley Smith Stevens played an especially important role in spreading the operationist message in psychology. He published a manifesto in which he urged for an operationist turn—for a "revolution that will put an end to the possibility of revolutions in psychology" (Stevens 1935, 323). See Verhaegh (2020b). I will come back to this in sec. 7, as it seems that Feigl played an important role in the development of operationism in psychology.

17. See Peirce (1878, 293): "Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object."

clear" (1929, 548), and W. E. Van de Walle even suggested that Bridgman's book could have been titled "The Evidence from Physics for Pragmatism" (1928, 286).

Still, the great philosophical breakthrough of Bridgman's theory came in 1929, when John Dewey published his seminal *The Quest for Certainty*. In this book Dewey draws a distinction between phenomenal and operational approaches "to the validity or soundness" of our concepts. Historically, Dewey argues, most 'experimental empiricists' have defended the former approach, framing their criteria of soundness "in terms of sensations or sense data" (112). Bridgman's theory, however, points in the opposite direction:

> The position of present science . . . has been stated as follows: ". . . In general, we mean by any concept nothing more than a set of operations . . ." [footnote reference citing Bridgman omitted here]. The adoption of this point of view with respect to the meaning and content of thinking, and as to the validity or soundness of the ideas by means of which we understand natural events, makes possible what has been lacking throughout the history of thought, a genuinely experimental empiricism. . . . Historically, empirical philosophies have been framed in terms of sensations or sense data. . . . From the standpoint of the operational definition and tests of ideas, ideas [have] an empirical origin and status. But it is that of *acts* performed, acts in the literal and existential sense of the word, deeds done, not reception of sensations forced on us from without. (Dewey 1929, 111–13)

Dewey was not the only major pragmatist to use Bridgman's views to defend an operationist variant of verificationism.[18] In a paper titled "Pragmatism and Current Thought" (1930), Lewis defended a very similar conclusion. The very notion of verifiability, Lewis argued, should lead us to replace phenomenalist verificationism with operationist verificationism. After all, sense data themselves are notoriously difficult to verify:

> If your hours as felt, are twice as long as mine, your pounds twice as heavy, that makes no difference, which can be tested, in our assignment of physical properties to things. If it *should* thus make a difference in our predication of properties, we should at once decide that one of us must be mistaken. Such decision would reveal our implicit recognition that

18. Some people might object to labeling the views of Bridgman and Dewey as 'verificationisms'. Following Misak (1995), however, I use the term 'verificationism' broadly.

> our concept of the predicated property excludes this subjective element, and includes only the objectively verifiable relations. The physical concepts are not, by this extrusion of the immediate, emptied of meaning. Their meaning is, as Bridgman says, in the operations of verification and their results. (242–43)

A year earlier, Lewis had published *Mind and the World-Order*. In that book Lewis identified the a priori with the analytic, sharply distinguished between the empirical and the logical, and emphasized that the intersubjectivity of knowledge should be explicated in terms of shared conceptual structures, not in terms of shared experiential content, a conclusion Schlick had also drawn in his "Erleben, Erkennen, Metaphysik" (1926/1979). It is therefore not surprising that Feigl, about a year after Schlick's trip to the United States, would describe Lewis's 'conceptual pragmatism' as "barely distinguishable from our positivism" and *Mind and the World-Order* as "the best epistemology in the English literature."[19]

3. Schlick versus Bridgman

Schlick left for America on May 27, 1929.[20] When he boarded the ocean liner at Le Havre, he seems to have been well aware of the status of Bridgman's book. For, in preparing for his trip, he studied Bridgman's work extensively. Schlick's *Nachlass* contains a six-page typed excerpt of the most important passages of Bridgman's paper "The New Vision of Science" (published in *Harper's Magazine* earlier that year), and on July 5, 1929, two weeks before his first public lecture at Stanford, he published a review of *The Logic of Modern Physics* (Schlick 1929/2008).[21]

19. Feigl to Schlick, December 6, 1930, MSP, 99/Fei-17.

20. See Carnap's diary entry, quoted in Uebel (2008, 76): "10.30 met Schlick in university. . . . He leaves this evening for America" (May 27, 1929).

21. The excerpt is found in MSP, 422/A.255. In his memoir "The *Wiener Kreis* in America," Feigl suggests that the Vienna Circle first learned about Bridgman's book from the American graduate student Albert Blumberg, who came to Vienna to write a dissertation in the 1929–30 academic year: "During the summer of 1929 I met a young American student in Paris, Albert E. Blumberg, who had come from Baltimore (Johns Hopkins University) and was interested in coming to Vienna. I encouraged him to do his thesis (on Emile Meyerson's philosophy of science) under Schlick's supervision. . . . It was also in 1929 that, I think through Blumberg's suggestion, we became acquainted with Percy W. Bridgman's *Logic of Modern Physics*" (1968/1981, 68–69). Feigl's account appears to be incorrect, as Schlick published his review of Bridgman's book before Blumberg came to Vienna. Indeed, Feigl first mentions Blumberg ("An American friend of Natkin . . . who is also a philosopher and . . . [is] probably coming to Vienna this Winter") in a letter to Schlick after the review had already been published (July 21, 1929, MSP 99/Fei-13; my translation).

Somewhat surprisingly, Schlick's review was quite critical. Although he recognized that Bridgman's central message was similar to both the pragmatist and the Viennese points of view—characterizing the latter's philosophical attitude as a "positivistic pragmatism"—he also objected to what he perceived to be the book's central claim, namely, that "the concept is synonymous with the corresponding set of operations." Any such theory of meaning, Schlick argued, undermines the essential distinction between a physical quality and its measurement:

> This formulation . . . seems untenable to me because it is inconsistent with the perhaps most important fact regarding our exact knowledge of nature: that quite different operations can lead to one and the same measure. . . . If the content of a concept were really *nothing* but the operations leading to it, it would be impossible to measure a quantity in several different ways. . . . This is indeed Bridgman's opinion. He concludes for example that the notion of an ultramicroscopic length, say, of 10^{-10} cm, has a fundamentally different meaning than its length to be measured by the direct application of a ruler. . . . No, even if it is true that a physical concept is determined solely by experimental operations, its meaning does not exist in these operations themselves. (1929/2008, 188–89; my translation)

Schlick was not the only one to arrive at this conclusion. Many of his American colleagues outside pragmatist circles pointed at the very same problem. A. Cornelius Benjamin, for example, argued that we ought to distinguish between the measurement and the quality that we are measuring: "Measurement is no doubt important, but it is well to know just what it is that we are measuring" (1927, 665). Similar points were made by Henry Margenau, who argued that the operational theory of meaning leads to the absurd conclusion that there is "no way of telling . . . why a time interval read from a clock is more closely related . . . to a time interval measured by astronomical observations than to weight determined by means of a balance" (1931, 16), and by Arthur Lovejoy, who mocked Bridgman's theory by claiming that it implies that if a bedridden woman should observe two men, one outside in the rain and another entering her room with wet clothing, her inference that "rain had fallen upon both" could not have the same meaning in both cases (1930, 628).[22]

Schlick's argument suggests that there is an important difference between the view defended by (or, better, attributed to) Bridgman and Schlick's position in the summer of 1929. Where Bridgman is generally read as combining a criterion of significance (a proposition is meaningful if and only if it is verifiable)

22. See also Boas (1931, 320) and McGilvary (1931, 427).

with a substantive theory of meaning (the meaning of a proposition is its method of verification), Schlick appears to limit himself to the former: propositions are meaningless if they cannot be verified, but this does not imply that the meaning of a proposition should be equated with its method of verification.[23]

Little did Schlick know that he would be defending a highly similar theory within a year after the publication of his review of Bridgman's *Logic*. For, from December 1929 onward, Schlick regularly met up with and became heavily influenced by Wittgenstein, who had returned to philosophy in 1928 and was defending views about meaning that were similar to Bridgman's in some respects. From Waismann's published notebooks recording the conversations between Wittgenstein, Schlick, and himself, it becomes clear that Wittgenstein, too, believed that the meaning of a proposition should be equated with the method of its verification:

> *The Sense of a Proposition is its Verification*. If I say, for example, 'Up there on the cupboard there is a book', how do I set about verifying it? Is it sufficient if I glance at it, or if I look at it from different sides, or if I take it into my hands, touch it, open it, turn over its leaves, and so forth? There are two conceptions here. One of them says that however I set about it, I shall never be able to verify the proposition completely. . . . Whatever we do, we are never sure that we were not mistaken. The other conception, the one I want to hold, says, 'No, if I can never verify the sense of a proposition completely, then I cannot have meant anything by the proposition either. Then the proposition signifies nothing whatsoever.' In order to determine the sense of a proposition, I should have to know a very specific procedure for when to count the proposition as verified. (Wittgenstein at Schlick's house, December 22, 1929; McGuinness 1979, 47)

Schlick's talks with Wittgenstein greatly influenced his development. For Schlick's work after 1929 unmistakably shows that he, too, intends to defend a verificationist theory of meaning. For example, in "Form and Content," a three-course lecture series first delivered at the University of London, Schlick formulates a verificationist theory of meaning and suggests that it is a straightforward consequence of the verifiability criterion of significance: "There is only one way of giving meaning to a sentence, of making it a proposition: we must

23. The distinction between these two types of verificationisms is common in the literature. See, e.g., Hanfling (1981, sec. 3.1), who distinguishes between a "criterion of verifiability" and a "verification principle," and Friedl (2013, sec. 2.1), who distinguishes between a *Sinnkriterium* and a *Verifikationsprinzip*.

indicate the rules for how it shall be used, in other words . . . the Meaning of a Proposition is the Method of its Verification. The question 'What does this sentence mean?' is identical with (has the same answer as) the question: 'How is this proposition verified?'" (1932/1979, 310–11). In fact, when Schlick repeats this theory of meaning in the third lecture of "Form and Content," he implicitly refers to Bridgman's operational theory of meaning: "Let us repeat it once more: the complete and only way of giving the meaning of a proposition consists in indicating what would have to be done in order to find out whether the proposition is true or false. . . . This insight is often called 'the experimental (or operational) theory of meaning'" (366).

So how does Schlick circumvent his own objection to Bridgman's theory of meaning? How can he maintain that the meaning of a proposition is its method of verification while simultaneously denying the consequence that we cannot measure the same quality in different ways? Again, Schlick's conversations with Wittgenstein and Waismann offer the solution. On January 4, 1931, Schlick presents an account in which different operations (types of verification) are connected by means of natural laws:

> There are different ways of verifying a proposition of physics. Thus there are twelve or fourteen independent ways of determining the mass and the charge of an electron. How, then, is this to be understood if the sense of a proposition is the method of its verification? How is it at all possible to say that *one* proposition is verified in different ways? I believe that here the laws of nature are what connect the different kinds of verification. That is, on the basis of the connections given by the laws of nature I can verify one proposition in different ways. (January 4, 1931, at Schlick's house; McGuinness 1979, 158)

Schlick even goes so far as to illustrate this view by applying it to the concept of length, which strongly suggests that he had Bridgman's theory in the back of his mind: "We can take a very simple example: at one time I measure a length by laying a measuring-rod against it, at another time by means of gauging-instruments. In and of itself it would not be necessary that the two results coincide. But if they do, then this is the manifestation of a natural law" (158).

4. The Viennese World Conception

When Schlick returned from California in September 1929, the Vienna Circle surprised him with what has become known as the movement's philosophical manifesto: *Wissenschaftliche Weltauffassung: Der Wiener Kreis* (Hahn et al.

1929/1973). In the days before his departure to the United States, Schlick had turned down a prestigious position at the University of Bonn, and the initiative to write a manifesto seems to have been inspired by his decision to return to Vienna after his Stanford visit. Indeed, Karl Menger remembers that "great was the joy of all of us when we learned that Schlick had decided to return to Vienna for good. 'This must be celebrated,' Neurath said and we all agreed. 'We must write a book outlining our views—a manifesto of the Circle—and dedicate it to Schlick when he comes home in the fall'" (1982, 91). In the summer of 1929, Carnap, Neurath, and Feigl drafted the manifesto, aided by Frank, Hahn, and Waismann.[24] The pamphlet was dedicated to Schlick and presented at the Congress for the Epistemology of the Exact Sciences in Prague.

Although Schlick was flattered by the initiative, he disliked the manifesto itself. In a letter to Robert Millikan, the Nobel Prize–winning physicist he had become acquainted with in California, Schlick complains that the manifesto might give readers the wrong impression about the nature of the Vienna Circle: "The reader of this pamphlet, which was certainly written with the best of intentions, might easily be led to form an incorrect view about our Viennese philosophy. Most of us are not inclined to think of our Circle as a real philosophical 'school' and are particularly averse to dogmatism of any kind."[25] Schlick's fear of scholastic dogmatism would be a recurring issue.[26] A few years later, he expressed a similar complaint ("Some of our old members have grown too dogmatic and might discredit the whole movement") in a letter to his Californian colleague David Rynin, suggesting that he was even "trying to form a new circle out of younger men who are still free from prejudices."[27]

To a certain extent, Schlick was right about how the manifesto portrayed the Vienna Circle. The pamphlet suggests more unity than there actually was. Not only were there important differences between individual members of the Circle—Carnap, Frank, Hahn, Neurath, and Schlick disagreed on quite a few issues when the manifesto was presented in September 1929—but the views of the members themselves were also still very much in flux. Although the pamphlet mentions that "all adherents of the scientific world-conception" agree that

24. See Uebel (2008, sec. 3) for a detailed reconstruction.

25. Schlick to Millikan, February 15, 1930, MSP, 109/Mill-2. Millikan was the director of the Norman Bridge Laboratory at Caltech. It is clear that the two met during Schlick's summer in California because Millikan speaks about his "pleasantest of memories of our visit with you" in his reply [March 29, 1930, MSP, 109/Mill-1].

26. In a letter to Henk Mulder, Feigl writes, "Schlick . . . disliked the idea of a 'School of Philosophy' [and] was not exactly pleased. . . . Schlick clearly viewed philosophy as an individualistic enterprise—everybody should do his own thinking!—so that he played his role as a leader of the Circle only rather reluctantly" (January 29, 1964, HFP, 03-111-01).

27. Schlick to Rynin, November 4, 1933, MSP, 114/Ryn-8; my transcription. See also Friedl and Rutte (2008, 482).

metaphysics is meaningless "because unverifiable and without content" (Hahn et al. 1929/1973, 308), for example, different members of the Circle defended different theories of meaning and significance at different stages of their development.

For one thing, members of the Vienna Circle disagreed about the strength of the verifiability criterion. From 1931 onward, as is well known, the so-called left-wing Vienna Circle (Carnap, Frank, Hahn, and Neurath) started to shy away from the strict verificationism defended by what they called "the more conservative wing" (Schlick and Waismann) and developed a view in which a proposition can be meaningful even if it can be only partially verified.[28] Yet also in 1929, when the manifesto was produced, quite a few members of the Circle defended "partial verificationisms." In *Scheinprobleme der Philosophie*, for example, Carnap explicitly defends a mild form of verificationism, arguing that statements can be "meaningful even if they" are "neither supported nor testable," concluding that he is "using as liberal a criterion of meaningfulness as the most liberal-minded physicist or historian would use within his own science" (1928/2003, 328).[29] In *Theorie und Erfahrung in der Physik*, Feigl suggests that he, too, is committed to a partial verificationism, in defending the view that there are no decisive verifications in physics to begin with: "We have to admit that verifications can never be ultimately decisive. The leeway which is always left by the inadequate establishment of the facts can be used to construct several theories which embrace the facts just as precisely" (1929/1981, 130–31).

Other divisions concerning meaning and significance that played a role in the development of the Vienna Circle (although not all of them as early as 1929) are the debate about phenomenalist and physicalist versions of verificationism, the debate about foundationalist and nonfoundationalist versions of verificationism, and the debate between those who sought formal criteria of significance, on the one hand, and those who sought more pragmatic, contextualist, or historicist theories of meaning, on the other.[30]

28. The distinction between a left-wing and a right-wing Vienna Circle is from Carnap. He first introduces this distinction in "Testability and Meaning" (1936, 1937) and dates what he would later call the "liberalization of empiricism" (1963, sec. 9) to "about 1931" (1937, 37n). See, e.g., Carnap (1932c).

29. Carnap explicates his partial verificationism by explaining that statements can also be meaningful if they "merely have factual content," where a statement p has factual content "if experiences which would *support* p or the contradictory of p are at least conceivable." The notion of "supported by," in turn, is defined in terms of derivability from p and prior experiences by either deduction *or induction* (1928/2003, 327, my emphasis). Creath (1982) argues that Carnap also defended a partial verificationism in *Der Logische Aufbau der Welt* (1928/2003).

30. The protocol-sentences debate is perhaps the best-documented schism within the Vienna Circle. Usually, commentators date the debate to the early 1930s, when Carnap (1932a, 1932b) and Neurath (1931/1983, 1932) were explicitly discussing the issue. Uebel (2007), however, convincingly shows that the debate can be traced back to the late 1920s, when both Neurath and Heinrich Neider began

There is only one very brief period in which members of the Vienna Circle seem to have largely agreed about the nature of meaning and significance, that is, in the summer of 1930, when all the meetings of the Circle were used to discuss Wittgenstein's new interpretation of (and revisions to) the *Tractatus*.[31] In a series of lectures, Waismann outlined the views of Wittgenstein and presented him as defending a strict and largely foundationalist variant of verificationism. In his "Theses," circulated among the members of the Circle (and our best evidence of the content of these lectures), Waismann defended the view that the "sense of a proposition is the way it is verified," that there exist elementary propositions, and that "the form of elementary propositions must conform to the form of the phenomena" (1930/1979, 244–53).

Waismann's interpretation of Wittgenstein's views appears to have had a significant impact on the views of the Vienna Circle. Not only did Schlick explicitly mention Wittgenstein's influence in "Die Kausalität in der gegenwärtigen Physik" (1931/1979, 188), but the positions of what would later become the left-wing Vienna Circle seem to have briefly shifted as well. For example, Carnap briefly defended a variant of verificationism that is at the very least compatible with the views Waismann presented to the Circle in the summer of 1930:

> One understands the meaning of a sentence if and only if one knows how to verify it. If a supposed sentence cannot be verified in principle, then it does not indicate a state of affairs, is therefore meaningless, a 'pseudo-sentence'. A sentence says no more than what can be verified about it. . . . In order to verify a sentence p I must compare p with the state of affairs that is indicated by p. A state of affairs is directly present only in the given. Therefore I must translate p for the purposes of verification into a sentence p′ of my phenomenal language so that p′ speaks of the contents of my experience. (Carnap, ca. August/September 1930, quoted in Uebel 2007, 196–97)

Carnap here comes close to defending a foundationalist variant of verificationism. For, in the remainder of the document, he argues that "every sentence

to argue against Carnap's methodological solipsism. With regard to the debate about different versions of verificationism, compare, e.g., Neurath (1932) and Schlick (1934). With regard to the third debate, most members of the Vienna Circle viewed verifiability as a formal criterion for significance. Others (e.g., Frank), however, thought that it was enough to stick to Mach's pragmatic principle that "where neither confirmation nor refutation is possible, science is not concerned" (1893, 587). Still others (e.g., Neurath) thought that meaning should be studied empirically and in historical context.

31. See Stadler (2015, 73–75), for an overview of the Circle's meetings in the summer of 1930.

of a field of science can be translated step by step into [the phenomenal] language" and that "the translation shows the way to their verification and so provides their *epistemological foundation*" (quoted in Uebel 2007, 191n, my emphasis).[32]

5. Feigl's Fellowship

Although members of the Vienna Circle defended a great variety of views about meaning and significance between 1928, when Carnap first outlined a relatively liberal verifiability criterion in *Scheinprobleme*, and 1931, when Schlick adopted an explicitly Wittgensteinian variant of verificationism in "Die Kausalität in der gegenwärtigen Physik," only one type of Viennese verificationism played an important role in American philosophy in the early 1930s, namely, the variant outlined in "Logical Positivism: A New Movement in European Philosophy," first published in the May 1931 issue of the *Journal of Philosophy* (Blumberg and Feigl 1931). And it was Feigl, Schlick's former doctoral student, who was mainly responsible for spreading (what he regarded to be) the central Viennese message.

Schlick had come to know Feigl when serving as a judge for a prize competition in the early 1920s. Feigl, still 19 years old at the time, had submitted an essay on the philosophical significance of relativity theory and very nearly won the first prize. Schlick was impressed by the paper and took Feigl on as a graduate student after he moved to the University of Vienna in 1922.[33] Under Schlick's auspices, Feigl studied both philosophy and physics and defended a dissertation on probability and induction with highest honors (Feigl 1927). After completing his dissertation, however, Feigl had great difficulty in finding an academic position. In a 1929 letter to Schlick, he explained that his prospects were dire in an academic market that was strongly affected by increasing anti-Semitic sentiments: "I still think that teaching at a university is the most beautiful profession, but—as both Hahn and Carnap said with reference to Waismann and myself—the prospects in the present conditions are extremely weak."[34]

In the first two years after obtaining his PhD, Feigl supported himself by short-term jobs such as a lectureship at the Wiener Volkshochschule and a

32. See also Carnap (1930/1959, 144, my emphasis): "The positivist system corresponds to the epistemological viewpoint because it proves the *validity of knowledge* by reduction to the given."

33. At least, this is how Schlick recounts his first meeting with Feigl in a letter to Millikan (February 15, 1930, MSP, 109/Mill-2). Haller (2003, 118) claims that Feigl was already studying in Vienna when he submitted his essay.

34. July 21, 1929, MSP, 99/Fei-13; my translation. Both Feigl and Waismann were of Jewish descent.

guest lectureship at the Hochschule für Gestaltung (the influential Bauhaus school in Dessau).[35] In 1929, however, he began to think about a more drastic move. Inspired by conversations with the American philosophy professors Dickinson Miller (the first American to visit meetings of the Vienna Circle) and Charles Strong (John D. Rockefeller's son-in-law), with whom he occasionally talked about relativity theory and the views of the Vienna Circle, Feigl started to consider trying his luck in the United States.[36] Indeed, when Schlick was in California in the summer of 1929, Feigl wrote him to ask about his chances on the American market: "What are your current impressions of my prospects in America? Do you think that I, assuming that I would have the required language skills (I could reach that soon), could get a reasonably paid position over there? If it is not too immodest, I'd like to ask you to make some publicity for my book. I believe that it is especially well suited for America."[37] It is not clear how Schlick replied, but his *Nachlass* shows that he wrote at least two letters to inquire about a position in the subsequent academic year: one to his Californian acquaintance Robert Millikan (see sec. 4) and one to Percy Williams Bridgman.[38]

Somewhat surprisingly, Schlick's letter to Bridgman makes it clear that the two had never been in contact before, despite the former's review of *The Logic of Modern Physics* and the fact that both had worked on the implications of relativity theory for more than a decade:

> I do not have the pleasure of knowing you personally, but I have read your delightful book on the Logic of Modern Physics and some of your other works on the general aspects of physics.[39] My friends and students here are, like myself, greatly interested in the epistemological foundations of

35. See HFP, 01-05-24 and HFP, 03-99.

36. Miller was a retired philosophy professor who moved to Europe and became a visiting member of the Circle in 1926. See Feigl (1974/1981, 7).

37. July 21, 1929, MSP, 99/Fei-13; my translation. Note that this letter was written a few months before the stock market crash of October 1929, when the academic job market in the United States was still flourishing. The book Feigl refers to is the above-mentioned *Theorie and Erfahrung in der Physik* (sec. 4), which had been published earlier that year.

38. On Schlick's copy of Feigl's letter, there is a small note in Schlick's handwriting that reads "Send to *Bridgman* and write for recommendation for translation for publisher" (July 21, 1929, MSP, 99/Fei-13; my translation), suggesting that he immediately thought of Bridgman when he read Feigl's request to make some publicity for his book. Schlick's letter to Millikan is from February 15, 1930 (MSP, 109/Mill-2). In this letter Schlick inquires whether Millikan would be interested to hire him as an instructor, adding that Feigl would be willing "to stay indefinitely if desired."

39. Conversely, Bridgman does not seem to have been familiar with Schlick's work at all. After receiving the letter, Bridgman wrote to a Harvard colleague to ask him about Schlick's reputation (Hocking to Bridgman, March 27, 1930, PWBP, 4234.8, box 3). See also Moyer (1991b, 392).

> natural science, and I take the liberty of asking you on behalf of one of my former students, Dr Herbert Feigl, if there is any possibility of doing some work in this field under your auspices at Harvard. . . . He hopes to obtain a fellowship from the Rockefeller Foundation for this purpose, and I have sponsored his request. . . . Feigl is one of my very best students and exceedingly gifted for this kind of work.[40]

Feigl himself was also keen on working with Bridgman. In a separate letter, Feigl expressed his sincere desire to work with the Harvard professor because it is rare "to find a physicist who at the same time has so interestingly contributed to the logic of physics."[41] In order to convince Bridgman of the value of his work, he separately forwarded a copy of *Theorie und Erfahrung in der Physik*—apologizing that he did not discuss Bridgman's views in his book because the latter's *Logic* came to his attention only after it had been completed—and attached a copy of a positive note that Einstein had sent him about the book.[42] Bridgman, likely impressed by Schlick's and Einstein's recommendations, accepted the application. Still, he felt that it was necessary to warn Feigl not to come to Harvard with false expectations. Bridgman was first and foremost an experimental physicist, and his work on the foundations of physics was merely a side project:

> I would be very glad for you to come next year, if you really care to do so. But I think that I ought to say a few words of introduction of myself to you, in order that you may not . . . be disappointed when you get here. . . . My work on fundamental questions in physics has been entirely outside my formal academic activities. My book was written during my sabbatical leave; nearly all my time is occupied with the many details of my experimental work. . . . I may say, however, that I am intensely interested in these questions, and would welcome the opportunity of discussing them with [someone] who is devoting serious attention to them. . . . I am particularly glad that your training has included so much physics: it seems to me that without this it is easy to waste a great deal of time.[43]

Bridgman's lingering skepticism about philosophers writing about physics, suggested by the last sentence of this fragment, would become more explicit when logical positivism gained momentum in the mid-1930s (see Walter 1990).

40. Schlick to Bridgman, February 28, 1930, MSP, 93/Bri-1.
41. Feigl to Bridgman, March 2, 1930, PWBP, 4234.8, box 2.
42. November 25, 1929, HFP, 02-117-02.
43. March 23, 1930, PWBP, 4234.8, box 2.

In March 1930, however, Bridgman still felt that the Viennese approach—or, at least, the view expressed in Feigl's book—was "after his own heart."[44] With Bridgman's and Schlick's support, Feigl was awarded an International Rockefeller Research Fellowship, and he boarded an ocean liner at the Port of Le Havre in September 1930.[45] His year at Harvard would turn out to be an important step in his philosophical career. For although Feigl would soon discover that anti-Semitism also played an important role on the American job market ("Unfortunately, anti-Semitism has grown colossal here too"), he was able to secure a position at the University of Iowa just before his fellowship ended.[46]

6. The Birth of "Logical Positivism"

Feigl's year at Harvard clearly sparked Bridgman's interest in the Vienna Circle. Letters from this period show that the two regularly discussed, among others, Schlick's work in their weekly meetings and that they enjoyed their collaboration. Feigl described Bridgman as "a particularly likable man . . . with an astonishing theoretical knowledge and an even more admirable instinct when it comes to foundational questions," and Bridgman noted that he was impressed by Feigl's "ability and originality, . . . his soundness of judgment, and . . . his ability to appreciate other points of view than his own."[47] And after Feigl joined a weekly philosophical discussion group organized by Susanne Langer (which he called the "Langer Zirkel"), he introduced Bridgman to the group on the evening they were discussing Schlick's "Kausalität" (1931/1979).[48]

44. March 23, 1930, PWBP, 4234.8, box 2.

45. See May 17, 1930, PWBP, 4234.8, box 2; and MSP, 99/Fei-16.

46. Feigl to Schlick, April 5, 1931, MSP, 99/Fei-19; my translation. See also Feigl (1968/1981, 74): "Three universities, Rutgers, New York University, and the State University of Iowa, were the only ones that wanted to 'look me over'. . . . Iowa seemed most strongly interested. The late Dean George Kay, a prominent geologist of Canadian origin, telephoned Professor Lewis long distance. As Lewis later related to me, Dean Kay asked him in details about my qualifications, character and personality. At the end of that (about twenty minutes!) telephone conversation, Kay finally asked: 'Is he a Jew?' To this, Lewis, the noble New Englander, gave the—to me unforgettable—reply: 'I am sure I don't know, but if he is, there is nothing disturbing about it.'"

47. Feigl, December 6, 1930, MSP, 99/Fei-17, my translation; and Bridgman, recommendation letter, April 14, 1931, HFP, 02-49-01. Bridgman's esteem of Feigl's capabilities is confirmed in a letter to Arthur Bentley, where he describes Feigl as a sound philosopher and as someone whose views he respects (January 11, 1931, PWBP, 4234.10, box 1, item 10).

48. The phrase "Langer Zirkel" is from Feigl, April 5, 1931, MSP, 99/Fei-19. Bridgman's interest in the views of the Vienna Circle is confirmed by Karl Menger, the famous Viennese mathematician who was also visiting Harvard in the 1930–31 academic year. In his memoirs Menger recalls that Bridgman "was quite interested and asked me about several details concerning the Circle" (1994, 167–68).

Still, Feigl did not limit himself to his weekly talks with Bridgman. His year at Harvard was an excellent chance to spread the Viennese message, and Feigl made full use of this opportunity. Not only did he introduce Schlick's work to Langer's philosophical discussion group, but he played a crucial role in advertising the views of the Vienna Circle to both the philosophers and the psychologists at Harvard. It was Feigl, for example, who suggested that Willard Van Orman Quine visit Vienna the year after he defended his dissertation, the very trip on which Quine would first meet Carnap and would become heavily influenced by the latter's *Logische Syntax der Sprache* (1934a).[49] And it also appears to have been Feigl who ignited the operationist turn in psychology (see n. 14). For, according to E. G. Boring, the director of Harvard's Psychological Laboratory, it was Feigl who "introduced the Harvard psychologists to the ideas of . . . Bridgman, to . . . logical positivism and to operational procedures in general" (1950, 656).[50]

The most important step Feigl took in informing his American colleagues about the views of the Vienna Circle, however, was the paper he wrote with Albert Blumberg for the *Journal of Philosophy*.[51] The "*Propaganda-notiz*," as Feigl called it in a letter to Schlick, was written in December 1930 when Blumberg and Feigl spent the Christmas break in New York.[52] In the article, the two presented the *wissenschaftliche Weltauffassung* as nothing less than a philosophical revolution:

> One of the most interesting phenomena in recent European philosophy has been the convergence of two significant traditions: the positivistic-empirical and the logical. Comparable in importance with the Kantian synthesis of rationalism and empiricism, this new movement is sharply distinguished from it. . . . The essence of this new development is its radically novel interpretation of the nature, scope, and purpose of

49. See Quine's autobiography: "Two friends advised me to start the year at Vienna. One was Herbert Feigl, who had come from Vienna to Harvard on a postdoctoral fellowship" (1985, 86). A 1931 letter shows that Feigl also suggested to Quine that he visit Carnap in Prague: "Our best logician, *Carnap* . . . has moved to Prague. . . . I would advice you to see him at any rate" (W. V. Quine Papers, MS Am 2587, box 12, item 345). For a reconstruction of Quine's trip to Vienna, Prague, and Warsaw in the 1932–33 academic year, see Verhaegh (2020a).

50. Indeed, Stevens (1935, 323), who was based at Harvard, explicitly claimed that his 'psychological operationism' had "its roots" in both logical positivism and the "operational procedure as developed and applied to physics" by Bridgman. Stevens would later come to play an important role in the Harvard Science of Science discussion group. See Hardcastle (2003).

51. Blumberg had returned to the United States after he completed his dissertation on Émile Meyerson at the University of Vienna.

52. Feigl to Schlick, April 5, 1931, MSP, 99/Fei-19; and Feigl to Schlick, December 20, MSP, 99/Fei-18.

> philosophy. . . . The new logical positivism retains the fundamental principle of empiricism but, profiting by the brilliant work of Poincaré and Einstein in the foundations of physics and Frege and Russell in the foundations of mathematics, feels it has attained in most essentials a unified theory of knowledge in which neither logical nor empirical factors are neglected. (Blumberg and Feigl 1931, 281–82)

The term 'logical positivism' was new. Blumberg and Feigl were well aware that the scientific world conception had a better chance of gaining traction if they gave it a name. And they were right. For although many members of the Vienna Circle would have preferred a different label (e.g., 'logical empiricism', 'consistent empiricism', or 'scientific philosophy'), 'logical positivism' remains the most prevalent description of the Viennese perspective to this day.[53]

In addition to creating a distinct 'ism' for the "new movement in European philosophy," Blumberg and Feigl also decided to present logical positivism as a unified view.[54] Instead of describing logical positivism as an approach, a perspective, or a world conception, allowing that individual proponents could have competing views, they described it as a set of doctrines. Their propaganda note is riddled with phrases like "logical positivism asserts . . . ," "logical positivism holds . . . ," and "logical positivism shows . . . ," and in the very first paragraph of their paper, Blumberg and Feigl mention that the "new movement" differs from the tradition in that it "embodies not the work of an individual, but the *agreement* of numerous logicians, philosophers, and scientists independently arrived at" (281, my emphasis).

Considering Blumberg and Feigl's decision to emphasize the doctrinal unity of the logical positivist perspective, it is small wonder that their paper has little eye for the numerous differences between individual members of the Vienna Circle.[55] For the purposes of this article, it is especially important to see that

53. Blumberg and Feigl might have been inspired by Eino Kaila, the Finnish philosopher who had visited the Vienna Circle in 1929. In 1930, the year in which Blumberg and Feigl started working on their 'propaganda note', Kaila published a book on the *Aufbau* titled *Der logistische Neupositivismus*. See also Uebel (2013).

54. It is clear that Blumberg and Feigl did not want to present "logical positivism" as a distinctively Viennese philosophy. The subtitle of their paper is "A New Movement in European Philosophy," and in listing the most important proponents of logical positivism, they also explicitly included the cities in which the philosophers were based: "Its foremost philosophical exponents are R. Carnap (Vienna), H. Reichenbach (Berlin), M. Schlick (Vienna), and L. Wittgenstein (Cambridge, England)" (Blumberg and Feigl 1931, 281). Blumberg and Feigl's international focus was likely affected by the international Prague conference and by Reichenbach's and Carnap's joint editorship of *Erkenntnis*, which had been announced just before Feigl moved to the United States.

55. Indeed, they include the disclaimer that their "exposition of logical positivism" is "necessarily short and dogmatic" (Blumberg and Feigl 1931, 282).

their discussion of meaning and significance does not do justice to the wide variety of views defended by members of the Circle in the late 1920s (sec. 4). Seen in perspective of the timing of the piece—Feigl, we have seen, moved to the United States in September 1930, just after Waismann had presented Wittgenstein's views to the Circle and the period in which Carnap and Schlick, Feigl's two philosophical heroes, largely seemed to agree on certain central issues—it is perhaps no surprise that Blumberg and Feigl's discussion of verificationism heavily reflects (Carnap's and Schlick's interpretations of) Wittgenstein's view, as discussed in the Circle in the summer of 1930:[56]

> The meaning of propositions is identical with the conditions of their verification. . . . Russell, in a passage quoted by Carnap at the beginning of [the *Aufbau*] states: 'The supreme maxim in scientific philosophizing is this: Wherever possible, logical constructions are to be substituted for inferred entities'. Logical positivism goes farther and asserts that in every case where so-called inferred entities are invoked, the term 'inference' is meaningless; what is really meant as a rule is that such entities are constructs of the given. . . . Logical positivism feels it has shown that all so-called inferred entities—be they tables, atoms, or other minds—are to be constructed purely logically from experience. Therefore . . . logical positivism holds that the propositions of the empirical sciences can be completely translated—*and this . . . is their justification*—into a series of propositions containing only terms designating the given. (1931, 293–95, my emphasis)

Blumberg and Feigl, in other words, presented a view according to which (1) the meaning of a proposition is identical with its method of verification, (2) a proposition is meaningful (and justified) if it can be verified in terms of the given, and (3) partial verifiability does not suffice as a criterion of significance (i.e., they require complete translation). In response to the objection that this theory of meaning is "too narrow," they add that the *Aufbau* "demonstrates" that the logical positivist theory of meaning "suffices for all scientific purposes" and that alternative perspectives either are nothing but a "vain search to . . . express the inexpressible" or rely on an illegitimate (metaphysical) use of the notion of inference, referring to Schlick's "Erleben, Erkennen, Metaphysik" in support of their argument (294).

56. In addition to being his supervisor, Schlick had been Feigl's "favorite philosopher" since he bought *Allgemeine Erkenntnislehre* in 1919 (Feigl 1974/1981, 2). Menger (1994, 66) refers to the many conversations he had with Feigl and emphasizes the latter's "limitless admiration for Carnap." See Haller (2003, 123).

Blumberg and Feigl thus defended a variant of verificationism that combines Schlick's Wittgenstein-inspired perspective with the epistemological reinterpretation of the *Aufbau* Carnap was briefly toying with in the summer of 1930 (see sec. 4).[57] There was no room for alternative Viennese perspectives, such as Neurath's (proto-)physicalist antifoundationalism. It is telling, indeed, that Blumberg and Feigl's paper does not mention Neurath or any of his core philosophical views (e.g., unity of science and physicalism). Thomas Uebel has even suggested that this strange omission should be viewed as evidence for the hypothesis that "Logical Positivism" was a deliberate attempt by Schlick's students to undermine the Viennese manifesto that their former supervisor had so wholeheartedly rejected after its first presentation in September 1929 (see sec. 4):

> What leads me to suspect that Blumberg and Feigl's paper was not quite as spontaneous as suggested . . . is that in it a certain person and that person's philosophical proclivities were very discretely "disappeared." This aspect of Blumberg and Feigl's paper suggests that it was conceived at least in part also to compete with the pamphlet *Wissenschaftliche Weltauffassung* that Schlick had come to abhor. . . . Blumberg and Feigl's paper may be regarded as an effort to forestall what Schlick would have regarded as detrimental effects of the pamphlet in the English-speaking world. . . . There are three striking omissions in Blumberg and Feigl's paper that speak of this developing intra-Vienna Circle dynamic. Absent from the list of representative publications is any mention of the pamphlet *Wissenschaftliche Weltauffassung, Der Wiener Kreis* itself, absent is the name of one of its authors, Otto Neurath, and absent from the description of the Circle's philosophy is the aim of unified science that the pamphlet had stressed. (Uebel 2013, 66)

Whether or not Feigl and Blumberg were actively pushed to undermine Neurath's work, it appears that Feigl's last summer in Austria, in which he spent a few weeks with Carnap in Tyrol, gave him the impression that Schlick's and Carnap's views were converging, whereas Neurath was drifting away from the Viennese mainstream.[58] Indeed, during this very summer, Carnap seems to have been

57. The only issue on which Blumberg and Feigl defect from Carnap and Schlick is in their discussion of laws: "Since the laws, e.g., of physics, are universal propositions and induction is not logically justifiable, the propositions of science . . . assert *probabilities*" (1931, 292, my emphasis). Feigl was probably influenced by Reichenbach on this issue. Indeed, in *Theorie und Erfahrung in der Physik*, Feigl had mentioned Schlick, Carnap, and Reichenbach as the main contemporary sources of his anatomy of theories. See also Haller (2003, 119).

58. The Schlick-Feigl correspondence does not contain evidence that the former actively instructed his former students to write a competing manifesto or that he had any direct influence on the contents

drafting the document in which he defended the view that the translation of propositions into the phenomenal language "shows the way to their verification and so provides their epistemological foundation" (quoted in Uebel 2007, 191n), and Carnap (and Feigl?) sent a letter to Schlick, expressing regret about the latter's "conflict with Neurath," when he had refused to publish an early version of Neurath's *Empirische Soziologie* (1931) in the Schriften zur wissenschaftlichen Weltauffassung series.[59] Developments during the months Feigl spent in Austria, in other words, seem to have had a significant impact on how his propaganda note would be used to portray logical positivism.

7. The Reception of "Logical Positivism"

Whether or not Blumberg and Feigl's article does justice to the wide range of perspectives defended by members of the Vienna Circle, "Logical Positivism" had an impact that can hardly be overestimated. Before 1931, virtually no philosopher in the United States had heard of the scientific world conception that was brewing in Vienna, Berlin, and Warsaw.[60] Within two years after the publication of Blumberg and Feigl's article, however, logical positivism was a hotly debated topic in American philosophy. In 1932 and 1933 alone, the three main American philosophy journals (the *Journal of Philosophy*, the *Philosophical Review*, and the *Monist*) published dozens of papers and reviews that mention logical positivism, the Vienna Circle, or the work of individual proponents of the scientific world conception.[61] Furthermore, reports of the 1932 and 1933 American Philosophical Association (APA) meetings at Ann Arbor, Bryn Mawr, and Chicago show that logical positivism also received quite a bit of attention at American conferences (APA 1933; Benjamin 1933; Larrabee 1933; Robson 1933).

The fact that logical positivism received a great deal of attention in the early 1930s does not imply that all American philosophers accepted the views of

of Blumberg and Feigl's paper. On the Tyrol trip, see Feigl and Carnap's joint postcard to Schlick from Biberwier (July 28, 1930, MSP, 99/Fei-14).

59. See Uebel (2007, 183) for a discussion of the dating of Carnap's document. For the letter, see Carnap [and Feigl?] to Schlick, Biberwier, Tyrol, August 5, 1930, MSP, 95/Carn-26.

60. An exception seems to be Sidney Hook, who in his 1930 review article "A Personal Impression of Contemporary German Philosophy" provides a quite extensive description of Reichenbach's philosophy of science and briefly mentions the associated positions of "men like Schlick, Carnap, and Grelling" (159).

61. See, e.g., Aldrich (1932), Blumberg (1932a, 1932b, 1932c), Ginsburg (1932), Lenzen (1932a, 1932b, 1933a, 1933b), Lovejoy (1932), Nagel (1932, 1933a, 1933b), Rynin (1932), Abraham (1933), Burtt (1933), Gamertsfelder (1933), Hess (1933), Morris (1933), Murphy (1933), Spaulding (1933), Weiss (1933), Wiener (1933), and Williams (1933a, 1933b).

Blumberg and Feigl. Although many of the published papers and reviews were sympathetic to the scientific world conception, the movement also received its share of criticism. In an article titled "Current Skepticism of Metaphysics," for example, Walter Gamertsfelder presented the now-familiar challenge that the verifiability criterion (as presented by Feigl and Blumberg) is too strong to adequately distinguish between the meaningful and the meaningless: "If meaninglessness is to be identified with the unverifiable, then not only most of the experience that is subsumed under the fine arts, but much that passes under the name of science, to say nothing of philosophy, is meaningless also" (1933, 116). Moreover, Gamertsfelder complained, we should be cautious about attempts to rule out the possibility of metaphysics "by definition." Just as a medieval philosopher cannot prove the existence of God by including God's being in his definition, the logical positivists should not aim to exclude metaphysics by incorporating the meaninglessness of metaphysics in their definition of significance (116). In an article entitled "On the Logical Positivism of the Viennese Circle," Edward B. Ginsburg also took issue with the verifiability criterion of meaning. Appealing to Carnap's construction theory in the *Aufbau*—or at least the interpretation of the *Aufbau* as presented by Blumberg and Feigl—Ginsburg argued that the possibility of "a single, final criterion system of all scientific (legitimate) concepts is highly questionable" (1932, 129). Paul Weiss, finally, foreshadowed the now-familiar argument that the "neo-positivistic challenge that metaphysics is meaningless" is self-undermining. Even if the logical positivists' claims about "the status and meaning of propositions" were true, Weiss argued, they do not meet their own verifiability standard because "assertions . . . about the status and meaning of propositions" are themselves "non-empirical" (1934, 402).

Still, even these early criticisms contributed to the rising fame of logical positivism. In fact, the movement became so widely known in the years following the publication of Blumberg and Feigl's paper that it quickly became acceptable to complain about a book in a review if it failed to discuss the views of the 'new movement in European philosophy': Victor F. Lenzen in a review of C. E. M. Joad's *Philosophical Aspects of Modern Science* writes, "Mr. Joad does not even mention the very important positivistic movement in Central Europe, the leaders of which are Schlick, Carnap, Philipp Frank, etc." (1932b, 585). And Charles Morris in a review of Jean Wahl's *Vers le Concret: Études d'Histoire de la Philosophie Contemporaine* writes, "It is significant that Wahl does not mention the logical positivists. . . . If the empiricism sampled in this volume may be said to be tender-minded . . . the companion tendencies of logical positivism . . . represent the tough-minded wing of empiricism" (1933, 716). Blumberg and Feigl, in sum, had succeeded in putting the scientific world

conception on the American map. Lewis aptly summarizes the situation in a 1934 letter to Schlick: "There are still some backward souls who have not heard the news. But in general, logical positi[vi]sm easily takes the first place in the interest and the discussions of our students."[62]

8. Schlick's Second Trip to California

The increasing popularity of logical positivism should not be explained solely in terms of Feigl and Blumberg's efforts to market the Viennese world conception, however. Although the two youngsters—Blumberg and Feigl were both in their twenties when they published their "*Propaganda-notiz*"—played a substantial role in propagating logical positivism by means of their papers (Blumberg and Feigl 1931; Blumberg 1932a, 1932b, 1932c; Feigl 1934a, 1934b, 1934c), their contributions to APA conferences (APA 1933; Larrabee 1933; Robson 1933), and their connections at Harvard and Johns Hopkins, a substantial proportion of the earliest responses to logical positivism can also be connected to Schlick, who returned to California as a visiting Mills Professor at Berkeley in the 1931–32 academic year.[63] Schlick's decision to accept the Berkeley invitation seems to have been partly based on his belief that a full year in California would be an excellent opportunity to further introduce the American philosophical community to his philosophy. During his summer at Stanford, Schlick had noted that American philosophers and physicists were quite sympathetic to his philosophical perspective, and another year in California would be an excellent chance to work on a manuscript in English, as well as

62. December 14, 1934, MSP, 107/Lew-1.

63. The influence of Feigl on both the philosophers and the psychologists at Harvard has been discussed in sec. 7. Likewise, Blumberg seems to have had some influence at Johns Hopkins in the early 1930s. George Boas and Arthur Lovejoy, both at Johns Hopkins at the time, occasionally discussed views related to operationism and logical positivism in their papers. See Lovejoy (1930, 1932), Boas (1931), and Boas and Blumberg (1931). Paul Weiss (1933, 521), based at Bryn Mawr in the early 1930s, also explicitly notes that his views about the 'Viennese Circle' have been informed by discussions with Blumberg. On Schlick's 1931–32 position at Berkeley, see MSP, 120/Uny/C-1. The visiting position was officially titled the Mills Professorship of Intellectual and Moral Philosophy. Schlick was the first professor from the European continent to be invited for the professorship since its inception in 1881 (MSP, 86/C.30-6). He had been invited by George Adams, the head of Berkeley's philosophy department, who he had first met when he briefly visited the department during his period at Stanford in the summer quarter of 1929 (MSP, 91/Ad-3). Berkeley's invitation seems to have been based on Schlick's reputation as a philosopher of physics. For when he postponed the lectureship a year ("it is impossible for me to be away from Vienna . . . during the winter of 1930/31. . . . These reasons do not hold for the year 1931/32" [November 10, 1929, MSP, 91/Ad-3]), Adams tried to replace him by inviting Bridgman for a lectureship (PWBP, 4234.8, box 1).

to have some of his earlier work translated.[64] In requesting a formal leave of absence for his Berkeley visit, Schlick remarked that a full year in the United States would be an ideal opportunity to propagate Austrian philosophy across the Atlantic: "The University of California, Berkeley has asked the undersigned to lecture on philosophy as 'Mills Lecturer'. . . . He believes that his lectures will not only positively affect the dissemination of European philosophy in America, but especially the reputation of Austrian scholarship. . . . How much can be achieved in this regard and how open the Americans are to Austrian cultural influences, the undersigned has experienced during his visit to Stanford University in California in the summer of last year."[65]

Whatever Schlick's exact intentions in accepting the Mills Professorship, from a promotional perspective his year at Berkeley was a success. Schlick lectured on Wittgenstein and the philosophy of physics; published papers about causality (1932a), the future of philosophy (1932b), and experience (1932c); and advertised Austria as an ideal holiday destination in a couple of public talks (titles: "Picturesque Austria" and "Mountains and Cities of Austria").[66] In a letter to Waismann, Schlick writes that "he is very pleased with the people who listen to his lectures," that there is "no lack of intelligence," and that his students and colleagues are "refreshingly impartial."[67] Conversely, Schlick also seems to have made a lasting impression on the academics and students at Berkeley. Letters from Donald Mackay, William Dennes, and Alexander Maslow suggest that Schlick had a strong impact on the department's philosophical climate:

> Your discussions last year gave me the courage to believe what I had long tended to believe, that nearly everything that passes as philosophy is really a poor kind of rhetoric and emotional *schwärmerei*. I had thought that I might be missing some profounder significance in metaphysics; but I am no longer worried about such ghosts, and I work with a freer and happier mind.[68]

64. Indeed, Schlick started to publish regularly in English from 1931 onward. See Schlick (1932a, 1932b, 1932c, 1932/1979, 1935a/1979, 1935b/1979, 1936/1979). Schlick's *Raum und Zeit in der gegenwärtigen Physik* (1917) had been translated into English in 1920. In the late 1920s, Schlick also started inquiring about the possibility of publishing a translation of his *Allgemeine Erkenntnislehre* (MSP, 109/Meth-1). Although he received a letter asking for permission to have his book translated and published in America a few months after he returned from his second visit to California (February 10, 1933, MSP, 106/Kwa-1), the English translation would not be published until 1974.

65. Schlick to the Bundesministerium für Unterricht in Vienna, March 18, 1930, MSP, 93/Bund-17; my translation.

66. MSP, 86/C.30-6 and 86/C.30-7.

67. September 10, 1931, MSP, 122/Wai-10; my translation.

68. Dennes to Schlick, September 21, 1932, MSP, 96/Den-1.

> The memory of your visit to Berkeley is still very much alive with us. And among 'us' I would include . . . the members of the Department and all of your former students. . . . Since I have been here, certainly, no other Mills Lecturer has left anywhere near such a lasting impression upon the minds of his students and colleagues. It will perhaps amuse you to learn . . . that this year's visiting professor . . . found your views so firmly established among his students that he deemed to spend two preliminary meetings of his seminar on an examination of them.[69]

> Your influence here is still very noticeable. Mr. Rynin seems to be a sort of an unofficial authority on your views. The other close followers are Miss Creed, Mr. Belmont, and myself. Mr. Belmont is studying now with Wittgenstein and Moore in Cambridge, and he sends here very enthusiastic accounts of Wittgenstein. The people in the faculty who have been especially affected by you[r] presence here are Professors Dennes, Lenzen, and Mackenzie, in particular Prof. Dennes.[70]

It is probably because Schlick influenced quite a large number of academics and students that his year at Berkeley was in many ways as impactful as Feigl's period at Harvard. Between 1932 and 1935 alone, Schlick is mentioned in more than a dozen American publications by philosophers, psychologists, and physicists who were at Berkeley in the 1931–32 academic year.[71] Moreover, some of the Berkeley scholars who were influenced by Schlick would come to play an active role in spreading the Viennese message in the United States. The physicist Victor Lenzen would become one of the most prolific American proponents of logical positivism in the early 1930s and contributed to the *International Encyclopedia of Unified Science* (Lenzen 1938); the psychologist Edward Tolman would become one of the most important protagonists of neo-behaviorism in psychology, attempting to do for psychology what the "logical positivists . . . have already done . . . for physics" (1935, 363–64); Paul Arthur Schilpp, who had been Schlick's personal assistant during his summer at Stanford, would discuss logical positivism in two papers (1935a, 1935b) and become the editor of the seminal Library of Living Philosophers series, including a great deal of scientific philosophers in the collection; and Stephen C. Pepper would visit Vienna in the

69. Mackay to Schlick, May 4, 1933, MSP, 109/Mack-2.

70. Maslow to Schlick, December 23, 1933, MSP, 109/Mas-1.

71. See, e.g., Dennes (1932), Lenzen (1932b, 1933a, 1933b), Loewenberg (1932), Pepper (1932), Rynin (1932), Schilpp (1932, 1935a, 1935b), Williams (1933a, 1933b), and Tolman (1935).

fall semester of 1933.[72] Finally, William Dennes—the philosopher who, according to Maslow, was most influenced by Schlick—would move to Yale and to Harvard in the early 1930s and would significantly contribute to the dissemination of Schlick's perspective in the American philosophical community. When C. I. Lewis was working on a paper about logical positivism, for instance, he wrote to Dennes to ask whether it contained any misconceptions about the positivists' position.[73]

9. Epilogue

Due to the efforts of Blumberg, Feigl, and Schlick, logical positivism was both a well-known and an influential position in American philosophy within two years after the term had first been coined in Feigl and Blumberg's paper. Schlick's and Feigl's research visits ensured that the members of the Vienna Circle, the Berlin Group, and the Lvov-Warsaw school landed on philosophically fertile ground when they emigrated to the United States in the years before World War II.

The big breakthrough for logical positivism came in the 1933–34 academic year, when several events accelerated the American reception of the scientific world conception, first set into motion by Blumberg, Feigl, and Schlick. First and foremost, the pragmatists began to be involved in the debate about the merits and the disadvantages of the Viennese criterion of significance: Nagel (1934) discussed the verifiability criterion in "Verifiability, Truth, and Verification," Morris (1934) critically examined the logical positivists' rejection of metaphysics in "Pragmatism and Metaphysics," and Lewis used his 1933 APA presidential address for a detailed analysis of the "logical positivism of the Vienna Circle, whose program is based throughout upon . . . consideration[s] of empirical meaning" (1934, 126).[74] Generally speaking, the papers of Nagel, Morris, and Lewis

72. Moreover, Tolman would visit the Vienna Circle in the 1933–34 academic year. Edna Heidbreder has written that Tolman "chose to spend his sabbatical [in Vienna] *because* of his interest in logical positivism and because he wanted to become familiar with it at its source" (quoted in Smith 1986, 102n). As for the students, Alexander Maslow would write a dissertation about Wittgenstein and acknowledge Schlick's influence in claiming that "the essentials of my interpretation . . . are derived mostly from the lectures of and the discussions with Professor Schlick" (Maslow to Schlick, December 23, 1933, MSP, 109/Mas-1), and David Rynin would translate Schlick's *Fragen der Ethik* and publish a paper about communication, admitting that he owed his verificationist "doctrine of meaning . . . to Professor Moritz Schlick" (1932, 511).

73. June 29, 1934, MSP, 126/#Den-1.

74. See also Dewey's (1934) response to one of Carnap's papers in *Philosophy of Science*. Both Carnap (1934b, 1936) and Schlick (1936/1979) would later reply to Lewis's and Dewey's arguments. For a reconstruction, see Limbeck-Lilienau (2012).

criticized the thesis that propositions are meaningful if and only if they can be completely translated into (a series of) propositions containing only terms designating the given, a view that Blumberg and Feigl had first proposed in the American literature. In criticizing this thesis, these pragmatists relied on the very distinction between phenomenal and operational verificationisms that some of them had already discussed in the late 1920s using some of the insights of Bridgman's operational perspective (sec. 2).[75] Unfortunately, Lewis, Morris, and Nagel were not aware that the views defended by Blumberg, Feigl, and Schlick were not necessarily shared by all members of the Vienna Circle (or, in the case of the *Aufbau*, that it did not reflect Carnap's then-current position).

Second, the 1933–34 academic year is also the period in which Quine returned from Europe and started to play an active role in spreading Carnap's philosophy in the United States. He gave an influential series of lectures on Carnap's most recent philosophical views (Quine 1934), published a review and a critical examination of *Logische Syntax der Sprache* (1935, 1936), and, together with his friend B. F. Skinner, started a campaign to get Carnap's book translated into English.[76] Moreover, Quine actively tried to arrange a position for Carnap in the United States. In a letter to his parents from September 29, 1934, for example, Quine explains that "Carnap has for some time been anxious to teach in an American university, and during the past year I have taken all opportunities to push the matter with those in power here. . . . I am enthusiastic about Carnap's ideas and I think a part of the growing interest in him at Harvard is due to my propaganda."[77]

Finally, the 1933–34 academic year is the period in which William Malisoff, affiliated with the University of Pennsylvania, founded the Philosophy of Science Association and published the first issues of *Philosophy of Science*. The editorial team of Malisoff's journal is further confirmation of the standing logical positivists enjoyed in the United States in the years before they had to leave Europe: Reichenbach and Schlick were members of the journal's advisory board, whereas Blumberg, Carnap, and Feigl served on the editorial board.

75. Bridgman himself would come to play a role in the Unity of Science movement in the late 1930s, although he would grow increasingly skeptical about logical positivism. See, e.g., Bridgman (1940) and, for a discussion, Walter (1990).

76. Quine and Skinner had met when they both became junior fellows at the Harvard Society of Fellows in September 1933 (Verhaegh 2019). Skinner, who had also been heavily influenced by Bridgman's operational perspective, had been an early subscriber to *Erkenntnis*. For Skinner and Quine's attempts to get *Logische Syntax der Sprache* translated, see Skinner (1979, 100).

77. Unprocessed papers, Houghton Library, Harvard University. Of course, Quine would later come to criticize certain aspects of Carnap's philosophy as well. See Verhaegh (2017; 2018, chaps. 5–7) for a reconstruction of Quine's development.

Still, even in these 1933–34 developments, Feigl's signature is clearly present. Not only did he influence Quine to visit Carnap, Skinner was probably one of the Harvard psychologists Boring referred to in claiming that Feigl "introduced the Harvard psychologists to the ideas of . . . Bridgman, to . . . logical positivism and to operational procedures in general" (1950, 656), and Feigl also seems to have been instrumental in informing Lewis and Morris about the Viennese world conception.[78] Finally, it was Feigl who pushed Carnap to write a reply to Lewis's presidential address. In a letter to Schlick, Carnap writes, "Lewis . . . sent me his published paper . . . apparently with the desire that I should reply to it. Actually I did not really feel like it; but Feigl wrote me that this would be very important for my America plans, as I would need Lewis to realize them. And he advised me to do this as detailed and as seriously as possible."[79]

Carnap's reply to Lewis, "Testability and Meaning" (1936, 1937), would not only become a landmark paper in the history of the Vienna Circle in America but also be one of the first papers to modify the scientific world conception as it had been advertised by Blumberg and Feigl in their propaganda note, thereby marking the transition from 'logical positivism' to 'logical empiricism'.[80] Still, Carnap, along with many other European philosophers of science who would be seeking refuge in the United States, would continue to have to defend himself against presuppositions about the scientific world conception based on the views Feigl and Schlick had first introduced to the American philosophical community in the early 1930s.

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78. In one of his letters to Schlick, Feigl explicitly mentions both that Lewis read a draft of "Logical Positivism" and that he had a very stimulating hours-long discussion with him (April 5, 1931, MSP/Fei-19). Lewis was clearly impressed: about a week later Lewis wrote that "the newly formulated 'neo-positivism' . . . represents . . . the most promising of present movements in Continental philosophy" (April 14, 1931, HFP, 03-53-01). Haller (2003, 125) and Limbeck-Lilienau (2012, 8) mention that it was Feigl who convinced Morris to visit Carnap in Prague in 1934.

79. May 13, 1934, MSP, 95/Carn-39.

80. In fact, even Feigl himself abandoned the label 'logical positivism' in the second half of the 1930s, when he started to defend a more realistic conception of scientific theories. See Feigl (1963/1981, 38) and Neuber (2012; 2018, chap. 5).

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