

## The First Vienna Circle: Myth or Reality?

### I. INTRODUCTION<sup>1</sup>

Many philosophical traditions have been mentioned as predecessors of logical empiricism, from Mach's empiricism and Russell's new logic to neo-kantianism and Austrian philosophy in the tradition of Bolzano and Brentano. One group has been specifically singled out as a kind of predecessor of the Vienna Circle around Schlick, the so-called "First Vienna Circle" (Otto Neurath, Hans Hahn and Philipp Frank). Several views have been associated with the "First Vienna Circle": first, that it formed a kind of nucleus of the later Vienna Circle in which we can already find some ideas of the later logical empiricism; secondly, that the main influence on this group was the philosophy of science of Mach, Boltzmann and the French conventionalists (Poincaré, Duhem, Rey). I will claim in this paper, that for historical reasons there are severe doubts about the importance and even about the existence of the group called the "First Vienna Circle". I will also claim that due to the focus on the "First Vienna Circle", some other important philosophical influences on Neurath, Hahn and Frank in Vienna before 1914 have been ignored and have not been taken sufficiently into account in the genesis of logical empiricism. I will emphasize especially the influence of a Viennese group of Meinongians, who were in close contact with Neurath, Hahn and Frank and shaped some of their early views on the foundation of science. Naturally I do not contest the influence of Mach, Boltzmann and the French conventionalists, through whatever forum that may have happened, on the young Neurath, Hahn and Frank. But I will claim that the Meinongians are especially important for the philosophy in Vienna around 1910. They are an essential factor in the rise of analytic philosophy in Austria. And through their interaction with Russell, the Meinongians were critical for the reception of the analytic philosophy of Russell and Frege in Austria. Through their contact with

<sup>1</sup> The present paper is an extended version of a section on the First Vienna Circle in my paper *The First Vienna Circle and the Erlangen Conference* (2019). I thank Thomas Uebel, Elisabeth Nemeth, Denis Fisette and Bastian Stoppelkamp for discussions on earlier versions of the present paper.

the Meinongians, Neurath, Hahn and Frank were in contact with the early rise of analytic philosophy as strongly as they were influenced by the philosophy of science of Mach, Boltzmann and Poincaré.

I will first discuss the literature on the “First Vienna Circle” and evaluate the accuracy of the data about that group (1). Secondly, I will describe the philosophical scene in Vienna with a special focus on the Meinongians (2). Then, I will reconstruct the philosophical discussions into which Neurath, Hahn and Frank were involved in Vienna before 1914 from the available historical data we have (3). I will then show how the discussions among the Meinongians influenced especially the philosophy of logic and mathematics of Neurath and Hahn (4). As conclusion, I will evaluate the impact of the philosophical discussions before 1914 on the later Vienna Circle (5).

## II. RE-DISCOVERING THE “FIRST VIENNA CIRCLE”

The first Vienna Circle was absent from the standard histories of logical empiricism until the 1980s. Rudolf Haller (1982a, 1982b) and Friedrich Stadler (1982, 111–117) were the first to put an emphasis on an almost unnoticed group formed by Hans Hahn, Otto Neurath and Philipp Frank before WWI, and mentioned by Frank (1941 and 1949). Haller named that group the “First Vienna Circle” and suggested that it should receive special attention, particularly if one wanted to avoid the then dominant “received view” of logical empiricism. Against the view of a foundationalist empiricism and an ahistorical philosophy of science, Haller claimed that a focus on the forgotten “First Vienna Circle” would allow us to see a fallibilist, holistic, conventionalist and historically informed stream in the Vienna Circle which was overlooked, despite the fact that this stream re-emerged in the Vienna Circle in the 1930s around Carnap and former members of this “First Vienna Circle”. Subsequent historical reconstructions of the philosophy of the Vienna Circle followed Haller’s suggestion of a revisionary view of logical empiricism and emphasized the role of the forgotten First Vienna Circle and its decisive influence on later logical empiricism, especially on the left wing of the Vienna Circle (Uebel 1991 and 2000, Stadler 2015).

The only primary source about the “First Vienna Circle” comes from Frank (1941), who, in an English re-edition of his papers added an introduction called “Historical Background”. There, he intended to “clear up certain misunderstandings” about logical empiricism and its history (Frank 1941, 6). Frank emphasized the origin of logical empiricism in the thoughts of Ernst Mach, despite certain shortcomings of the latter’s philosophy of science, namely: Mach’s underestimation of the importance of logic and mathematics, his rejection of atomism and his belief that physics was actually about perceptual experiences. In this context, Frank mentions “a group of young men”, Hahn, Neurath and himself,

who tried to solve these shortcomings with on the one hand conventionalism (Poincaré, Duhem and Abel Rey) and on the other hand new developments in logic and the philosophy of mathematics (Couturat, Schröder and Hilbert are mentioned by Frank). In a much expanded version of his historical introduction (Frank 1949), Frank is more explicit. The group, so Frank, was actually a weekly discussion group which tried to rebuild a “new positivism”, based on the ideas of Mach and the French conventionalists.

According to Frank, the discussions of the group focused mainly on the way to overcome the mentioned shortcomings in Mach’s philosophy. Contrary to Mach, the group thought that the principles of science were “clear-cut mathematical relations among a small number of concepts” and not Mach’s abbreviated and economical descriptions of observations, which involved a great number of vague concepts. In order to allow for an independence of a mathematized theory from observation, one had to appeal to conventions. As was suggested by Poincaré, definitions and basic principles of science were chosen freely and this conventional part of a theory was then coordinated with empirical statements: „According to Mach the general principles of science are abbreviated economical descriptions of observed facts; according to Poincaré they are free creations of the human mind which do not tell anything about observed facts. The attempt to integrate the two concepts into one coherent system was the origin of what was later called logical empiricism.” (Frank 1949. 11–12.) Frank suggests that his early paper on conventions and laws of nature (Frank 1907) is an example of such an integration of Mach with conventionalism.

Unfortunately, Frank’s report is the only source on the discussion group.<sup>2</sup> Despite the lack of additional independent evidence for Frank’s narrative of a regular discussion group, it cannot be doubted that Hahn, Frank and Neurath knew each other at the time and did discuss, in some context or other, the problems mentioned by Frank. Although Neurath never speaks about a regular discussion group, he refers to his early intellectual friendship with Hahn and Frank. In a letter from 1934, Neurath writes: “I was acquainted with him [Hahn] for about 35 years, we discussed together Poincaré, Philipp Frank reported to us about Einstein’s very first publications.”<sup>3</sup> And he writes about Hahn: “35 years of similar endeavors in different domains. The joint youth with Poincaré, Duhem etc.”<sup>4</sup> And also: „Hahn and I have been friends for many years – since the Gymnasium time. (...) He, the older, taught me a lot of things. We, Frank and other[s] read Spinoza in the ’Rahnhof’ [a Viennese café].”<sup>5</sup>

<sup>2</sup> There is no source whatsoever from the time of the meetings (no programs, notes or incidental remarks in correspondence). Not even a document which may confirm that a group with Hahn, Neurath and Frank actually met for discussions.

<sup>3</sup> Letter of Neurath to Gerrit Mannoury, Sept. 22, 1934.

<sup>4</sup> Letter of Neurath to Hempel, August 16, 1934.

<sup>5</sup> Letter of Neurath to Carnap, 1945, quoted in Uebel 2000. 69.

Given the lack of sources on the meetings mentioned by Frank, Fisette (2011) suggested that the group was just part of the discussions at or after the meetings of the “Philosophical Society” in Vienna, of which Neurath, Hahn and Frank were members at this time.<sup>6</sup> For this reason, Fisette calls the First Vienna Circle a “pseudo-Circle”. Fisette’s doubts are certainly very helpful. They raise the question what entity the term “First Vienna Circle” is actually supposed to designate.

I will focus here on the philosophical discussions in which Neurath, Hahn and Frank were involved before Hahn’s departure from Vienna (1910), when Hahn was appointed at the University of Czernowitz (now in Ukraine).<sup>7</sup> These discussions at multiple institutional levels shaped the philosophical views of Neurath, Hahn and Frank. I will limit my reconstruction to actually documented discussions. Frank’s report on the First Vienna Circle can be seen as a synthetic and potentially misleading integration of diverse discussions into a more or less mythical regular discussion group.

### III. DISCUSSIONS BEFORE 1914

Neurath, Hahn and Frank were involved in several discussions on the philosophy of science between 1907 and 1910. These discussions took place in three different settings: informal meetings of Neurath, Hahn and Frank (perhaps with others), a reading group around Hahn and Höfler on the philosophy of mathematics and the discussions in the “Philosophical Society”.

Hahn had studied mathematics in Vienna. After research in Göttingen, he got his “Habilitation” in Vienna in 1905 and started to teach there. Neurath had studied economics in Berlin since 1903 and returned to Vienna in 1906 after getting his doctorate in Berlin. At the time, the scientific interests of Neurath and Hahn strongly converged as Neurath expressed his intention to focus more on mathematics, the natural sciences and the history of science.<sup>8</sup> In 1907, Neurath and Hahn met regularly in order to prepare a course on the foundations of mathematics and physics with a special focus on Poincaré, Mach and Russell. Neurath writes:

I am doing a lot of things. I am especially more and more interested in exact logic, but also general considerations on the foundations of the sciences, particularly the exact sciences are on my daily schedule. I try to revise and improve my knowledge in

<sup>6</sup> The evenings of the Philosophical Society were mostly followed by more informal discussions in a Viennese coffeehouse.

<sup>7</sup> Frank’s suggestion, in Frank 1949, 3, that his discussion group met till 1912 is quite improbable, given that regular meetings would be reduced to Frank and Neurath after 1909. In 1912 Frank was appointed to the University of Prague.

<sup>8</sup> See Neurath to Tönnies, November or December 1906.

mathematics and physics etc. A local lecturer of mathematics plans to offer a course in the next winter term on the foundations of mathematics and mechanics (following the work of Poincaré). He asked me to teach the course together with him. [...] We meet twice a week and read Russell's *Principles of Mathematics*. Also Mach's *History of Mechanics* is sometimes our topic. (Letter of Neurath to Tönnies, Spring 1907.)

Apparently that course was never given,<sup>9</sup> but it may have triggered further discussions on the philosophy of science between Neurath and Hahn, and then also Frank.<sup>10</sup>

In the same year (1907), the philosopher Alois Höfler (1853–1922) was appointed at the University of Vienna as professor of philosophy, with a special focus on pedagogy. Höfler had studied physics with Boltzmann before turning to philosophy under the influence of Brentano and Meinong. He was one of the closest allies of Meinong<sup>11</sup> and after his appointment to Vienna gave a controversial inaugural lecture on Meinong's theory of objects.<sup>12</sup> For several reasons, Hahn, Neurath and Frank got into close contact and intellectual exchange with Höfler. First, the other professors of philosophy in Vienna did not seem very attractive to them.<sup>13</sup> Secondly, Höfler had a strong interest in the philosophy of physics and mathematics. Thirdly, Höfler was institutionally important, because of his role in the "Philosophical Society" in Vienna, an essential philosophical forum for Hahn, Neurath and Frank. Probably through that "Society", the three young scientists came into contact with Höfler.

Through Meinong's debate with Russell,<sup>14</sup> Höfler gained a strongly interest in the new symbolic logic. In 1908–1909, Höfler, Hahn and another Meinongian, Hans Pichler, met regularly in a reading group on logic and the foundations of mathematics.<sup>15</sup> Together, they read literature on the philosophy of mathematics, especially the German translation (1908) of Couturat's *Les Principes des Mathématiques*, which introduced Russell's logic and logicism to the German

<sup>9</sup> In 1907–1908, Hahn actually gave courses on the theory of functions and on the foundations of geometry.

<sup>10</sup> Though none of these meetings can actually be documented, see footnote 2.

<sup>11</sup> Meinong was Höfler's dissertation supervisor and co-author, see Höfler and Meinong 1890. Höfler's correspondence with Meinong includes more than 3000 letters.

<sup>12</sup> Höfler to Meinong, Oct. 3. and Dec. 31, 1907.

<sup>13</sup> Besides Höfler, two other professors taught philosophy in Vienna: Friedrich Jodl (1849–1914), a classical positivist strongly influenced by Feuerbach, and Laurenz Müllner (1848–1911), a priest and specialist in Christian philosophy. The successor of Mach and Boltzmann, the philosopher and psychologist Adolf Stöhr (1855–1921) becomes professor in Vienna only in 1910.

<sup>14</sup> Smith 1985 and Höfler's letter to Meinong from Feb. 21, 1908. Höfler's interest in Russell was also triggered by Cassirer's reaction to Russell and Couturat in Cassirer 1907.

<sup>15</sup> Höfler mentions this reading group in a report and Hahn mentions it in a letter to Höfler, reprinted in Limbeck-Lilienau 2015. 45.

public.<sup>16</sup> Couturat's book concluded with a long and ferocious attack on Kant's philosophy of mathematics. Neurath wrote a brief review of Couturat's book (Neurath 1909a). But it is not clear whether Neurath participated in Höfler's reading group, although some details may suggest so.<sup>17</sup> Pichler also mentioned discussions with Hahn on the foundations of arithmetics, especially on the problem of the completeness of arithmetics and the means to prove it (Pichler 1909, 75–76). At the same time Höfler gave two courses on Mach's and Boltzmann's philosophy of the natural sciences and organized discussions on the same topic in the "Philosophical Society", once together with Neurath.<sup>18</sup>

The "Philosophical Society at the University of Vienna" was an essential intellectual forum for Viennese philosophers and philosophically interested scientists like Neurath, Hahn and Frank, but also for other later members of the Vienna Circle (e.g. Viktor Kraft and Edgar Zilsel). In that forum, Hahn, Frank and Neurath gave their first philosophical talks at the University of Vienna.<sup>19</sup> Höfler, together with Twardowski and other students of Brentano had founded the "Society" in 1888/89. Leading scientists like Boltzmann, Wilhelm Ostwald, Felix Klein or the co-founder of psychoanalysis, Josef Breuer, had given talks there.<sup>20</sup> A central and innovative feature of the "Society" were discussion evenings. After his return to Vienna (1907), Höfler began to organize these discussions, though with an increasing resistance from the president of that society, Friedrich Jodl, who tried to suppress them. In 1909, this led to a major clash. Höfler, together with Meinong, protested against the suppression of these discussions and he met regularly with Hahn in order to re-establish them.<sup>21</sup> It is quite probable that Neurath and Frank were also in support of such discussions, as they were strongly involved in their relaunch at the end of 1909.<sup>22</sup> Due to the mentioned lack of data, we cannot reconstruct how often or regularly Hahn, Neurath and Frank met for discussions separately from the "Philosophical Society" and Höfler.

<sup>16</sup> On Russell's reception in Germany and Austria, see Pulkkinen 2005.

<sup>17</sup> At the time of the reading group, Neurath wrote Höfler about Schroeder's logic (letter from 1909). Pichler also mentions his discussions with Neurath on logic, Pichler 1909, 22. But these conversations with Pichler and Höfler may have taken place in the "Philosophical Society".

<sup>18</sup> Höfler's courses in the winter of 1908–1809 and 1909–1910 had the title "Lesung und Besprechung naturwissenschaftlich-philosophischer Schriften von Mach und Boltzmann". The discussion led by Neurath in connection to that course was called "Concept and Scope of the Apriori" (January 1910).

<sup>19</sup> Fisette 2011 describes the essential role of that Society for the formation of the Vienna Circle.

<sup>20</sup> For an overview of the talks and discussions at the "Philosophical Society", see Blackmore 1995 and Meister 1938.

<sup>21</sup> Letters from Höfler to Meinong from Spring 1909. Höfler and Meinong wrote a report, supported by Hahn, expressing their protest (Höfler Archive, Graz).

<sup>22</sup> With the discussions on "Does Absolute Motion Exist?" led by Frank (Nov. 1909) and the discussions on the Apriori led by Neurath (January and February 1910).

Let us focus now on the positions of the Meinongians around Höfler and let us show how some of these positions became attractive for some of the mentioned later members of the Vienna Circle.

#### IV. THE MEINONGIANS IN VIENNA

When Neurath, Hahn and Frank began to be actively involved into philosophical discussions, Mach had already retired and Boltzmann was dead. At the University of Vienna, it was Höfler who now centrally focused his interests on logic, the foundations of mathematics and the natural sciences. Despite Höfler's strong interest in the philosophy of science of Mach and Boltzmann, his philosophical positions were clearly Meinongian. He repeatedly emphasized, that he had, together with Meinong, introduced the central distinction between the content and the object of a mental act (Höfler/Meinong 1890), a distinction which was at the basis of Meinong's theory of objects (see Meinong 1899. § 2). In Vienna, Höfler continued to defend his Meinongian approach based on the new theory of objects.

Meinong had introduced his theory of objects of higher order as an extension of Brentano's conception of intentionality (Meinong 1899). Contrary to Brentano's "immanent object" of the intentional act, he distinguished between the psychological content of the act and the object, which may be any kind of object, psychological, physical or other. Meinong also distinguished between objects of lower order (psychological or physical objects) and objects of higher order, like relations or complexes, which do not exist in the same sense as psychological or physical objects. Based on this conception, Meinong had announced in 1904 a new philosophical discipline, the theory of objects (*Gegenstandstheorie*). The subject matter of the theory of objects is concerned with all objects, whether they exist or not, whether they are real, possible or impossible. As such, its topic goes beyond psychology (psychological objects), physics or metaphysics (real objects). Meinong claimed therefore that the subject matter of the theory of object is not covered by any of the existing scientific or philosophical disciplines.

Meinong tried also to explain the relation of the theory of objects to logic and mathematics. As mathematics dealt also with any kind of objects, Meinong took it to be a special sub-discipline of the theory of objects. It was one of the special sciences which forms part of the general discipline of the theory of objects (Meinong 1904. 508–509 and 511). Meinong was less clear about the status of logic in relation to the theory of objects, but he suggested that such foundational disciplines as "set theory", "metamathematics" or "mathematical logic" may be at the border of a special science of objects (like mathematics) and the general science of objects (Meinong 1904. 513). A further advantage of Meinong's theory of objects for mathematics and logic was the fact that it attempted to give a

foundation to these formal disciplines which was definitely not psychological or psychologistic. The objects of Meinong's theory are neither per se psychological, nor are they mind-dependent.

After Meinong's programmatic announcement of his new theory of objects, the position was immediately endorsed by Höfler (1905).<sup>23</sup> There, he defended the view that mathematics was part of the theory of objects in Meinong's sense, as well as logic, insofar as logic was concerned with the *Apriori*. Against the psychologists, he emphasized that logic and mathematics was not concerned with the psychological. He insisted that his own distinction between the content and the object of mental acts showed that contents are, but objects are not psychological. And as mathematics was also concerned with objects, it neither was based on psychology. He illustrated this with Hilbert's geometry, which had divorced the basic concepts of geometry from any rest of intuition ("Anschauung"). For Höfler, geometry dealt with objects of higher order in Meinong's sense, namely with relations, not with spatial intuitions. Against the Neo-Kantians, Höfler remarked that the categories and intuitions of transcendental philosophy were still psychological notions and that therefore the Neo-Kantians, contrary to Meinong, could not get rid of psychologism.<sup>24</sup> At the same time, Höfler also announced "Logical Studies" based on the theory of objects, as well as a paper on "Spatial and Spaceless Geometry".<sup>25</sup>

In Vienna, after his appointment in 1907, Höfler continued to promote the theory of objects and to work on the relation of logic and mathematics to the theory of objects. In 1908, Höfler became increasingly interested in Russell and his new logical foundations of mathematics. Since 1904, Russell had regularly reviewed and commented the newest publications of Meinong. In his correspondence with Meinong in 1908, Höfler repeatedly asked Meinong about Russell and the relation of Meinong's philosophy to Russell. Höfler was particularly interested in Russell's theory of relations and its possible connection to Meinong's theory of relations.<sup>26</sup>

Besides Höfler, a small group of philosophers strongly influenced by Meinong worked also on the theory of objects in Vienna. They were all part of the "Philosophical Society" and included Anton Oelzelt-Newin (1854–1925), a former student of Brentano and Meinong who had worked with Meinong in Graz; Josef Klemens Kreibitz (1863–1917), also a student of Brentano who did get his

<sup>23</sup> Höfler's defense had some international impact as it was given as a talk at the "5<sup>th</sup> International Congress of Psychology" in Rome.

<sup>24</sup> The correspondence between Meinong and Höfler shows an increasing clash between the Meinongians and the Neo-Kantians, with regular complaints by the correspondents that their papers are rejected by the *Kant-Studien*.

<sup>25</sup> None of these were published, although the "Nachlass" of Höfler contains a long manuscript on geometry with that title. Höfler's new ideas about logic were certainly incorporated in the huge second edition of his *Logik*, 1922.

<sup>26</sup> See letter of Höfler to Meinong, March 2, 1908 (Meinong Archive, Graz).

habilitation in Graz, before returning to Vienna in 1907 and Hans Pichler (1882–1958), who had originally studied with Windelband in Strassburg, but lived in Vienna from 1906 to 1912, before going to Graz in order to get his habilitation with Meinong.<sup>27</sup> All these philosophers published on the intricate question of the relation of the theory of objects to epistemology, psychology, ontology and logic.<sup>28</sup> The question of the status of logic was central to their writings.

Through their correspondence with Höfler, the interaction of Hahn, Neurath and Frank with Höfler is well established, but we can also reconstruct frequent meetings of Hahn with Oelzelt-Newin and Pichler, as well as discussions of Neurath with Pichler. An exact reconstruction of these philosophical contacts of Neurath, Hahn and Frank with the Meinongians would need further space. Through the close ties of the philosophies of Meinong and Russell, the philosophical scene around Höfler and the Viennese Meinongians was particularly favourable to a reception of the new theories in logic and the foundation of mathematics such as those of Russell, Couturat and Frege.

## V. LOGIC AND MATHEMATICS

Frank claimed that the main focus of discussion between Neurath, Hahn and himself was an empiricist or conventionalist view of scientific theories and “the primary role of mathematics and logic in the structure of science” (Frank 1949. 7). But he also claimed, that they wanted to connect Mach and the conventionalists “with the investigations in logic of authors such as Couturat, Schröder, Hilbert etc.” (Frank 1949. 7). For Frank, it was important to show how a complex axiomatized mathematical theory could be correlated with the empirical part of a scientific theory. But he did not say much about logic or the foundations of mathematics. This was different for Hahn and Neurath. Both showed a strong interest in logic and the foundations of mathematics.

The beginning of the century saw major shifts with the emergence of symbolic logic and the development of a non-psychologistic understanding of logic. At the same time the logicist program in the foundations of mathematics emerged. Already in the first decade of the century, Neurath and Hahn were well aware of these developments. Neurath clearly shared an anti-psychologist conception of logic and supported a logical realism similar to that of Russell and Meinong. Hahn not only was strongly interested in Russell, but probably was already then sympathetic to his logicist program. This positive reception of Russell and the sympathies for anti-psychologism and logical realism can be explained by

<sup>27</sup> On Oelzelt-Newin, see Dölling 1999. 81–82; on Kreibitz, see Binder 2001; on Pichler, see Sauer 2001.

<sup>28</sup> See especially Oelzelt-Newin 1907, Kreibitz 1909 and Pichler 1909 and 1912.

Hahn's and Neurath's close contacts to a group of Viennese Meinongians, with Höfler at its center, and the reception of modern logic among them.

Anti-psychologism in logic claims that logic is not about judgements, beliefs or thoughts (in a psychological sense). The objects of logic are not psychological objects. Logical realism is in strong support of such an anti-psychologistic view. Russell (1904) gave a clear characterisation of logical realism, a view he shared with Meinong: For Russell, every belief has an object other than itself and these objects of belief are extra-mental (with the exception of beliefs about mental states). Truth and falsehood applies not to beliefs but to these extra-mental objects of belief (Russell 1904. 204).<sup>29</sup> Also Meinong posited such objects. He called the objects of a belief or a judgments an 'objective' (in German: "Objektiv"), a term Russell translated by "proposition".<sup>30</sup> Both for Russell at that time and for the Meinongians, logic was about propositions, conceived as the primary bearers of truth. There are several reasons to believe that Neurath and Hahn were attracted to this view, when they read Russell (1903) and Couturat (1908) between 1907 and 1909.

Neurath gained a strong interest in mathematical logic, already before his return to Vienna in 1906, probably through the philosopher Gregorius Itelson (1852–1926), a strong influence on the young Neurath.<sup>31</sup> In 1904, Itelson had given two talks: "The Reform of Logic" and "Logic and Mathematics". Though never published, the talks became quite well known through a summary by Couturat, the only source on Itelson's conception of logic (Couturat 1904). For Itelson, logic is not about the laws of thought and "psychologistic logic" is "absolutely sterile". For him, logic is not about thoughts, but about the objects of thought: "Logic is the *science of objects in general*" and "Logic is the science of *all* objects, real or not, possible or impossible, in abstraction of their existence" (Couturat 1904. 1038–1039). Besides his anti-psychologism and logical realism, Itelson emphasized a strong connection between logic and mathematics: "mathematics is a purely logical science" (Couturat 1904. 1037). As for mathematics, it is also a science of objects, namely of ordered objects (sets, groups). Itelson's conception is very close to the logical realism defended by Russell.<sup>32</sup> Meinong himself noticed the similarity of Itelson's position with his own theory of objects (Meinong 1907. 211–212).

<sup>29</sup> Schlick 1910 also quoted that passage where Russell defines logical realism, but rejected the position.

<sup>30</sup> Meinongians like Höfler also sometimes identified "objectives" with states of affairs.

<sup>31</sup> In a letter to Tönnies (Dec. 30, 1904), Neurath says that he is "captivated by mathematical logic". In another letter (June 25, 1906), he calls Itelson the "sharpest mind I know" and a "second Socrates". On Itelson, see Buck 1926 and Freudenthal and Karachentsev 2011.

<sup>32</sup> Russell says in a letter to Meinong: "I myself have been accustomed to use the name 'Logic' for that which you call 'Theory of Objects'", and in the same letter: "I am in complete agreement with the view that mathematics is theory of objects. That is in fact one of the main theses of my *Principles of Mathematics*." Letter from Dec. 15, 1904, see Smith 1985.

Back in Vienna, Neurath read Russell's *Principles of Mathematics* together with Hahn and continued to promote Itelson's conception of logic. He mentioned it in a paper on Schröder's logic (Neurath 1909b, 5) and defended it in a discussion on the Apriori he led at the "Philosophical Society".<sup>33</sup> Also Pichler (1909, 22), in a discussion of Itelson's theory, thanked especially Neurath for explaining Itelson's conception of logic to him.<sup>34</sup> Whether Hahn shared such a conception of logic is not known, although Hahn's sympathies for Russell inclined him perhaps to a similar view. At least, Hahn expressed his interest in Meinong's theory of objects in a letter to the latter.<sup>35</sup> And in his correspondence with Meinong, Hahn emphasizes frequently his high esteem for the philosophical judgment of Meinong.

In the 1929 and after the intense discussions of Wittgenstein's conception of logic based on tautologies, Hahn rejected Itelson's logical realism: „If logic were to be conceived – as it has actually been conceived – as a theory of the most general properties of objects, as a theory of objects as such, then empiricism would in fact be confronted with an insuperable difficulty. But in reality logic does not say anything at all about objects; logic is not something to be found in the world; rather, logic first comes into being when – using a symbolism – people *talk about the world*.”<sup>36</sup> It is implausible that Hahn had already such a view in the 1910s. The view that logic does not express anything about the world and that the rules of logic are actually conventionally fixed grammatical rules of a language is the result of the discussion of the *Tractatus* in the Vienna Circle.<sup>37</sup>

Hahn's early philosophy of logic and mathematics can only be reconstructed in a fragmentary way, as it is expressed only in some book reviews. Hahn rejected any kind of intuition (or Kantian "Anschauung") as a justification for mathematical axioms. In geometry, this led him to accept the kind of conventionalism defended by Poincaré (Hahn 1908). Hahn also supported the movement for the arithmetization of analysis and the attempt to give a rigorous and axiomatic basis to arithmetics, free from any intuitions or empiricist justification. For Hahn, any empirical justification of mathematics would endanger the certainty and rigor of mathematics (Hahn 1909a). Hahn also supported Peano's rigorous axiomatic foundation of arithmetics. Later, Hahn said explicitly that a *logical* foundation of arithmetics was highly desirable (Hahn 1919). Given his interest in the logicist

<sup>33</sup> Höfler took notes of Neurath's remarks, see Höfler Archive, Nr. V. 32. 104.

<sup>34</sup> Other Viennese Meinongians also discussed Itelson's conception, Kreibitz 1909, 309 and Höfler 1922.

<sup>35</sup> In a letter to Meinong (April 4, 1910), Hahn mentions Meinong's and Mally's theory of objects (Meinong 1904), Meinong Archive, Graz.

<sup>36</sup> Hahn 1929.

<sup>37</sup> See also Carnap 1928, §107 for an early formulation of such a conventionalist conception of logic, also in Carnap 1937.

programs of Russell (1903) and Couturat (1908), he was probably attracted to such a view much earlier.

Despite Hahn's support for Poincaré's conventionalist conception of geometry, nothing indicates that he was sympathetic to an extension of conventionalism to other areas of mathematics or even to logic. In a review of a book by the Dutch mathematician and philosopher Gerrit Mannoury (Hahn 1912), Hahn mentions Mannoury's extension of Poincaré's conventionalism to arithmetics and logic. He mentions also that Mannoury conceives logic as "only an analysis of the forms of language". Although Hahn's review of Mannoury is neutral, Hahn does not express any sympathies for such an extended conventionalism. The extension of conventionalism to laws of nature and to causality is also explicitly rejected by Hahn in a review of Hugo Dingler (Hahn 1909b).

Let us summarize Hahn's early views on logic and the foundation of mathematics: Hahn supported the elimination of intuition from mathematics and the arithmetisation of analysis. An attractive way to eliminate intuitions from arithmetics was the logicist program, therefore Hahn's interest in Russell and Couturat. Concerning the foundations of logic, it is quite probable that Hahn shared the logical realism adopted by Russell, Neurath and the Meinongians. Hahn's remark about logical realism from 1929 represents possibly Hahn's own evolution, from an early Russellian conception of logic through Wittgenstein's conception of logic based on tautologies to a view close to Carnap's logical conventionalism.

## VI. IMPACT ON THE VIENNA CIRCLE

The logical empiricists of the 1920s and 1930s did not share the logical realism of Russell and Meinong, nor did they accept Meinong's theory of objects. But the philosophy of the Meinongians was imbued with an analytic spirit which was very close to the analytic philosophy of Russell and Moore. This favoured an early reception of the new symbolic logic and the philosophy of Russell and Couturat. The same year Schlick was appointed at the University of Vienna, Höfler published a strongly revised edition of his *Logik* (1922), a book he had originally published with Meinong in 1890. The new edition, co-authored with Ernst Mally, contained an extensive exposition of the logic from Russell's *Principia Mathematica*.<sup>38</sup>

When Carnap, Neurath and Hahn published the manifesto of the Vienna Circle (1929/2012), the importance of the Viennese students of Brentano for a renewed understanding of logic and the foundations of science was explicitly emphasized there. In a passage on the pre-history of the "scientific world

<sup>38</sup> The parts on *Principia Mathematica* in Höfler's *Logik* have been written by Mally.

conception”, most probably written by Neurath, the manifesto acknowledged that the students of Brentano “were working toward a rigorous new foundation of logic” (1929/2012. 79). In that passage, Neurath mentions the endeavors of Höfler for a re-discovery of the work of Bolzano, but he mentions also the work of Meinong, Hans Pichler and Ernst Mally. Meinong’s “theory of objects (...) shows some affinity to modern theories of concepts”, so Neurath, and “the early writings of Hans Pichler (1909) also stem from this intellectual milieu” (1929/2012. 79).

It would be certainly a mistake to underestimate the central importance of Mach, Boltzmann and of the French conventionalists in the early formation of Hahn, Neurath and Frank, although this was not the object of the present paper.<sup>39</sup> The intention here was to analyse the importance of the early analytic philosophy and its logic in the formation of Hahn, Neurath and Frank and the intellectual contacts which were particularly favorable for such a reception. This philosophical context has hitherto not been sufficiently appreciated or evaluated in the research on the genesis of logical empiricism.<sup>40</sup> The more or less mythical “First Vienna Circle”, as described in Frank’s narrative prevented an adequate historical analysis of the philosophical milieu in which Hahn, Neurath and Frank received their first philosophical formation.

Whether the “First Vienna Circle” was more than some occasional meetings in Viennese coffeehouses between three young scientists remains an open question. No historical sources indicate that it was more, and no sources prevent us to think that it was even less. And even if the “First Vienna Circle” actually existed, we cannot say anything about it, due to the lack of historical sources about it. We can just repeat Frank’s statements, without the ability to evaluate their historical accuracy. The importance the “First Vienna Circle” has acquired in the genealogy of logical empiricism is certainly an exaggeration, which is in no way justified by the historical evidence we have. Furthermore, the mythical presence of that circle has prevented us to see the actual historical data about Neurath, Hahn and Frank and their relevance for an explanation of their early philosophical positions.

<sup>39</sup> I analyse the influence of Mach and the French conventionalists on Hahn, Neurath and Frank before 1918 in Limbeck-Lilienau 2019.

<sup>40</sup> Uebel 2000 is an exception, as he was the first to emphasize the central role of Höfler for our young trio.

## REFERENCES

- Binder, Thomas 2001. Die 'Allgemeine menschliche Wertungsweise'. Josef Klemens Kreibigs Werttheorie und Ethik. In Thomas Binder – Reinhard Fabian – Ulf Höfer – Jutta Valent (eds.) *Bausteine zu einer Geschichte der Philosophie an der Universität Graz*. Amsterdam – New York, Rodopi. 305–332.
- Blackmore, Thomas 2017. Alois Höfler (1853–1922). In Liliana Albertazzi – Dale Jacquette – Roberto Poli (eds.) *The School of Alexius Meinong*. London – New York, Routledge. 157–187.
- Buck, Otto 1926. Gregorius Itelson. *Kant-Studien*. 31. 428–430.
- Cassirer, Ernst 1907. Kant und die neue Mathematik. *Kant-Studien*. 12/1–3. 1–49.
- Couturat, Louis 1904. Logique et Philosophie des Sciences. *Revue de Métaphysique et de Morale*. 12. 1037–1077.
- Couturat, Louis 1908. *Die philosophischen Prinzipien der Mathematik*. Leipzig, Werner Kleinkhardt, German translation of *Les Principes des Mathématiques*. 1905.
- Dölling, Evelyn 1999. "Wahrheit suchen und Wahrheit bekennen": Alexius Meinong. *Skizze eines Lebens*. Amsterdam–Atlanta, Rodopi.
- Fisette, Denis 2014. Austrian Philosophy and its Institutions: Remarks on the Philosophical Society of the University of Vienna (1888–1938). In Anne Reboul (ed.) *Mind, Values and Metaphysics*. Dordrecht, Springer. 349–374.
- Frank, Philipp 1907. Kausalgesetz und Erfahrung. *Annalen der Naturphilosophie*. 6. 445–450. (Reprinted in Frank 1941.)
- Frank, Philipp 1910. Review of Abel Rey *Die Theorie der Physik bei den modernen Physikern*. *Monatshefte für Mathematik und Physik*. 21. 43–45.
- Frank, Philipp 1917. Die Bedeutung der physikalischen Erkenntnistheorie Machs für das Geistesleben der Gegenwart. *Naturwissenschaften*. 5. 65–72.
- Frank, Philipp 1941. *Between Physics and Philosophy*. Cambridge/MA, Harvard University Press.
- Frank, Philipp 1949. *Modern Science and its Philosophy*. Cambridge/MA, Harvard University Press.
- Freudenthal, Gideon – Karachentsev, Tatiana 2011. G. Itelson – A Socratic Philosopher. In Olga Pombo – John Symons – Juan Manuel Torres (eds.) *Otto Neurath and the Unity of Science*. Heidelberg, Springer.
- Friedman, Michael 1999. Poincaré's Conventionalism and the Logical Positivists. In Michael Friedman: *Reconsidering Logical Positivism*. Cambridge, Cambridge University Press. 71–86.
- Hahn, Hans 1908. Review of Henri Poincaré *The Value of Science*. *Monatshefte für Mathematik und Physik*. 18. 33–34.
- Hahn, Hans 1909a. Review of L. Tesar *Elemente der Differential- und Integralrechnung*. *Monatshefte für Mathematik und Physik*. 20. 12–13.
- Hahn, Hans 1909b. Review of Hugo Dingler *Grundlinien und exakten Theorie der Wissenschaften, insbesondere der mathematischen*. *Monatshefte für Mathematik und Physik*. 20. 51.
- Hahn, Hans 1912. Review of Gerrit Mannoury *Methodologisches und philosophisches zur Elementarmathematik*. *Monatshefte für Mathematik und Physik*. 23. 25–26.
- Hans Hahn 1919. Review of Alfred Pringsheim *Vorlesungen über Zahlen- und Funktionslehre*. *Göttinger Gelehrte Anzeigen*. 9–10. 321–338.
- Hahn, Hans 1929. Empiricism, Mathematics, and Logic. Reprinted in Brian McGuinness (ed.) *Hans Hahn: Empiricism, Logic and Mathematics. Philosophical Papers*. 1980. Dordrecht, Reidel Publishing Company.
- Hahn, Hans – Neurath, Otto – Carnap, Rudolf. 1929. *Wissenschaftliche Weltauffassung. Der Wiener Kreis*. Vienna, Arthur Wolf Verlag. Reprinted in Friedrich Stadler – Thomas Uebel (eds.) 2012. *Wissenschaftliche Weltauffassung. Der Wiener Kreis*. Vienna – New York, Springer.
- Haller, Rudolf 1982a. New Light on the Vienna Circle. *The Monist*. 65. 25–37.

- Haller, Rudolf 1982b. Das Neurath Prinzip. Grundlagen und Folgerungen. In Friedrich Stadler (ed.) *Arbeiterbildung in der Zwischenkriegszeit. Otto Neurath – Gerd Arntz*. Vienna–Munich, Löcker Verlag.
- Haller, Rudolf 1985. Der Erste Wiener Kreis. *Erkenntnis*. 22. 341–358.
- Haller, Rudolf 1993. *Neopositivismus*. Darmstadt, Wissenschaftliche Buchgesellschaft.
- Höfler, Alois – Meinong, Alexius 1890. *Philosophische Propädeutik: Logik*. Vienna–Prague–Leipzig, Tempisky and Freytag.
- Höfler, Alois 1905. *Sind wir Psychologen? Atti del V. Congresso Internazionale di Psicologia*. Roma, Forzani E. C. Tipografi del Senato.
- Höfler, Alois 1922. *Logik*. 2<sup>nd</sup> edition. Vienna, Hölder–Pichler–Tempisky.
- Kreibitz, Josef Klemens 1909. *Die intellektuellen Funktionen. Untersuchungen über Grenzfragen der Logik, Psychologie und Erkenntnistheorie*. Vienna–Leipzig, Alfred Hölder.
- Lindenfeld, David F. 1980. *The Transformation of Positivism. Alexius Meinong and European Thought, 1880–1920*. Berkeley – Los Angeles – London, University of California Press.
- Limbeck-Lilienau, Christoph 2015. Der Wiener Kreis – eine Illustrierte Geschichte des Logischen Empirismus. In Christoph Limbeck-Lilienau – Friedrich Stadler: *Der Wiener Kreis. Texte und Bilder zum Logischen Empirismus*. Vienna, LIT Verlag.
- Limbeck-Lilienau, Christoph 2019. The First Vienna Circle and the Erlangen Conference. In Thomas Uebel (ed.) *The Routledge Handbook of Logical Empiricism*. London – New York, Routledge.
- Menger, Karl 1980. Einleitung. In Brian McGuinness (ed.) *Hans Hahn – Empiricism, Logic, Mathematics*. Dordrecht, Reidel.
- Meinong, Alexius 1899. Über Gegenstände höherer Ordnung und deren Verhältnis zur inneren Wahrnehmung. In Rudolf Haller – Rudolf Kindinger – Roderick M. Chisholm (eds.) 1973. *Alexius Meinong Gesamtausgabe 2*. Graz, Akademische Druck- und Verlagsanstalt. 377–480.
- Meinong, Alexius 1904. Über Gegenstandstheorie. In Rudolf Haller – Rudolf Kindinger – Roderick M. Chisholm (eds.) 1973. *Alexius Meinong Gesamtausgabe 2*. Graz, Akademische Druck- und Verlagsanstalt. 481–535.
- Meinong, Alexius 1907. Über die Stellung der Gegenstandstheorie im System der Wissenschaften. In Rudolf Haller – Rudolf Kindinger – Roderick M. Chisholm (eds.) 1973. *Alexius Meinong Gesamtausgabe 5*. Graz, Akademische Druck- und Verlagsanstalt. 197–365.
- Menger, Karl 1994. *Reminiscences of the Vienna Circle and the Mathematical Colloquium*. Louise Golland – Brian McGuinness – Abe Sklar (eds.). Dordrecht–Boston–London, Kluwer.
- Neuber, Mathias 2010. Philosophie der modernen Physik – Philipp Frank und Abel Rey. *Grazer Philosophische Studien*. 80. 131–149.
- Neurath, Otto 1909a. Philosophisch-soziologische Bücherei. [Review of Couturat 1908 and others]. *Der Kunstwart*. 23/1. 138–141.
- Neurath, Otto 1909b. Zum Dualismus der Logik. In Rudolf Haller – Heiner Rutte (eds.) *Gesammelte philosophische und methodologische Schriften 1*. 1981. Vienna, Hölder–Pichler–Tempisky. 5–16.
- Neurath, Otto 1946. Die Orchestrierung der Wissenschaften durch den Enzyklopädismus des Logischen Empirismus. In Rudolf Haller – Heiner Rutte (eds.) *Gesammelte philosophische und methodologische Schriften 2*. 1981. Vienna, Hölder–Pichler–Tempisky. 997–1009.
- Oelzweil-Newin, Anton 1907. Die unabhängigen Realitäten. *Zeitschrift für Philosophie und philosophische Kritik* 129/2. 113–135.
- Pichler, Hans 1909. *Über die Erkennbarkeit der Gegenstände*. Vienna, Braumüller.
- Pichler, Hans 1912. *Möglichkeit und Widerspruchsfreiheit*. Leipzig, Verlag Johann Ambrosius Barth.

- Pulkkinen, Jarmo 2005. *Thought and Logic. The Debates between German-Speaking Philosophers and Symbolic Logicians at the Turn of the 20<sup>th</sup> Century*. Francfort, Peter Lang.
- Reininger, Robert (ed.) 1938. *50 Jahre Philosophische Gesellschaft an der Universität Wien 1888–1938*. Vienna, Verlag der Philosophischen Gesellschaft an der Universität Wien.
- Russell, Bertrand 1903. *The Principles of Mathematics*. Cambridge, Cambridge University Press.
- Russell, Bertrand 1904. Meinong's Theory of Complexes and Assumptions I. *Mind. New Series*. 13/50. 204–219.
- Sauer, Werner 2001. Der junge Hans Pichler. In Thomas Binder – Reinhard Fabian – Ulf Höfer – Jutta Valent (eds.) *Bausteine zu einer Geschichte der Philosophie an der Universität Graz*. Amsterdam – New York, Rodopi. 255–262.
- Schlick, Moritz 1910. Das Wesen der Wahrheit nach der modernen Logik. In Fynn Ole Engler (ed.) *Moritz Schlick Gesamtausgabe*. I/4. 2015.
- Smith, Janet Farrell 1985. The Russell-Meinong Debate. *Philosophy and Phenomenological Research*. 45/3. 305–350.
- Stadler, Friedrich 1982. *Vom Positivismus zur 'Wissenschaftlichen Weltauffassung'. Am Beispiel der Wirkungsgeschichte von Ernst Mach in Österreich von 1895 bis 1934*. Vienna–Munich, Löcker Verlag.
- Stadler, Friedrich 2015. *The Vienna Circle. Studies in the Origins, Development, and Influence of Logical Empiricism*. Heidelberg – New York – London, Springer.
- Uebel, Thomas (ed.) 1991. *Rediscovering the Forgotten Vienna Circle*. (Boston Studies in the Philosophy of Science 133.) Dordrecht, Springer.
- Uebel, Thomas 2000. *Vernunftkritik und Wissenschaft. Otto Neurath und der erste Wiener Kreis*. Vienna – New York, Springer.
- Uebel, Thomas 2015. American Pragmatism and the Vienna Circle: The Early Years. *Journal for the History of Analytic Philosophy*. 3/3. 1–35.