Carnap and Quine: First Encounters (1932-1936)

Sander Verhaegh[1]

1. Introduction

Carnap and Quine first met in the 1932-33 academic year, when the latter, fresh out of graduate school, visited the key centers of mathematical logic in Europe. In the months that Carnap was finishing his *Logische Syntax der Sprache*, Quine spent five weeks in Prague, where they discussed the manuscript "as it issued from Ina Carnap's typewriter" (Quine 1986, 12). The philosophical friendship that emerged in these weeks would have a tremendous impact on the course of analytic philosophy. Not only did the meetings effectively turn Quine into a Carnapian "disciple" (Quine 1970, 41), they also paved the way for their seminal debates about meaning, language, and ontology—the very discussions that would change the course of analytic philosophy in the decades after the Second World War. Yet surprisingly little is known about these first meetings. Although Quine has often acknowledged the impact of his Prague visit, there appears to be little information about these first encounters, except for the fact that the Quines "were overwhelmed by the kindness of the Carnaps" and that it was Quine's "most notable experience of being intellectually fired by a living teacher" (Quine 1985, 97-8). Neither their correspondence (Creath 1990a, 108-120) nor their autobiographies (Carnap 1963; Quine 1985, 97-8; 1986, 12-3) offer a detailed account of these meetings.

In this paper, I shed new light on Carnap's and Quine's first encounters by examining a

set of previously unexplored material from their personal and academic archives.[2] Why did Quine decide to visit Carnap? What did they discuss? And in what ways did the meetings affect Quine's philosophical development? In what follows, I address these questions by means of a detailed reconstruction of Quine's year in Europe based on a range of letters, notes, and reports from the early 1930s.[3]

2. Cambridge

Quine visited Europe between September 1932 and June 1933, a trip that was funded by a Frederick Sheldon Traveling Fellowship. At the time, a year in Europe was by no means unusual for Harvard's best and brightest. Already in his first year in graduate school, Quine sketched the Europe route to a professorship in a letter to his parents:

> I feel as though [I] have a good chance spending the year after next in Europe […] The usual thing for the favored few here seems to be: get Ph.D., then be sent to Europe […] then come back and be an instructor here at Harvard for a year, and then pick your place! (May 27, 1931, DBQ21)

Quine was well aware that he was one of Harvard's 'favored few'. Some of the most prominent philosophers residing in Emerson Hall—A. N. Whitehead, C. I. Lewis, and Henry Sheffer—were clearly fond of the ambitious logician, who was trying to complete both his M.A. *and* his Ph.D. in two years. In several letters written during his first year of graduate

---

[2] In addition to material from the Rudolf Carnap Papers at Pittsburgh's Archives of Scientific Philosophy (hereafter, RCP) and the W. V. Quine Papers at Harvard's Houghton Library (hereafter, WVQP), the present paper is based on a study of 57 boxes of new material (private manuscripts, date books, and non-academic correspondence) made available by Quine's son and literary executor Douglas B. Quine. I will refer to documents from this additional collection by listing box numbers preceded by the marker DBQ. Transcriptions are mine unless indicated otherwise

[3] Due to limitations of space, this paper mostly discusses the first encounters from Quine's perspective. For a reconstruction from Carnap's perspective, see Verhaegh (2020b).

school, Quine speaks about his excellent "stand-in with Sheffer, Whitehead and Lewis" (May 21, 1931, DBQ21). Indeed, Whitehead told Quine that he "was the first pupil he had ever had whom he believed to understand exactly what they [Russell and Whitehead] had been up against in the *Principia*" (March 16, 1931, WVQP, Item 1215).

Quine did not only seek a Sheldon Fellowship in order to boost his chances on the job market. There were also good *philosophical* reasons to visit Europe. Quine had come to Harvard in September 1930, after graduating from Oberlin College with a major in mathematics and honors reading in mathematical philosophy. At the time, he believed that Harvard would be the best place for an aspiring logician; he had extensively studied Whitehead's *Introduction to Mathematics* and read about Sheffer's stroke function in Russell's *Introduction to Mathematical Philosophy* (Quine 1986, 7-8). During his first year at Harvard, however, Quine quickly discovered that Whitehead was not teaching logic and that Sheffer was mainly talking about "peripheral papers". In his autobiography, Quine remembers:

> American philosophers associated Harvard with logic because of Whitehead, Sheffer, Lewis, and the shades of Peirce and Royce. Really the action was in Europe. In 1930 and 1931, Gödel's first papers and Herbrand's were just appearing, but there were already other notables to reckon with: Ackermann, Bernays, Löwenheim, Skolem, Tarski, von Neumann. Their work had reached few Americans. (Quine 1985, 83).

Quine's last remark appears to be something of an exaggeration. His reading list for Sheffer's course on "relational logic" in the 1930-31 academic year (WVQP, item 3237) shows that Sheffer was quite up to date when it came to developments in logic on the continent. Quine's notes of Sheffer's first lecture show that they were not only discussing Wittgenstein's *Tractatus*, they also reveal that the students were reading Carnap's *Abriss der Logistik*, a book that had been published only a year before.

Still, it seems correct that Harvard philosophers gradually started to realize that the 'action was in Europe' when Quine entered graduate school. For this was exactly the period in which Herbert Feigl, one of the core members of the Vienna Circle, visited Harvard on a Rockefeller Fellowship and started to spread the *Wissenschaftliche Weltauffassung* in the United States.[4] Feigl's correspondence from the early 1930s shows that he introduced the

---

[4] See, for example, Blumberg and Feigl's manifesto "Logical Positivism: A New Movement in European Philosophy", published in May 1931.

Viennese views to Sheffer, Whitehead, and Lewis in Harvard colloquia and that he played an important role in advertising logical positivism at meetings of the American Philosophical Association. Indeed, by the end of the 1930-31 academic year, Lewis was already describing logical positivism as "what we in America are sure to regard as the most promising of present movements in Continental philosophy".[5]

Considering Feigl's active promotion of the views of the *Wiener Kreis* at Harvard, it is not surprising that Quine, in writing an application for a Sheldon Fellowship, decided to spend most of his time in Vienna. Already in the above-mentioned letter to his parents, Quine mentions that there is "an active school of logicians at Vienna" and that this would "be the place where I'd do most of my studying" (May 27, 1931, DBQ21). In fact, a 1931 letter reveals that Feigl also played an important role in convincing Quine that he should visit Prague to talk to Carnap. According to Feigl, meeting Carnap would be indispensable for an aspiring mathematical philosopher:

> Our best logician, *Carnap* (his highly important contributions to mathematical logic […] ha[ve] not been published yet) has moved to Prague […] He knows and lectures a lot, too, about Foundations of Math. — I would advise you to see him at any rate. (Feigl to Quine, December 1931, WVQP, Item 345, original emphasis)

In fact, Feigl ends his letter with a list of the five cities Quine should try to visit if his fellowship allows it, including Prague on the top of his list:

(1) *Prague* (with Carnap only, nothing else worthwile)
(2) *Berlin* (J. v. Neumann, the most brilliant Hilbertian, and try Reichenbach in Space and Time, Probability)
(3) *Warsaw* (the Polish logicians; Lukasiewicz, Lesniewski, Tarski etc)
(4) *Vienna* (Schlick, and some younger men like Gödel and Waismann […] You know, Gödel has *proven* the incompleteness of *any* postulate system for arithmetics. Waismann is the best interpret of Wittgenstein's cryptical philosophy.)

---

(5) *Cambridge* (England), where you can hear the great prophet himself. (December 1931, WVQP, Item 345, original emphases)

Quine seems to have taken Feigl's advice to heart. He ended up going to Vienna (September 15, 1932 – February 28, 1933), Prague (March 1 – April 6, 1933), and Warsaw (May 6 – June 7, 1933).[6] In his autobiography, Quine mentions that he made inquiries about going to Berlin but that he removed it from his list because it "had nothing to offer in logic" (1985, 94). Quine's correspondence with his parents shows that he also wrote a note to Wittgenstein in order to get an "audience with the prophet" (September 20, 1932, DBQ21). Unsurprisingly, however, Quine never received an answer.[7]

3. Quine's early development

Initially, Quine and his wife planned to leave the United States in June 1932 and to spend the summer in Europe before the start of the Viennese academic year. Quine had to postpone his steamship reservations, however, when he received the happy news that Harvard's department of philosophy had decided to subsidize the publication of his dissertation. If he wanted to get his book published during his year abroad, he had to rework the manuscript and prepare it for printing before he left for Europe.

Harvard's decision to subsidize the publication of the thesis probably did not come as a surprise. In logic, Quine knew, the most prominent players held his work in high regard. Especially Whitehead, who had supervised the thesis, was deeply impressed. In a 1933 recommendation letter, he described Quine as one of the most talented logicians he had ever worked with:

In the course of 45 years of experience, the only two men who at his age—25 yrs—submitted comparable work were Maynard Keynes and Bertrand Russell. And his

---

[6] See Quine's date books for 1932 and 1933 (DBQ45) and his "General Report of my Work as a Sheldon Traveling Fellow" (January 8, 1934, WVQP, Item 3254).

[7] See Quine (1985, 87-8).

superior common sense gives him the advantage over the latter. (February 24, 1933, WVQP, Item 1215)

Philosophically, however, Quine's position was still largely in development. His papers and notebooks from the early 1930s reveal that he defended a somewhat unusual combination of behaviorist and phenomenalist views in epistemology.[8] On the one hand, Quine was convinced that behaviorist analyses of mind and language provide the tools to solve a great many problems in the theory of knowledge. Already in his student years, Quine defended an epistemology in which our knowledge of the external world is viewed a web of sentences,[9] some more deeply entrenched than others, that we have come to accept through the processes of psychological conditioning. In addition, he defended a holistic perspective on theory revision, arguing that the inquirer "has a certain latitude as to where he may make his readjustments in the event of an experience recalcitrant to his system" (March 10, 1931, WVQP, Item 3236). *Prima facie*, these views seem to be remarkably similar to the epistemology Quine first outlined in "Two Dogmas of Empiricism". In the early 1930s, however, Quine's holism did not extend to our logical and mathematical knowledge. Still, he seems to have accepted that our knowledge of logic, too, should somehow be accounted for in behaviorist terms. In a note titled "The Validity of Deduction", Quine argued that logical concepts "bear to external reality merely the relation of psychological response to stimulus" (April 11, 1930, WVQP, Item 3244) and he combined this with the Lewisian view that the so-called "'eternal validity of logic'" (Quine's brackets) "is nothing more than […] the property of a definition to remain immutable" unless "altered by convention" (April 11, 1930, WVQP, Item 3244).[10]

---

[8] The following two paragraphs build on Verhaegh (2018) and (2019a).

[9] Quine used the web metaphor as early as 1927. See "On the Organization of Knowledge" (March 19, 1927, WVQP, Item 3225).

[10] I describe Quine's conventionalist leanings as 'Lewisian' because it appears to be inspired the view that we 'create' necessary truths by making classifications, a theory Lewis defends in *Mind and the World-Order* (1929). Frost-Arnold (2011, 300n15) also suggests that Quine's identification of the a priori with claims that can be held true 'come what may' was influenced by C. I. Lewis. The main difference between Quine and Lewis is that the former formulated this theory in behavioristic terms.

On the other hand, Quine also accepted a variant of phenomenalism. Although Quine, again like Lewis, criticized *naïve* sense data theories,[11] he did maintain that every theory, including the theories of the behaviorist, ultimately requires an epistemological, phenomenalist basis. In a paper for a course by Whitehead, Quine wrote:

> It may well suit the purposes of the neurologist or psychologist to [… explain their theories in term of] conditioned reflexes and general habit responses; but it must be remembered that such treatment […] depends upon the prior adoption of a whole system of concepts and hypotheses. Philosophy, if it would inquire into the nature of all such conceptual systems and hypotheses, must certainly endeavor to remain aloof from the initial adoption of any one such system […] let the psychologically prime be what the psychologist finds most efficacious; for philosophy, no one item is initially certified as of more fundamental or ultimate character than any other. I am driven, therefore, to identifying the 'bare datum' with that which Professor C. I. Lewis calls "the given. (March 10, 1930, WVQP, Item 3225)

This tension between (1) a behavioristic epistemology and (2) a phenomenalist perspective according to which behaviorism is just one 'system of concepts' among many is a constant in Quine's early career.[12] Quine seemed to be caught between two competing perspectives, neither of which was fully satisfactory. Behaviorist analyses of knowledge seemed to ignore valid questions about the epistemic status of the behaviorist theory itself, whereas phenomenalist perspectives appeared to ignore the fact our theory of the world is just a system of concepts and sentences we have come to accept through the processes of psychological conditioning.

---

[11] See Quine (March 10, 1930, WVQP, Item 3225): "No analysis of a given experience can yield any other experience which is, in any full sense, the 'bare datum' of the form of experience; any such analysis is, rather, merely a further interpretation".

[12] See Verhaegh (2017, 2018, 2019ab).

4. Vienna

The Quines boarded *The President Roosevelt* in August 1932 and spent the first weeks of their year in Europe in and around France. Quine had frantically worked on the manuscript for his book until mid-August, completing it just in time to mail it to Lewis a few hours before they took a bus to the New York harbor (Quine 1985, 87). On September 11, they arrived in Vienna, a city they quickly deemed the most beautiful place they had visited in their brief but extensive travel careers. In a letter to his parents, Quine noted that Vienna "surpasses Paris or any other big city", and that they were especially enjoying the beauty of the streets as well as the "many public buildings, parcs, and palaces" (September 14, 1932, DBQ21).

Despite the beautiful city and the happy prospect about the publication of his book, Quine's first months in Vienna were something of a disappointment. Not only did he discover that the university would not be open for seven weeks—a period the Quines used for a short trip to the Balkans; he also had to conclude that there were no courses in mathematical logic, the prime reason for his trip to Europe. In a report of his work as a Sheldon Travelling Fellow, Quine writes:

> I was disappointed […] at the lack of activity in mathematical logic. After much investigation I was informed that no lectures were being given on the subject. Extended inquiries among deans and registrars, as to what might be found in the way of seminars or discussion groups on the subject, all proved futile. (January 8, 1934, WVQP, Item 3254)

In fact, even the philosophy lectures were difficult to attend due to the chaotic administration at the University of Vienna. Quine was auditing, among others, Schlick's lectures on philosophy but complained that the "professors fail to appear about half the time", noting that the "same sort of frustration attends the use of the library, the quest of information, and every other activity" (November 25, 1932, DBQ21).[13]

---

[13] An additional source of disappointment was the news that the publication of his book was severely delayed. See Quine's correspondence with Lewis about the publication process (WVQP, item 1464). In the end, Quine's book was published only in September 1934.

In response to these setbacks, the administrative chaos, and the lack of activity in mathematical logic, Quine pondered leaving the Austrian capital and going to Prague or Warsaw straight away as he became increasingly disillusioned by the chaos at the university of Vienna:

> I [have] become impatient with the passive resistance of Vienna and the difficulty of getting anything accomplished […] I am convinced now that there is nothing to hope for here […] Vienna is a keen town, but, if it hadn't been for my much more extreme experiences in the Balkans, I should be inclined to believe that the Austrians were the world's most helpless people. System is unknown. (November 25, 1932, DBQ21)

By the end of November, however, Quine finally had a chance to have a meeting with Schlick. And although Quine was "certain that no advice […] could warrant" his "staying in Vienna" (ibid.), a week later he reported that his meeting "changed everything". The German professor had invited him to come to the discussions of the *Wiener Kreis*, informed him that their next meeting was going to be held the very next day, and asked him to give a talk in January:

> The talk with Schlick changed everything […] I had been sure beforehand that he could tell me of nothing encouraging in Vienna [but] he told of this circle of his […] and invited me to come regularly. The next meeting was the very next day […] I went and found that the group numbered about fifteen, practically all middle-aged or elderly men and all apparently people who have already produced something. I had already, in America, heard of several of the names—Schlick, Waismann, Gödel, and the famous mathematician Karl Menger. […] Thus, all in all, there is interest in logic here after all. (December 5, 1932, DBQ21).

On top of that, Quine learned that Carnap would come to Vienna and that the latter was planning on discussing "the last chapter of his next book" with the Circle in a few weeks' time (ibid.). Quine's luck was clearly changing; not only did he finally have "access to the Inner Circle" (January 8, 1934, WVQP, Item 3254), he would also be meeting Carnap, the person who Feigl had described as the Circle's greatest logician.

5. Aufbau

Quine was not only excited to meet Carnap to learn about his contributions to logic. He was also curious to talk to the German professor because he had been reading the latter's *Der Logische Aufbau der Welt* during his first months in Europe. In August 1932, a few days before he left the United States, Quine had received a 13-page letter about the *Aufbau* from John Cooley, a former fellow graduate student, who had read the book and urged Quine to do the same. According to Cooley, Carnap had written a "very ingenious" book, attempting to "use the methods of symbolic logic to work out a strictly positivistic philosophy, more or less on the lines which Russell indicated" in *Our Knowledge of the External World* (Cooley to Quine, August 6, 1932, WVQP, Item 260). Quine, who appears not to have been familiar with Carnap's work beyond the above-mentioned *Abriss der Logistik* (see section 2) and had read Russell's programmatic epistemology as a sophomore[14] must have been intrigued by Cooley's letter. For when he arrived in Vienna, he immediately borrowed a copy from the local library and studied the book during his first weeks in Europe.

In the *Aufbau,* Quine discovered, Carnap attempted to develop a "constructional system of concepts" in which all concepts of the empirical sciences are derived or constructed "from certain fundamental concepts", such that "a genealogy of concepts results in which each one has its definite place" (Carnap 1928, §1). Just as a system of arithmetical concepts can be created by constructing these concepts, step by step, "from the fundamental concepts of natural number and immediate successor" (§2), Carnap argued, so we can construct all concepts of the empirical sciences "from a few fundamental concepts", most notably the concept of an "elementary experience" (*elementarerlebnisse*), an individual's totality of experiences at a given moment in time involving all sense modalities—or as, Quine summarized it in his reply to Cooley, the "uncontrollable given". Using only the tools of logic, set theory and this "sense-datum language in the narrowest conceivable sense", Quine would later write, Carnap managed to define "a wide array of important additional sensory concepts which […] one would not have dreamed were definable on so a slender basis" (1951, 39).

Present-day Carnap scholars almost unanimously reject this phenomenalist (Russellian) reading of the *Aufbau* and argue that Carnap wanted to *overcome* the subjectivity of sense experience rather than to "account for the external world as a logical construct of sense data"

---

[14] See Quine (1985, 58).

(Quine 1969, 74).[15] From a historiographical perspective, therefore, it is interesting to note that Quine, likely influenced by Cooley's summary of the project as well as his own phenomenalist leanings (see section 3), interpreted the *Aufbau* in Russellian terms from his very first reading in 1932. In his response to Cooley, for example, Quine writes:

> It seems that Carnap has paved the way for carrying out in detail that to which Russell has merely pointed in his doctrine of 'logical constructions' [...] The *Aufbau* stands to [the] philosophical doctrines of Russell […] as *Principia* stands to the antecedent purely philosophical suggestion that mathematics is a form of logic. (Quine to Cooley, April 4, 1933, WVQP, Item 26)

What Quine did *not* know when he wrote this letter, however, was that Carnap had radically changed his perspective in the fall semester of 1932.[16] For in the very weeks that Quine had first started reading the *Aufbau*, Carnap had been writing "Über Protokollsätze", the paper in which he rejected what he by then called the "residue of … absolutism" in the views of the Vienna Circle:

> In all theories of knowledge up until now there has remained a certain absolutism: in the realistic ones an absolutism of the object, in the idealistic ones (including phenomenology) an absolutism of the 'given' […] There is also a residue of this idealistic absolutism in […] our circle […] it takes the refined form of an absolutism of the ur-sentence ('elementary sentence', 'atomic sentence') […] It seems to me that absolutism can be eliminated. (Carnap 1932, 469)

Carnap's change of heart had important consequences for his philosophy. He started to view ur-sentences (protocol sentences) as relative, arguing that science does not rest upon solid bedrock (the given) but should be viewed as a building erected on piles driven down into a

---

[15] See, for example, Richardson (1998), who argues that the *Aufbau* should be read as a neo-Kantian (rather than as an empiricist) project——that Carnap's notion of "logical form" should be interpreted as a notion of form in the Kantian sense.

[16] This paragraph is based on Verhaegh (2020b).

swamp,[17] and he started to follow Neurath in defending the view that elementary sentences are revisable. If our protocols are not absolute, Carnap maintained, we always have the option to revoke them when they conflict with some of our best-established hypotheses. Most importantly, he changed his metaphilosophical perspective on the question whether or not we ought to start with phenomenalist protocol sentences in the first place. In "Über Protokollsätze", Carnap for the first time argues that this is not a question of a fact but a linguistic decision:

> this is a question, not of two mutually inconsistent views, but rather of *two different methods for structuring the language of science both of which are possible and legitimate* … possible answers … are to be understood as suggestions for postulates; the task consists in investigating the consequences of these various possible postulations and in testing their practical utility. (Carnap 1932, 457-8)

In arguing that the question of what protocol language to adopt is a question of linguistic decision, Carnap was paving the way for his principle of tolerance, a principle which, as we shall see in section 8, would come to be central to his philosophy from 1933 onwards.

6. Vienna Circle

Quine could have learned about the changes to Carnap's epistemology in December 1932, when the two had scheduled a meeting to arrange the details of Quine's Prague visit and Carnap had planned to discuss the last chapter of his book manuscript with the Vienna Circle.[18] Unfortunately, Quine had to wait a few more months before he would hear about Carnap's new approach to protocol sentences. For Carnap fell ill on the day before the meeting of the *Wiener Kreis* and spent most of December in a Viennese hospital. Quine briefly visited Carnap in the infirmary to wish him a speedy recovery[19] but their first *philosophical* encounter had to be

---

[17] The metaphor is from Popper, who had convinced Carnap about his view in 1932. See Carus (2007a, 253).

[18] See Carnap's letter to Quine from December 5, 1932 (Creath 1990, 108).

[19] See Quine's letter to his parents, February 11, 1933, DBQ21.

postponed until the spring semester, when Quine, the two decided, was going to spend a month in Prague to discuss logic and philosophy.

Perhaps as a result of his first meeting with Carnap, Quine came to view his decision to stay in Austria as a mistake. For although his extended stay in Vienna gave him a chance to attend the weekly meetings of the *Wiener Kreis* as well as to give a talk to the group himself, he does not seem to have hit it off with the members of Schlick's Circle. In reports about his experiences in Austria, Quine even complains about "the dearth of […] opportunities for discussion" (January 8, 1934, WVQP, Item 3254) and that the "foreign visitor tends on the whole to be ignored by the Viennese Faculty" (October 20, 1933, WVQP, item 2915).[20] In fact, even the meetings of the Circle itself turned out to be a disappointment. Despite Quine's initial enthusiasm about the group's active interest in mathematical logic, he quickly deemed that the meetings were mostly concerned with philosophy:

> The meetings [of the Vienna Circle] were only of moderate interest: Each was occupied by a paper followed by discussion. The meetings proved to be rather philosophical than logical […] It was obviously a mistake to have stayed so long in Vienna […] It was not until Prague […] that I realized how great advantages a traveling fellow might enjoy.[21] (January 8, 1934, WVQP, Item 3254)

Rather than discussing logic with Gödel, Menger, and Schlick, Quine mostly spent his last months in Austria developing a "neater and simpler form of notation" for his forthcoming book. Meanwhile, Quine was looking forward to his visit to Carnap and decided to postpone a trip to Italy he and Naomi had planned in order to get to Prague before the Easter break (February 11, 1933, DBQ21).

---

[20] In his 1934 report about his trip to Europe, Quine writes that he only "contrived a few minutes of discussion with [Gödel] after the close of some of the meetings" (January 8, 1934, WVQP, Item 3254). The one person with whom Quine seems to have been talking regularly was another visitor: Alfred Ayer. Quine's letters and datebooks show that the two regularly got together in the first months of 1933.

[21] Quine offers a similar complaint in a letter to Sheffer (February 16, 1933, WVQP, item 981).

7. Prague

The Quines arrived in Prague on the first day of March, a month that would prove disastrous for European democracy. For Quine visited Prague in the very month that the German Reichstag passed the *Ermächtigungsgesetz*, the amendment that effectively transformed Adolf Hitler's government into a full-blown dictatorship and is widely viewed as the end of the Weimar Republic. In Austria, too, parliamentary rule was abolished in March 1933. Engelbert Dollfuss, the Austrian Chancellor of the Christian Social Party, took advantage of a procedural hiccup and declared that the Austrian parliament had abolished itself, preventing members of the opposition from entering the chamber.

The rapidly increasing political tensions in Europe had not gone unnoticed to the Quines, who had been living in a radically divided Vienna for more than five months. Indeed, the political situation in Europe was the main topic of a speech he gave at a Harvard philosophy faculty reception in October 1933, a few months after he returned to Cambridge. In his speech, Quine mostly recounts the grim atmosphere in Vienna:

> We witnessed many Nazi parades and demonstrations in Vienna and in small cities in the neighborhood […] Swastikas and anti-Semitic mottoes were painted on walls throughout the city, and from time to time the sidewalks would be strewn with paper swastikas and bits of papers printed with the injunction not to buy from Jews. (October 20, 1933, WVQP, Item 2915)

In Germany, briefly visited by the Quines on their way back to the United States in June, the situation had been even worse. In his speech, Quine recounts that there was "an abundance of Nazi uniforms in the trains and in the streets" and that "Hitler's photograph" was hanging "in practically every show window and on the wall of every café" (ibid). The Quines were particularly shocked when they learned that even some of the people they frequently interacted with had fallen for the Nazi rhetoric. In his speech, Quine tells an anecdote about the wife of Jan Lukasiewicz, who had expressed her sympathy for Hitler on a few occasions.[22]

---

[22] A few years later, Quine would refuse to help Lukasiewicz to get a post at Harvard because of his suspicions of "Lukasiewicz's relations with the Nazis in the days just preceding the destruction of Poland" (Quine to Kline, October 21, 1945, WVQP, item 588). See also Quine to Stone (December 24, 1945, WVQP, item 659).

Despite the increasingly hostile political situation in Europe, Quine's month in Prague would *intellectually* be the most important period in his early philosophical development. In a report about his Sheldon fellowship, Quine recounts that "Prague was the antithesis of Vienna", arguing that his meetings with "Carnap […] alone would have been academic justification" for the entire year (January 8, 1934, WVQP, Item 3254). Not only did Carnap prove to be "a master of classroom technique" in his logic courses (October 20, 1933, WVQP, Item 2915), he was also very interested in the latter's work, inviting Quine to present his work to his students. On top of that, the Carnaps were incredibly welcoming and friendly, helping Quine and Naomi to find accommodation and inviting them over regularly for drinks and dinner:

> We've been overwhelmed by the solicitude of the Carnaps […] When I talked with him after his first class, Thursday, he invited us out to his place Saturday for tea. Next day […] Mrs. Carnap met us […] and tramped through the streets with us for over three hours […] helping us find a room. Saturday afternoon, when we were out at their house […] Mrs. Carnap had made all manner of fancy and very time consuming pastries for the occasion. When we left they both put on their boots and conducted us through the dark down a steep, muddy field to the bus-line, the four of us slipping down the soft hillside as if we were on skis on a snowy mountain. Such is the great Carnap. (March 7, 1933, DBQ21)

For our present purposes, however, it is especially important that Carnap and Quine also regularly got together to discuss logic and philosophy. For, in addition to Carnap's five hours of lectures each week and Quine's private study of the book manuscript that Carnap had lent him, Quine recounts that the two had eight meetings of "three to six hours" in the five weeks that the Quines spent in Prague (January 8, 1934, WVQP, Item 3254).[23] Already in his first week in Czechoslovakia, Quine decided that "Carnap's stuff" was "so fruitful" that he could best spend his "time in Prague […] completely mastering Carnap's ideas" (March 7, 1933, DBQ21).

---

[23] Besides Carnap's lectures they appear to have had meetings on March 4, 6, 11, 18, 21, 22, 31, and April 4. See Carnap's diary and Quine (RCP, 025-75-11) and Quine's letters (DBQ21) and date books (DBQ45)

8. *Syntax*

Carnap, we have seen, had extensively revised his attitude to epistemology in the fall semester of 1932. The manuscript that Carnap was finishing in March 1933, however, was related to a different but connected series of developments—to a set of philosophical breakthroughs that fundamentally changed Carnap's metaphilosophy. Before we turn to Quine's response to Carnap's manuscript, therefore, it is useful to discuss the most important advances of what has been called Carnap's *Syntax* period.[24]

The *Syntax* project started in January 1931. In his Intellectual Autobiography, Carnap recounts a sleepless, feverish night, during which "the whole theory of language structure" came to him "like a vision" (1963, 53). Up to this night, Carnap had been severely struggling with Wittgenstein's *Tractarian* restriction that we cannot meaningfully talk about the logical form of language. Since (1) the picture theory of meaning implies that a proposition and what is pictured must share a logical form and (2) the theory of types prohibits propositions that are speaking about themselves, we have to conclude that the logical form of a proposition itself cannot be represented by a proposition.[25] What Carnap realized, however, is that we do not need to presuppose that propositions about logical form are *empirically* meaningful. If we stick to talking about "the forms of the expressions of a language, the form of an expression being characterized by the specification of the signs occurring in it and of the order in which the signs occur" and if one can show that central concepts of metalogic (e.g. logical consequence, derivability) are purely syntactical concepts (making no reference to the meaning of the signs and the expressions), we can circumvent Wittgenstein's restriction (Carnap 1963, 53-4).

A second philosophical breakthrough connected to the Syntax program came in October 1932, when Carnap, likely influenced by his insight that the protocol sentences debate turned not on questions not of fact but on linguistic decision, realized (again, *pace* Wittgenstein) that *no* language is intrinsically correct—that there is no logical reality for a

---

[24] See, for example, Creath (1990b).

[25] See Uebel (2007) for a more extensive discussion of this argument. Carus (2007b, 31) has a slightly different interpretation of Wittgenstein's argument, suggesting that we cannot meaningfully talk about the logical form of language in the *Tractarian* system because "statements about language" cannot "be construed as truth-functional concatenations of atomic sentences".

language to respond to. Sometime in 1933, most likely *after* his meetings with Quine, Carnap reformulated this insight as the *Principle of Tolerance*—the view that there are no morals in logic, and that "everyone is at liberty to build up his own logic, i.e. his own form of language, as he wishes" (Carnap 1934a, 52).

Carnap's innovations had important consequences for his views about philosophy. In the fall semester of 1932, Carnap finished what is now known as Part V of his *Logische Syntax* ("Philosophy and Syntax"), the chapter he was planning to discuss with the Vienna Circle before he fell ill.[26] In this chapter, Carnap develops a far-reaching new view about the nature of philosophical questions, arguing that all problems of philosophy are logical questions and that all logical questions can be formulated as syntactical questions. Where Carnap, like many fellow members of the Vienna Circle, had previously denounced the "suppositious sentences of metaphysics, of the philosophy of values, of ethics" as devoid of cognitive content, he took a next step in the *Syntax* by arguing that the *remaining* questions of philosophy—e.g. questions about "mankind, society, language, history, economics, nature, space and time, causality"—are only meaningful if they are reinterpreted as logical questions: "The supposed peculiarly philosophical point of view from which the objects of science are to be investigated proves to be illusory, just as, previously the supposed peculiarly philosophical realm of objects proper to metaphysics [e.g. the thing-in itself or the ultimate cause of the world] disappeared under analysis" (1934a, §72).

9. Carnap and Quine

Quine spent most of his days in Prague systematically studying Carnap's *Syntax* program. Not only was Carnap's logic course primarily concerned with his "new research on logical syntax",[27] Quine also extensively studied the manuscript in private and discussed his questions and comments with Carnap during their frequent and lengthy meetings. As a result of these discussions, Quine concluded that Carnap's *Syntax* offered novel solutions to a range of philosophical problems that he had been struggling with himself.

---

[26] See Carnap's letter to Schlick (November 28, 1932, RCP, 029-29-02).

[27] Carnap to Quine, February 6, 1933 (Creath 1990a, 110).

Quine's correspondence and reports reveal that Carnap's *Syntax* program influenced his philosophical development in two ways. The first point Quine mentions in his report is that Carnap's book "answered" to his "satisfaction the question of the epistemological status of mathematics and logic", adding that this question was "formerly perplexing" to him (January 8, 1934, WVQP, Item 3254). Before his meetings with Carnap, we have seen, Quine accepted a holistic theory of knowledge that failed to account for logical and mathematical knowledge, except for the sketchy remark the 'eternal validity of logic' should be explained in (Lewisian) conventionalist terms (see section 3). Carnap's book, Quine discovered, offered a conventionalist theory that did just this. In Carnap's system, one can simply *decide* to build logic and mathematics into the transformation rules of one's language; or, as Quine would put it two years later in his review of the *Logische Syntax*, in Carnap's system logic and mathematics acquire "apodictic validity through convention" (Quine 1935, 394).

The second (and most important) way in which Carnap influenced Quine's development is with respect to the status of philosophy. In his report, Quine explains that Carnap's "coming book […] has afforded the most satisfactory answer I have yet found to the still more perplexing question of the nature of non-meaningless philosophy" (January 8, 1934, WVQP, Item 3254). Quine, who as we have seen, held conflicting views about the status of epistemology—vacillating between behaviorist and phenomenalist perspectives on knowledge—was clearly swayed by Carnap's theory that philosophy, too, is syntax:

> The way out of the jungle, Carnap […] claims, is through syntax […] all that is not meaningless in philosophy itself (this residue is, I should judge, mainly epistemology) speaks, when properly analyzed, not of things or 'reality' but rather of *syntax* […] Actually, when one reflects, this is the doctrine to which Lewis himself should logically have been driven. Lewis claims that all *a priori* truths are valid through definition [...] Further, Lewis would certainly admit that epistemology or anything else in philosophy cannot be empirical, for then it would simply be natural science. Hence […] Lewis himself [would] be faced [with] the conclusion that philosophical truths are […] conventionally valid. (Quine to Cooley, April 4, 1933, WVQP, Item 260)

But that was not all. Lewis' theory, Quine maintained, was not only problematic because it did not offer a satisfying *view* about the nature of epistemology; it was also problematic because it was self-referentially inconsistent. Lewis had no satisfying answer to the question of how his

philosophy could be justified considering his views about the nature of justification. Carnap's thesis that philosophy is syntax, on the other hand, had the benefit that it was self-referentially consistent:

> Every […] philosophy I know has the following difficulty. One reads the arguments of a given system of philosophy and perhaps agrees heartily throughout (this was my experience with Lewis' book), but at the end one remains with the problem of the status and the methods of the book which one has been reading, according to the philosophy set forth in that book itself […] How […] is the philosophy arrived at? Revelation, mysterious intuition, or arbitrary fiction? […] This whole bootstrap-tugging situation disappears in Carnap's view. He claims that philosophy is syntax; his claim is itself syntax and there is no circularity. (April 4, 1933, WVQP, Item 260)

Quine, in sum, was convinced that Carnap had solved one of the classical problems of especially empiricist philosophy, a problem that had prevented him from fully accepting the conclusions of Lewis' theory. Carnap, Quine came to believe, had solved his questions about the nature of philosophy by showing that (1) all philosophy is syntax and (2) that the decision to view philosophy as syntax is itself a syntactical convention.

10. Carnap vs. Quine

Quine believed that Carnap had effectively solved some of the most 'perplexing' questions of philosophy. In consequence, he began to see himself as Carnap's "disciple" for a number of years (Quine 1970, 41), spreading the word about the latter's syntax program through his teaching, via his writings (Quine 1935, 1936, 1937), and through his seminal "Lectures on Carnap" at Harvard in 1934.

Still, it would be a mistake to suppose that Carnap's influence resolved the fundamental tension in Quine's philosophy. Quite the reverse. Although Quine believed that Carnap's Syntax program had solved his metaphilosophical qualms, his post-Prague papers show that he (unconsciously) imported *both* his behaviorist *and* his phenomenalist leanings into his interpretation of Carnap's framework. On the one hand, Quine seems to have already been giving a behaviorist spin to Carnap's program in the very weeks that he was studying the latter's manuscript in Prague. For one of the notes that *Carnap* wrote about his Prague

discussions with Quine reveal that the latter was implicitly translating Carnap's distinction between the analytic and the synthetic into his own behavioristic epistemology:

> He said after reading my MS 'Syntax: 1. Is there a principled distinction between the logical laws and the empirical statements? He thinks not. Perhaps though it is only expedient, I seek a distinction, but it appears he is right: gradual difference: they are the sentences that we want to hold fast.[28] (March 31, 1933, RCP, 102-60-12)

Commentators have sometimes argued that Carnap's note shows that Quine was sceptical about the analytic-synthetic distinction from the very beginning. There may be some truth to this interpretation but the fact is that Quine kept searching for a valid way to strictly draw the distinction until the late 1940s, when he realized that we do not need the distinction to account for our logical and mathematical knowledge. What is more important, I think, is that the note shows that Quine interpreted Carnap's theory through the lens of his own behavioristic epistemology, classifying the truths of logic and mathematics as analytic because it is a *psychological* fact that we will not give them up in the light of adverse experience.[29] In "Truth by Convention", for instance, Quine argued that "the apparent contrast between logico-mathematical truths and others […] [v]iewed behavioristically […] retains reality as a contrast between more and less firmly accepted statements" and that this contrast "obtains *antecedently* to any *post facto* fashioning of conventions" (1936, 102, my emphasis).[30] Where Carnap was

---

[28] See also Tennant (1994).

[29] See Verhaegh (2018, ch. 6). Perhaps Quine felt justified in his interpretation because he mistook Carnap's physicalism for behaviorism. See, e.g., Quine (1974, 291): "Back in the 20s I had imbibed behaviorism at Oberlin from Raymond Stetson, who had wisely required us to study John B. Watson's *Psychology from the Standpoint of a Behaviorist*. In Czechoslovakia a few years later I had been confirmed in my behaviorism by Rudolf Carnap's physicalism". I thank Nathan Kirkwood for this suggestion.

[30] See also Hylton (2001), who rightly argues that passages like these "reveal fundamental assumptions" in Quine's philosophy "that are at odds with the views they espouse […] about analyticity" (p. 258). In particular, Hylton wonders how analyticity can play any explanatory role in Quine's philosophy of logic, considering the fact that we can only 'post facto' impose a system of definitions which makes some of the sentences analytic.

fundamentally committed to his principle of tolerance—accepting that we can decide which statements to build into the syntax of one's language—Quine's reinterpretation significantly diminished the relevance of Carnap's principle: we start with a system of accepted sentences and the only thing we get to decide is which of *these* statements we render analytic using Carnap's "technique of conventional truth assignment" (ibid.). The problem, however, is that Quine did not yet seem to realize that this was far from Carnap's way of characterizing conventionalism.[31]

This brings us to Quine's phenomenalism, the second of his conflicting philosophical commitments. In his "Lectures on Carnap", Quine makes it clear from the outset that he will only discuss "Carnap's very recent work" and exclude *Der Logische Aufbau der Welt* from his exposition. Still, we have seen that Quine was deeply impressed by the *Aufbau* and that he interpreted it in phenomenalist terms—i.e. that he viewed it as 'carrying out in detail that to which Russell had merely pointed in his doctrine of logical constructions' (see section 5). Quine's decision to omit the *Aufbau* from his lectures seems surprising because Quine's letter to Cooley reveals that Carnap and Quine also discussed the *Aufbau* during their meetings in Prague and that Carnap told him about some of the changes to his epistemology:

> Carnap has […] departed in some fundamental respects from the point of view of the *Aufbau*; but in respects which, I believe, mark improvement. His departures turn in large measure upon a new opinion regarding Protokollsätze. […] Of late [...] Carnap (following O. Neurath) has come rather to the view that there is no […] stopping point but rather an indefinite or infinite regress, and that 'Protokollsätze' is merely a relative term. (Quine to Cooley, April 4, WVQP, Item 26)

It is clear why Quine, who had always rejected *naïve* sense-data theories himself (see section 3), qualified Carnap's relativity thesis as an "improvement". What Quine failed to see, however, is that the syntax program had *replaced* Carnap's rational reconstruction program. Again, the problem seems to be that Quine misinterpreted the radical nature of Carnap's principle of tolerance. Whereas Carnap believed that the question of what protocol language to adopt is a question of linguistic decision (see section 5), Quine seems to have mistakenly

---

[31] In Verhaegh (2018, §6.2.4), I argue that he only started to see this in 1943, when Quine realized that Carnap had a very different conception of language.

presupposed that Carnap revised some of the details of his view about the nature of *protocol sentences* without abandoning the *Aufbau* program itself. Indeed, in the remainder of his letter to Cooley, Quine wrongly suggests that Carnap "would allow the Konstitution system to remain, but without claiming epistemological significance for the particular choice of primitive idea" and he apologizes that he "cannot explain exactly how the syntactic point of view" connects to the "epistemology and the relativity of Protokollsätze," as the connection is "not treated in his coming book" (ibid.). Quine, in sum, seems to have been unaware of the fact that Carnap had abandoned rational reconstruction for the logic of science;[32] and it is for this reason, I think, that Quine's encounters with Carnap did not make him abandon his phenomenalism but that it kept the tension in his philosophy alive, though in a new Carnapian framework. It is also for this reason that Quine kept flirting with variants of phenomenalism, until he, in the early 1950s, finally came to see that one *can* develop a consistent behavioristic-naturalistic perspective if one replaces talk about sense data with talk about sensory stimulations and nerve endings.[33]

11. Epilogue

The Quines returned to the United States in June 1933, after they spent the remainder of the academic year in Poland, where Quine had the opportunity to present his work to the Lvov-Warsaw school and to discuss logic with Tarski, Lesniewski, and Lukasiewicz. Back in Cambridge, Quine would come to play a crucial role in promoting Carnap's *Syntax* program in the United States. For not only did he write a glowing review of Carnap's book in an American journal (Quine 1935), he also spread the word via his above-mentioned lectures about the *Logische Syntax*, which created a sustained interest in Carnap at Harvard. A few days after the third lecture, Quine wrote:

> I had a distinguished audience, comprising an assortment of professors and graduate
> students from many departments. […] The whole situation of the lectures was unique
> […] I stood under a bas-relief of the late metaphysician George Herbert Palmer, telling
> a gathering of professional philosophers that philosophy is nothing but syntax and that

---

[32] See Carnap (1936).

[33] See Verhaegh (2018, ch. 5).

metaphysics is nonsense! […] [T]he attention was undivided. I have been meeting Professors Lewis and Sheffer weekly to discuss Carnap and be plied with questions; I am meeting them again this morning. So there is quite a stir about Carnap; a healthy phenomenon. (November 27, 1934, DBQ21)

Most importantly, Quine actively tried to arrange a position for Carnap in the United States. Carnap, who was becoming increasingly worried about the political developments in Central Europe, seems to have been considering emigrating to the United States for a number of years.[34] Quine's visit substantially sped up the process. Carnap's diary entries from March 1933 show that they spoke frequently about academic life in America and Carnap's prospects in the United States:

> March 4: "Quines with us [...]. Tell about […] America".
> March 22: "Afternoon 4-8 Quine here […] He says that in America most professionals […] are socialists".
> April 4: "Afternoon Quines here for the last time. They tell me, if it does not work out with Rockefeller, to write to American universities. They believe I certain have prospects". (RCP, 025-75-11)

Between 1933 and 1934, Carnap tried to secure a one-year Rockefeller fellowship and published a few papers in English (Carnap 1934bcd, 1935) in order to "naturally facilitate a professorship".[35] Quine, meanwhile, asked Whitehead, Sheffer, Lewis, and Huntington to write recommendation letters to the Rockefeller Foundation. In fact, Quine's lectures on Carnap were an important part of the campaign to get Carnap a professorship at Harvard. A few months before the lectures, Quine writes:

> Dr. Henderson, chairman of the Society of Fellows, and Professor Perry, chairman of the philosophy department of the university, seem to have got together on a plan to have me give a couple of lectures on Carnap's ideas. 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. […] Now I think there may

---

[34] For a reconstruction, see Verhaegh (2020b).

[35] Carnap to Quine, June 4, 1933 (Creath 1990a, 120).

be hidden motives behind their inviting me to speak on Carnap: […] more dope on Carnap as a possible Harvard professor. (September 29, 1934, DBQ21)

Unfortunately, it would take a few more years before Carnap could finally move to the United States. For it quickly became clear that there were "almost no available places in the whole country" due to the "economic situation".[36] In March 1935, however, Quine's propaganda started to pay off as the President of Harvard invited Carnap to Cambridge to receive an honorary degree—an invitation that would quickly turn into a lecture tour and that would eventually land him, with the help of Charles Morris, a position at the University of Chicago.[37]

Once in the United States, Carnap was reunited with his disciple. And although the philosophical tensions between Carnap's program and Quine's interpretation would start to surface a few years later (Verhaegh 2018, ch. 6), thereby triggering one of the most influential debates in the history of analytic philosophy, the philosophical friendship that had emerged in Prague in March 1933 would prove to be a stable one. For, as Quine would later write in his "Homage to Rudolf Carnap", even when they disagreed, Carnap was "setting the theme"; his philosophical development kept being determined by the problems he felt Carnap's position presented (Quine 1970, 41).

Literature

Archival Sources

R. Carnap Papers. Archives of Scientific Philosophy. Hillman Library, University of Pittsburgh
W. V. Quine Papers. MS Am 2587. Houghton Library, Harvard University.
W. V. Quine Unprocessed Papers. Private Collection, Douglas B. Quine.

---

[36] Quine to Carnap, March 12, 1934 (Creath 1990a, 125-132).

[37] See Verhaegh (2020bc) for a reconstruction.

Published Sources

Blumberg, A. and Feigl, H. (1931). Logical Positivism: A New Movement in European Philosophy. *The Journal of Philosophy, 28*(11), 281-296.

Carnap, R. (1928). *Der logische Aufbau der Welt*. Berlin-Schlachtensee: Weltkreis-Verlag.

Carnap, R. (1929). *Abriß der Logistik.* Mit besonderer Berücksichtigung der Relationstheorie und ihrer Anwendungen. Vienna: Springer.

Carnap, R. (1932). Über Protokollsätze. *Erkenntnis, 3*(1), 204-214.

Carnap, R. (1934a). *Logische Syntax der Sprache*. Vienna: Springer.

Carnap, R. (1934b). On the Character of Philosophic Problems. *Philosophy of Science, 1*(1), 5-19.

Carnap, R. (1934c). Meaning, Assertion and Proposal. *Philosophy of Science, 1*(3), 359-360.

Carnap, R. (1934d). *The Unity of Science*. London: Kegan Paul, Trench, Trubner & Co.

Carnap, R. (1935). *Philosophy and Logical Syntax*. London: Kegan Paul, Trench, Trubner & Co.

Carnap, R. (1936). Von der Erkenntnistheorie zur Wissenschaftslogik. *Actes du Congrès Internationale de Philosophie Scientifique* (pp. 36-51), Paris: Herman and Cie.

Carnap, R. (1963). Intellectual Autobiography. In P. A. Schilpp (ed.). *The Philosophy of Rudolf Carnap*. Library of Living Philosophers. Volume 11. La Salle: Open Court.

Carus, A. W. (2007a). Carnap and Twentieth-Century Thought: Explication as Enlightenment. Cambridge: Cambridge University Press.

Carus, A. W. (2007b). Carnap's Intellectual Development. In Friedman and Creath (eds.), pp. 19-42

Creath, R. (1990a, ed.). *Dear Carnap, Dear Van*. Berkeley: University of California Press.

Creath, R. (1990b). The Unimportance of Semantics. *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association, 1990*(2), 405-16.

Friedman, M. (1987). Carnap's *Aufbau* Reconsidered. *Noûs, 21*(4), 521–545.

Friedman, M. & Creath, R. (2007, eds.). *The Cambridge Companion to Carnap*. Cambridge: Cambridge University Press.

Frost-Arnold, G. (2011). Quine's Evolution from 'Carnap's Disciple' to the Author of 'Two Dogmas'. *HOPOS: Journal of the International Society for the History of Philosophy of Science, 1*(2), 291-316.

Hylton, P. (2001). 'The Defensible Province of Philosophy': Quine's 1934 Lectures on Carnap. In Floyd, J. & Shieh, S. (eds.). *Future Pasts: The Analytic Tradition in*

Twentieth-Century Philosophy (pp. 257-76). New York: Oxford University Press.

Lewis, C. I. (1929). *Mind and the World-Order*. New York: Charles Scribner's Sons.

Quine, W. V. (1932). The Logic of Sequences. A Generalization of *Principia Mathematica*. Ph.D. Dissertation, Harvard University.

Quine, W. V. (1934). Lectures on Carnap. In Creath (1990a), pp. 45-103.

Quine, W. V. (1935). Review of *Logische Syntax der Sprache* by Rudolf Carnap. *Philosophical Review, 44*(4), 394-397.

Quine, W. V. (1936). Truth by Convention. In Quine (1976), 77-106.

Quine, W. V. (1937). Is Logic a Matter of Words? *The Journal of Philosophy, 34*(25), 674.

Quine, W. V. (1951). Two Dogmas of Empiricism. *Philosophical Review, 60*(1), 20-43.

Quine, W. V. (1969). Epistemology Naturalized. In Quine (ed.). *Ontological Relativity and Other Essays* (pp. 69-90). New York: Columbia University Press.

Quine, W. V. (1970). Homage to Rudolf Carnap. In Quine (1976), 40-43.

Quine, W. V. (1974). Skinner's Retirement Party. In Føllesdal, D. and Quine, D. B. (2008). *Quine in Dialogue* (pp. 291-2). Cambridge, MA: Harvard University Press.

Quine, W. V. (1976). *The Ways of Paradox and Other Essays* (pp. 77-106). Revised Edition. Cambridge, MA: Harvard University Press.

Quine, W. V. (1985). *The Time of my Life: An Autobiography*. Cambridge, MA: MIT Press.

Quine, W. V. (1986). Autobiography of W. V. Quine. In Hahn, L. & Schilpp, P. (eds.). *The Philosophy of W. V. Quine.* The Library of Living Philosophers. Volume XVIII (pp. 1-46). La Salle, Ill: Open Court.

Richardson, A. (1998). *Carnap's Construction of the World*. Cambridge: Cambridge University Press.

Tennant, N. (1994). Carnap and Quine. In Salmon, W. & Wolters, G. (eds.). *Logic, Language, and the Structure of Scientific Theories* (pp. 305-44). Pittsburgh: University of Pittsburgh Press.

Uebel, T. (2007). Carnap and the Vienna Circle: Rational Restructionism Refined. In Friedman and Creath (eds.), pp. 129-152.

Verhaegh, S. (2017). Boarding Neurath's Boat: The Early Development of Quine's Naturalism. *Journal of the History of Philosophy, 55*(2), 317-342.

Verhaegh, S. (2018). *Working from Within: The Nature and Development of Quine's Naturalism*. New York: Oxford University Press.

Verhaegh, S. (2019a). The Behaviorisms of Skinner and Quine: Genesis, Development, and Mutual Influence. *Journal of the History of Philosophy, 57*(4), 707-730.

Verhaegh, S. (2019b). Sign and Object: Quine's Forgotten Book Project. *Synthese, 196*(12), 5038-5060.

Verhaegh, S. (2020a). The American Reception of Logical Positivism: First Encounters (1929-1932). *HOPOS: The Journal of the International   Society for   the History of Philosophy of Science, 10*(1), 106-42.

Verhaegh, S. (2020b). Coming to America: Carnap, Reichenbach, and the Great Intellectual Migration. Part I: Rudolf Carnap. *Journal for the History of Analytical Philosophy, 8*(11), 1-23.

Verhaegh, S. (2020c). Coming to America: Carnap, Reichenbach, and the Great Intellectual Migration. Part II: Hans Reichenbach. *Journal for the History of Analytical Philosophy, 8*(11), 24-47.