

Carnap's Opposition to Logic of the *Geisteswissenschaften*



Fons Dewulf

Logical empiricist philosophers in general, and Rudolf Carnap in particular, are not well known for their views on the humanities.¹ On the contrary, their philosophy of science has often been conceived as hostile toward a proper understanding of what the humanities are and why we should value them.² In our own age, philosophers and humanists still struggle with the question of what the humanities are, and what their relation is to undisputed domains of knowledge like the natural sciences. I think that, given a proper contextualization, Rudolf Carnap's views on these matters, although they might seem unilluminating at first, can provide us with new insights regarding these questions. In this paper, I argue that Carnap consistently throughout his career accepted the scientific validity and autonomy of the humanities, but denied any validity to philosophies or theories of the humanities. In that sense, Carnap's account of the humanities should be considered as an anti-philosophy which therapeutically dissolves all philosophical confusions over the alleged distinction between the humanities and the natural sciences. Carnap's position shows how one can maintain the validity of the humanities without epistemo-

This Research was funded by the Research Foundation–Flanders (FWO).

¹Throughout this text, I will use the contemporary term 'humanities' to denote such domains of knowledge as historiography, art sciences, literature science and linguistics. Whenever I discuss the views of philosophers, I will use the terminology that they use to denote these domains of knowledge. This will sometimes be 'Geisteswissenschaften' or 'cultural sciences' [*Kulturwissenschaften*].

²Classical criticisms of this kind are Horkheimer (1937), Cassirer (2011 [1942]), Taylor (1971).

F. Dewulf (✉)

Department of Philosophy and Moral Sciences, Ghent University, Ghent, Belgium

E-Mail: fons.dewulf@ugent.be

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C. Damböck, G. Wolters (eds.), *Der junge Carnap in historischem Kontext:*

1918–1935 / Young Carnap in an Historical Context: 1918–1935,

Veröffentlichungen des Instituts Wiener Kreis 30,

https://doi.org/10.1007/978-3-030-58251-7_3

logically or metaphysically defining their nature in opposition to the natural sciences. Such a position might *prima facie* seem impossible. How can one maintain the validity of a domain of knowledge that one cannot theoretically delineate, except on some blind faith? In the end, Carnap's position may turn out to be contradictory; and well-known criticisms on Carnap's position may turn out to be valid, e.g., Cassirer's argument that Carnap's view ultimately denies what is valuable about the humanities as a field of knowledge.³ However, this tension is exactly what makes Carnap's views on the humanities interesting and worthwhile to engage with. How can one conceive the humanities as a valuable domain of knowledge while denying that there is anything epistemologically or metaphysically particular about it?

3.1 Zinsel's Conundrum

Before I continue to discuss Carnap's position on the humanities, I first want to introduce an illuminating interaction between Hans Reichenbach and Edgar Zinsel. My presentation of this interaction serves two purposes. First, it reveals that the *Geisteswissenschaften* were a concern within the logical empiricist movement in general. Carnap's discussion of the *Geisteswissenschaften* in his writings was certainly not an exception within the movement.⁴ Second, it will introduce us to the spectrum of positions that a German-speaking philosopher could take on the *Geisteswissenschaften* during the 1920s and 1930s. In order to understand what makes Carnap's position different and interesting, one needs to position it properly within this spectrum.

In April 1930, Reichenbach, as Chief Editor of the new journal *Erkenntnis*, sent out a letter to Zinsel, asking Zinsel to contribute a manuscript to his new journal.⁵ Zinsel replied that he was working on a book about the application of a physicalist method to historical and social events. Consequently, Zinsel preferred to send a manuscript that was related to this topic.⁶ Reichenbach was very happy with the proposal: it fit well with the intention of the journal to perform philosophy in continuity with the sciences. Reichenbach also wrote back that he did not want the journal to focus solely on the natural sciences. In his editorial introduction to the first volume of *Erkenntnis*, Reichenbach stated that contributions like the one proposed by Zinsel were welcome:

³For further discussion of the Carnap–Cassirer relationship concerning the humanities, see Friedman (2000, Chap. 7), Mormann (2012) and Ikonen (2011).

⁴For two additional examples, see also Neurath (1931) and Schlick (1934). For a discussion of the problem of the *Geisteswissenschaften* in the broad logical empiricist movement, see Dewulf (2020).

⁵Reichenbach to Zinsel, 29 April 1930, HR 013-38-32, Archives of Scientific Philosophy (ASP), Special Collections Department, University of Pittsburgh. For more information on the origins of *Erkenntnis* as a journal, edited by Reichenbach and Carnap, see Hegselmann and Siegwart (1991) and Stadler (2015, pp. 56–57).

⁶Zinsel to Reichenbach, 2 May 1930, HR 013-38-31 ASP.

As long as the natural sciences contribute the most to knowledge in philosophy, as they have done up until now, they will remain the chief focus of the journal. However, philosophy could be fertilized, as it appears to us, in a similar way by the *Geisteswissenschaften*, which we would only separate from the sciences in terms of a division of labor. We hope to present such philosophy of the *Geisteswissenschaften* in this journal as well.⁷

Because Reichenbach wanted to have a manuscript within 4 weeks, Zinsel decided to send a different text than initially proposed, namely "History and Biology", a chapter from the book that he was working on. That manuscript was thought to fulfil Reichenbach's wish "to have a contribution from philosophy of history and sociology".⁸ After some back-and-forth correspondence, Reichenbach advised Zinsel to make the text shorter and remove the examples that were "sprinkled into the text". According to Reichenbach, "a philosophical journal is only concerned with the principal ideas".⁹ Zinsel refused to comply with Reichenbach's advice, because his examples were not accidental features of the paper. Zinsel's motivation highlights how Zinsel understood the position of his own writing within contemporary philosophy of *Geisteswissenschaften*:

I do not consider your proposal to cut in my manuscript *History and Biology* as expedient.

...

These days there is a large amount of work in philosophy of history that uses a metaphysical strategy of argumentation. Next to this, there is not a small amount of programmatic proposals about history oriented towards the natural sciences. These, however, show that the researchers are not familiar with historical facts. Consequently, these proposals appear dilettantish to experts. If my work is to have scientific value, then it has to show how one could apply a natural scientific method to history in a non-dilettantish, fruitful way.

...

If I were to remove all examples, then only a formal program remains that would most likely appear congenial to readers with a pure interest in the natural sciences. Such a contribution would, however, lack any scientific fruitfulness and remain unconvincing to any expert.¹⁰

⁷"Solange die Naturwissenschaften wie bisher den weitaus größten Teil an Erkenntnissen in die Philosophie hineintragen, solange werden sie deshalb den Schwerpunkt der Zeitschrift bestimmen; aber an sich scheint uns eine Befruchtung der Philosophie durch die Geisteswissenschaften, die wir überhaupt nur in arbeitstechnischem Sinne von den Wissenschaften abtrennen möchten, in gleicher Weise möglich, und wir hoffen, von solcher Philosophie der Geisteswissenschaften ebenfalls Zeugnisse bringen zu können" (Reichenbach 1930, pp. 1–2).

⁸"In dem Fall, daß es Ihnen angenehm ist, schon in den nächsten Wochen einen geschichtsphilosophisch-soziologischen Aufsatz mit Sicherheit zu erhalten ..." (Zinsel to Reichenbach, 8 May 1930, HR 013-38-29 ASP).

⁹"... für unsere philosophische Zeitschrift kommt es ja nur auf die prinzipiellen Gedanken an" (Reichenbach to Zinsel, 16 October 1930, HR 013-38-23 ASP).

¹⁰"Ihr Kürzungsvorschlag zu meinem Ms. Geschichte u. Biologie erscheint mir nicht zweckmäßig. ... Es gibt heute eine große Zahl ‚geschichtsphilosophischer‘ Arbeiten, die metaphysische Redensarten aneinanderreihen; daneben gibt es nicht selten naturwissenschaftlich gerichtete programmatische Äußerungen zur Geschichte, die aber zeigen, daß dem Verfasser die konkreten historischen Tatsachen unbekannt sind, und die daher jeden Sachkenner dilettantisch anmuten. Wenn meine Arbeit wissenschaftlichen Wert besitzt, so könnte das nur dem Umstand entspringen, daß sie zeigt, wie man naturwissenschaftliche Methoden nicht-dilettantisch und fruchtbar auf die Geschichte anwendet. ... Wollte ich die Beispiele weglassen, so bliebe wieder nur ein formales Pro-

Ziisel aimed to find a novel way to theoretically approach the historical sciences. On the one hand, he did not want to produce a “metaphysical” or philosophical perspective on historical knowledge. Unlike many contemporary German philosophers, Ziisel was not interested in laying bare the logical groundwork of these sciences at an abstract level. On the other hand, he did not want to simply state that the historical sciences are similar to the natural sciences. He considered such programmatic statements equally meaningless. According to Ziisel, whatever could be said about the historical sciences in general needed to be related to the actual practice of these sciences. His examples were crucial to achieve this aim. Consequently, he refused to cut them out. Reichenbach was, however, not convinced by Ziisel’s request and ultimately rejected the paper.¹¹ This small episode in the history of *Erkenntnis* illuminates an intellectual challenge, with which all logical empiricist philosophy was faced: Given the apparent institutional, methodological and conceptual difference between the natural sciences and the historical sciences, how should one conceive of the historical sciences within the Unity of Science? Simply stating that there is no difference between the historical and natural sciences was, at face value, equally meaningless as finding a metaphysical or logical reason to separate them. Consequently, one had to overcome both the metaphysical separation and the empty programmatic statements of unity. How Rudolf Carnap faced this challenge throughout his career is particularly interesting: at an early stage, in *Der logische Aufbau der Welt*, Carnap discusses the problem of the *Geisteswissenschaften* to some degree, while at the end of his career Carnap remained mostly silent on the topic. I argue that this is the result of Carnap’s accumulating insight into the boundaries of what one could legitimately say about the *Geisteswissenschaften* from a philosophical point of view. At the end of this paper, I claim that Carnap, just like Ziisel, neither wanted to make empty programmatic statements about the *Geisteswissenschaften*, nor wanted to produce a philosophy or logic regarding these sciences. This position separates Carnap from many of his contemporaries in German philosophy.

3.2 In Search of a Logic of the Historical Sciences

At the beginning of the twentieth century German philosophers were faced with the task of incorporating the newly-found historical disciplines of the nineteenth century into philosophy. This was the conclusion of Wilhelm Windelband’s 1904 reflection on the state of philosophy 100 years after Kant’s death.¹² Certainly not all philosophers in Germany agreed with Windelband’s specific description of this problem, but many German philosophers accepted that there was something at stake

gramm übrig, das vielleicht manchen rein naturwissenschaftlich interessierten Leser sympathisch anmuten mag, aber wissenschaftlich ganz unfruchtbar ist und keinen Sachkenner überzeugen wird” (Ziisel to Reichenbach, 18 October 1930, HR 013-18-22 ASP).

¹¹ Reichenbach to Ziisel, 20 October 1930, HR 013-18-21 ASP.

¹² Windelband (1904, pp. 5–20).

for philosophy surrounding the historical sciences. This idea was aptly articulated by Windelband in his 1904 reflection: "The great, new fact of the existence of the historical sciences demands, as a first task, that critical philosophy expands the Kantian notion of knowledge."¹³ This novel task for epistemology had already been an important problem for nineteenth-century German philosophy and became a central epistemological question for many German philosophers after the turn of the century.¹⁴ Windelband was not the only, or even the most prominent philosopher to engage with the philosophical problems associated with historiography as a science. In his 1904 text, however, he understands these problems as central to the agenda of future philosophy in the twentieth century. This renders it a good starting point to understand what was at stake in German academic philosophy at the turn of the century. On Windelband's account, critical philosophy had to be updated given historical developments in the sciences during the nineteenth century. "Kant's understanding of 'science' is – historically understandably – restricted to the methodical identity of the theoretical inquiry into nature, which is determined by the Newtonian principle."¹⁵

According to Windelband, the outdated Newtonian principle that Kant had upheld claims that science aims to produce natural laws. These laws abstract from experience whatever remains the same throughout all of them. Science, consequently, produces classificatory concepts [*Gattungsbegriffe*], which order experience in kinds.¹⁶ Even though this goal of science and the related logical structure of its concepts was appropriate to the scientific method of Kant's time, it could no longer (according to Windelband) be tolerated in twentieth-century philosophy of science as the unique conceptual structure of scientific reasoning. Historiography had joined the ranks of the sciences. Windelband called this event one of the "most significant appearances of 19th-century mental life [*Geistiges Leben*]"¹⁷ Windelband immediately conceptualized this appearance on an abstract, epistemological level: the historical sciences are, contrary to the natural sciences, interested in the individual moments of the past. Therefore the *logical* order of classification that abstracts from the individual properties of facts in experience cannot be understood as the conceptual order of historiography: unlike the natural sciences, the historical sciences aim at the singular. Thus a different kind of conceptual order, an expansion of the contemporary logic of scientific concepts, needed to be developed in order to understand the historical sciences. In this new kind of logic, a concept would have

¹³Windelband (1904, p. 11).

¹⁴The most well-known example is perhaps Wilhelm Dilthey, who had already put an epistemology of the historical sciences on the philosophical agenda during the last quarter of the nineteenth century. But many other German philosophers had also engaged this question; for an overview of this tradition, see Iggers (1983) and Beiser (2012).

¹⁵"Kants Begriff der ‚Wissenschaft‘ ist – historisch sehr begreiflich – eingeengt auf den methodischen Charakter der theoretischen Naturforschung, bestimmt durch das Newtonsche Prinzip" (Windelband 1904, p. 10).

¹⁶Windelband (1904, p. 12).

¹⁷Windelband (1904, p. 10).

to relate individual facts to each other without abstractions.¹⁸ According to Windelband, this expansion of logic was “best developed and formulated” by his former student Heinrich Rickert.¹⁹

Rickert’s work *The Limits of Concept Formation in Natural Science* [*Die Grenzen der naturwissenschaftlichen Begriffsbildung*] is intended to present a philosophical *logic* of concepts that can incorporate the historical sciences. The work has a two-fold structure. First, Rickert argues that the conceptual order of the natural sciences has certain limits [*Grenzen*]. Second, Rickert argues that the historical sciences operate with a different conceptual order than the natural sciences: they objectify those aspects of reality that lie beyond the limits of natural scientific concepts. Taken together, both conceptual orders (the historical and the natural) form the totality of possibilities to make reality accessible to conceptual knowledge; they exhaust the ultimate, logical space in which concepts operate. The following quote perfectly represents this argumentative structure:

We can now state that the limit of concept formation in the natural sciences is the beginning of the interest of historiography. In this way, both types of science delimit each other logically and entail everything that empirical reality can offer to scientific aims.²⁰

Rickert presents his work as an investigation in the *logic* of science. The investigation is entirely independent of practical work in the sciences themselves. Rickert explicitly does not aim to show how scientists have performed or have to perform their work, even though he believes this might be an additional beneficial result of his logical inquiry.²¹ Rickert’s logic is intended as a purely transcendental investigation: it lays bare how it is philosophically possible that science can investigate empirical reality through the conceptual ordering of the elements of our intuition [*Anschauung*]. For Rickert, there are only two possible, mutually exclusive conceptual orders that objectivize reality: the concept as an abstraction, which aims to produce general laws, and the concept as value-relation, which aims to identify an individual. Rickert’s logic shows how these two conceptual orders together form the complete spectrum of conceptual understanding: “in the sciences, we can have no understanding of a third way to process the given”.²²

Rickert’s meticulous argument for the logical distinction between the natural and the historical sciences revolves around the logical distinction that he draws between natural laws and value-relations. While both conceptual structures ultimately aim to show how objects are necessarily related to one another, their logical structure is mutually exclusive. Natural laws abstract from the individual properties, while value-rela-

¹⁸Windelband (1904, pp. 12–13).

¹⁹Windelband (1904, p. 13).

²⁰“Hier dürfen wir nur sagen, daß dort, wo die Begriffsbildung der Naturwissenschaft ihre Grenze findet, meist das Interesse der Geschichte erst beginnt. So ergänzen die beiden Arten von Wissenschaften einander logisch und umfassen zugleich alles, was die empirische Wirklichkeit an wissenschaftlichen Aufgaben stellt” (Rickert 1929, p. 267).

²¹Rickert (1929, p. 303).

²²Rickert (1929, p. 267).

tions determine which properties are unique to objects. Around the time of the publication of Carnap's *Aufbau*, Rickert's logical distinction was one of the most advanced attempts to articulate a logical split between the natural and the historical sciences.

3.3 *Geisteswissenschaften* in the *Aufbau*

In *Der logische Aufbau der Welt*, Carnap explicitly aims to position himself within these contemporary debates regarding the epistemic status of the historical sciences.²³ Carnap's concern for the *Geisteswissenschaften* in the *Aufbau* is related to the aim of the book, which is to show how a limited set of basic concepts and a logical theory of relations can be used to constitute all the concepts of the different sciences within one constitutional system. Carnap intends to show that despite the differences in objects, methods and concepts, the various branches of the sciences can be united in "a unified system of concepts to overcome the separation of unified science into unrelated special sciences".²⁴ Given this aim, Carnap incorporates not only the natural sciences, but also psychology and what he calls the *Geisteswissenschaften* in his discussion. These sciences study cultural [kulturelle], historical and sociological objects.²⁵ Carnap gives a wide range of examples of these objects: courtesy as a social custom (Sect. 24), expressionism as an art form (Sect. 31), a state as a political organization (Sects. 4, 30, 151), religion as a group custom (Sect. 55) and the Trojan War as a historical event (Sect. 175). These kinds of objects are discussed as possible objects of scientific knowledge in a considerable number of sections (Sects. 12, 23, 24, 55, 56, 150, 151). Carnap introduces the concern for these objects of science in Sect. 12 of the *Aufbau*:

Recently (in connection with ideas of Dilthey, Windelband, Rickert), a "logic of individuality" has repeatedly been demanded; what is desired here is a method which allows a conceptual comprehension of, and does justice to, the peculiarity of individual entities, and which does not attempt to grasp this peculiarity through inclusion in narrower and narrower classes [*Gattungsbegriffe*]. Such a method would be of great importance for individual psychology and for all cultural sciences, especially history. (Cf., for example, Freyer [Obj. Geist] 108) I merely wish to mention in passing that the concept of structure as it occurs in the theory of relations would form a suitable basis for such a method. The method would have to be developed through adaptation of the tools of relation theory to the specific area in question. Cf. also Cassirer's theory of relational concepts [Substanzbegr.], esp. 299, and the application of the theory of relations (but not yet to cultural objects) in Carnap [Logistik] Part 11.²⁶

²³Translations of Carnap's *Aufbau* are taken from Carnap (2003 [1928]).

²⁴Carnap (2003 [1928], Sect. 2). Recently, Creath (2017) has argued that Carnap's arguments for the Unity of Science should be interpreted as arguments against what Creath called the Dyadic Tradition of Windelband and Rickert.

²⁵Carnap (2003 [1928], Sect. 23).

²⁶Carnap (2003 [1928], Sect. 12). This passage has already often been quoted, even though it is only part of Carnap's reference to the literature. The passage has especially been used to show how

In this passage, Carnap seems to claim two things. First, Rickert's demand for a logic that focuses on an individuating conceptual understanding is a valid demand. Second, the structural understanding of scientific concepts that Carnap himself presents in the *Aufbau* is capable of fulfilling Rickert's demands. These claims seem incompatible: Carnap's structuralist notion of concepts is meant to be applicable across the various domains of science, and it should not endorse Rickert's logical theory of the cultural sciences, which logically separates historical and natural scientific concept formation. Does Carnap imply that a *logic* of individuality is a valid philosophical concern if one wants to understand the historical sciences? By understanding the apparent contradiction entailed by this passage, one understands the position about the cultural sciences that Carnap holds in the *Aufbau*, and how it is in fact distinguished from Rickert's own logical project.

To see this, it is crucial to understand how Carnap thinks about the particular historical contribution that philosophers like Dilthey, Windelband and Rickert made to the scientific status of the historical sciences. Carnap often lauds these philosophers for their particular historical importance in raising the consciousness that historiography forms a domain of science:

The philosophy of the nineteenth century did not pay sufficient attention to the fact that the cultural objects form an autonomous type. The reason for this is that epistemological and logical investigations tended to confine their attention predominantly to physics and psychology as paradigmatic subject matter areas. Only the more recent philosophy of history (since Dilthey) has called attention to the methodological and object-theoretical peculiarity [*Eigenart*] of the area of the *Geisteswissenschaften*.²⁷

In the meantime [since the 19th century], other objects (especially the cultural objects, the biological objects, and the values) have been recognized as independent, even though the equality of their status with that of the physical and the psychological objects is at the moment still debated.²⁸

Carnap agrees with Windelband's assessment that scientific developments in the nineteenth century have shown that historical and cultural subject matters are part of scientific inquiry and, consequently, that these subject matters should also be discussed if one investigates scientific concepts in general. Historical or cultural subject matters have a certain peculiarity [*Eigenart*]. They cannot simply be reduced to the objects of physics or psychology but should be recognized as "autonomous". Carnap has no epistemological motivation for this position. According to him, this is a given historical development of science that came out of the nineteenth century.

In those sections of the *Aufbau* that discuss the constitution of concepts in the *Geisteswissenschaften*, the autonomy and peculiarity of the cultural object spheres are repeatedly taken as a starting point. In Sect. 56 Carnap states that cultural objects "are not composed out of psychological states", rather they belong to a com-

Carnap's constitutional theory of the *Aufbau* is related to a Neokantian philosophical project; see Friedman (2000) and Richardson (1998, pp. 38–39).

²⁷ Carnap (2003 [1928], Sect. 23).

²⁸ Carnap (2003 [1928], Sect. 162).

pletely different object sphere within the constitutional system. This is repeated in Sect. 151: “the cultural objects are of a completely different object level than the psychological or physical”. This implies that propositions containing cultural objects cannot be meaningfully [*mit Sinn*] transformed into propositions containing other kinds of objects (Carnap 1998 [1928], Sect. 23). Thanks to philosophers like Dilthey, Windelband and Rickert, the autonomy and peculiarity of these object levels are now finally recognized. These philosophers have had this particular historical importance. However, according to Carnap, this does not imply that Rickert's peculiar *logical* theory of individualizing concepts should be taken over as well. On the contrary, Carnap believed that Rickert's philosophical worries about concepts that individuate had engendered much of the unnecessary philosophical controversy regarding the *Geisteswissenschaften*. Rickert's philosophical questions about individuating concepts should not be answered but rather dissolved. In the *Aufbau*, and in the remainder of his career, Carnap would consistently deny that a logic specific to the *Geisteswissenschaften* could be given. Contrary to Rickert's or Windelband's explicit belief, there was nothing interesting to say about cultural concepts specifically from a *logical* point of view. At the same time, Carnap also consistently upheld the idea that the cultural sciences should be incorporated in the Unity of Science, and consequently, that their concepts required some level of attention, though only from a *practical* point of view. In the *Aufbau*, however, Carnap remained somewhat ambiguous about this distinction between logical and practical concerns over the *Geisteswissenschaften*.

3.4 Constitution Theory and “Logic of the *Geisteswissenschaften*”

As we have seen above, Carnap agrees with Rickert in Sect. 12 that concepts in the cultural sciences should not logically be analyzed as generic classes [*Gattungsbe-griffe*]. As a reference to a similar position, he points to a specific passage in Hans Freyer's *Theorie des objektiven Geistes*. Freyer was an influential interwar sociologist who was inspired by Dilthey's works. He held positions in Kiel and Leipzig and he became a representative of the right-wing socialist reform and a supporter of the national socialist movement. Carnap personally knew Freyer from the Dilthey school around Herman Nohl in Jena, and he was certainly acquainted with Freyer's work, as his specific reference in Sect. 12 testifies.²⁹ In the paragraph that Carnap refers to, called “Towards a logic of individual unities” [*Zur Logik individueller Einheiten*], Freyer laments the lack of a non-Aristotelian logical understanding of the concepts of the *Geisteswissenschaften*: “In German idealism, romanticism and in contemporary German philosophy one can find many attempts at this new logic,

²⁹Tuboly (2018), Damböck (2012, pp. 75–76, 2017, pp. 181–183).

but the actual Aristotelian act has not ended yet. Its demise is, however, necessary.”³⁰ Such a request for a new logic naturally appealed to Carnap, who was at the forefront of the development of the new symbolic logic himself, and specifically of its application to the analysis of science.³¹

However, this reference to Freyer did not imply that Carnap believed, like Rickert, that a logic should be developed to account for the uniqueness of an object. In Sect. 12 Carnap says that Rickert’s logical problem dissolves once one introduces “the concept of structure as it occurs in the theory of relations” and subsequently he refers to a specific passage in Cassirer’s *Substance and Function* (henceforth *S&F*). In this passage, Cassirer criticizes Rickert’s theory of the concept in the natural sciences.³² It also contains a page-long footnote reflecting on the nature of the purely individual historical concept and the problem of individuality (it is the only passage in *S&F* where Cassirer makes claims about concepts in the cultural sciences):

An essential task of the historical concept is the insertion of the individual into an inclusive systematic connection, such as has constantly established itself more distinctly as the real goal of the scientific construction of concepts. This “insertion” can occur under different points of view and according to different motives; nevertheless it has common logical features, which can be defined and isolated as the essence of “the concept”.³³

Cassirer’s point in this footnote, which Carnap endorses in Sect. 12, is a critique of any strong conceptual differentiation between the natural and the cultural sciences, directed against the proposals of Windelband and Rickert. Cassirer aims to understand concepts in the natural sciences as definite laws of relations that unite the various individuals in a functional relation, and argues that an individual object can only be recognized as an individual if it has a place within the structure of relations.³⁴ Logically, Cassirer believes concepts from the natural and historical sciences are similar, even though there may be different ‘motives’.³⁵ Carnap understands his project in the *Aufbau* as a way to spell out such a unificatory theory of the scientific concept with the aid of the modern logic of relations. For Carnap, this should also include an analysis of concepts of the *Geisteswissenschaften*, but, as we will come to see below, such an analysis entails nothing in particular for the *logical* understanding of cultural concepts.

³⁰Freyer (1923, p. 108).

³¹Damböck (2017, p. 189).

³²This was also noted in Creath (2017, p. 10).

³³Cassirer (2004 [1910], p. 228).

³⁴Cassirer (2004 [1910], p. 225).

³⁵In *S&F* Cassirer never explained what he meant by this. For a thorough discussion of Cassirer’s early criticism of Windelband and Rickert, and the later developments of his views, see Birkeland and Nilsen (2002, pp. 98–118).

3.5 Practical Concerns About the *Geisteswissenschaften*

In the *Aufbau*, a constitutional system constitutes a variety of concepts from a limited set of basic concepts.³⁶ In order to construct this system, Carnap introduces a constitutional theory that should be applicable to any constitutional system. Using this theory, Carnap proposes a specific constitutional system that should be capable of yielding all scientific concepts and that resembles the constitution of the world by a traditional epistemic subject. This system has elementary experiences as basic objects and one basic relation that holds over these objects (recollection of similarity). Carnap does not exclude the possibility of constructing systems that have a different starting point, e.g., with a physical basis,³⁷ or even a cultural basis.³⁸ In the end, the system proposed by Carnap is only of secondary importance. It is mainly intended to capture the potential strength of constitution theory.

From the logical perspective of his constitution theory, Carnap cannot say much about the objects in the cultural sciences, other than that these objects will form object spheres in a constitutional system. However, because the *Aufbau* also initiates an investigation into a possible constitutional system that can incorporate all scientific concepts, Carnap gives an outline of what he takes to be a credible constitution of cultural objects in such a system. Their constitution is not performed in a logical-symbolic form. Carnap is solely concerned with establishing that one can incorporate cultural objects in a constitution system.³⁹ To that end Carnap assumes that he can use the already available psychological and physical objects from lower levels of the constitutional system to constitute the cultural objects. In order to constitute a new object in the system, one has to define which sentences containing the new object can be transformed into sentences containing already-constituted objects with the preservation of the truth value of the sentence. For the transformation of sentences containing cultural objects into propositions containing already-constituted psychological objects, Carnap postulates a relation of manifestation [*Manifestationsbeziehung*]. This is the relation between a cultural object and the psychological process in which the cultural object appears or manifests itself.⁴⁰ Carnap uses the example of greeting (twice) as an illustration for this relation: the cultural custom of taking your hat off when you see someone you know can be constituted using those psychological processes that 'manifest' that custom.⁴¹ Certain psychological dispositions manifest a cultural object, like a custom, while others do not. A relation of manifestation stipulates which dispositions, volitions, etc. manifest the cultural.

Carnap also offers a second route of constitution of the cultural domain, namely the relation of documentation [*Dokumentationsbeziehung*]. This is the relation be-

³⁶Carnap (1998 [1928], Sect. 1).

³⁷Carnap (1998 [1928], Sect. 62).

³⁸Carnap (1998 [1928], Sect. 56).

³⁹Carnap (1998 [1928], Sect. 139).

⁴⁰Carnap (1998 [1928], Sect. 24).

⁴¹Carnap (1998 [1928], Sects. 24 & 150).

tween a cultural object (e.g., an art movement) and its document, an enduring physical object in which the cultural life is petrified (e.g., the physical aspects of a painting).⁴² Documents are the material witnesses [*dingliche Zeugen*] of the cultural. For instance, the documents of an art style can be physical paintings or sculptures.

The central notion of manifestation in Carnap's proposal stemmed from a dominant tradition of thinking about the cultural [*das Geistige*] in nineteenth-century German philosophy. Manifestation is a relation between an expression [*Ausdruck*] and the cultural thing [*ein Geistiges*] that it manifests or expresses. The idea of a document as a bearer of the expression of something cultural originates in Hegel's philosophy of the objective spirit: certain documents are the material patterns of human interaction in which the spirit [*Geist*] objectifies itself. This vocabulary is explicitly taken over by Dilthey in his epistemology of the *Geisteswissenschaften*, but without its Hegelian metaphysical aspects.⁴³ Dilthey describes the objectifications as "manifestations of life" [*Manifestationen des Lebens*]. They are the realizations of the cultural in the empirical world. Every gesture, form of courtesy or work of art is related to a common structure that binds them, namely the cultural structure.

Although later in life Carnap denied that he had ever read anything by Dilthey,⁴⁴ he mentions Dilthey's *Einleitung in die Geisteswissenschaften* in the bibliography of the *Aufbau*. If Carnap did not get the notion of manifestation from Dilthey directly, one might expect he got it from Dilthey-inspired philosophers like Herman Nohl or Hans Freyer, whom he knew personally. Manifestation, however, is not discussed in Freyer's *Theorie des objektiven Geistes*. Whether or not he actually read Dilthey, the first version of the *Aufbau* was written in an intellectual climate in which Dilthey was widely discussed.⁴⁵ Consequently it is not strange that Carnap relies heavily on the Dilthey tradition in his discussion of the constitution of concepts in the *Geisteswissenschaften*.

This influence from Dilthey can also be seen in Carnap's other ideas regarding the constitution of cultural objects. The range of possible cultural objects in the cultural domain of the *Aufbau* is extensive: engineering, economy, law, politics, language, art, science, religion, etc.⁴⁶ In order to cope with the huge amount of possible cultural objects in the proposed constitutional system, Carnap makes a distinction between primary and secondary cultural objects. Whereas the primary objects are constituted through the available physical and psychological object spheres, using only relations of documentation or manifestation, the secondary objects are constructed from primary cultural objects. Carnap links the constitution of the primary and secondary cultural objects to two separate practical programs. On the one hand, the "logic [*Logik*] of the *Geisteswissenschaften*" has to investigate which objects of the different fields can be constituted as primary and which as secondary.

⁴²Carnap (1998 [1928], Sect. 24).

⁴³Dilthey (1927, pp. 148–150).

⁴⁴Gabriel (2004, pp. 16–17).

⁴⁵Damböck (2012, p. 76).

⁴⁶Carnap (1998 [1928], Sect. 151).

On the other hand, 'the *phenomenology* [*Phänomenologie*] of the *Geisteswissenschaften*' has to investigate how and which psychological objects are manifestations of primary cultural objects.⁴⁷

Carnap's use of this terminology appears to suggest a philosophical program of investigation. Dilthey had already argued that the difference between the natural sciences and the *Geisteswissenschaften* should be understood phenomenologically, because each type of science starts from a different kind of experience. While knowledge of nature should be grounded in sense perception, the knowledge of the socio-historical is grounded in lived experience [*Erlebnis*].⁴⁸ A later manifestation of the same idea is present in the second study of Cassirer's *Zur Logik der Kulturwissenschaften*.⁴⁹ In this study, Cassirer argues that the true difference between the two forms of science can only be understood by a phenomenology of perception [*Phänomenologie der Wahrnehmung*], which yields two different branches of perception: *Dingwahrnehmung*, the perception of objects in space and time, that is, the world of things, and *Ausdrucks-wahrnehmung*, the perception of physical objects as expressions of a person.⁵⁰ Constituting the physical as a bearer of expression is exactly what a relation of documentation is supposed to do in Carnap's *Aufbau*. It is important to stress that Cassirer's and Dilthey's specific uses of "phenomenology" is different from Carnap's. In the end, Carnap only refers to a program for a constitution of cultural objects within the boundaries of his constitution theory: Carnap's phenomenology of the *Geisteswissenschaften* merely decides which constituted psychological objects can be used to define the cultural manifestations within the purely formal constitutional system. No philosophical investigation of two strands of perception occurs in this program – as Dilthey and Cassirer would want it. Similarly, Carnap only refers to a logic of the *Geisteswissenschaften* to denote the practical decisions that have to be made by researchers in the field on how to constitute the secondary cultural objects in a formal system. Although Carnap's terminology appears to concur with Dilthey's, he is only philosophically committed to the idea that one could construct cultural objects within a constitutional system. This is a very weak position that entails no logical or epistemological commitments concerning concepts in the *Geisteswissenschaften*.

In several passages of the *Aufbau* the methodology of *Verstehen* is also discussed, which was typically understood at the time as a central method for the *Geisteswissenschaften*. Introduced by Dilthey, *Verstehen* was considered a procedure for understanding the meaning of actions, texts or objects from the past. In the *Aufbau*, Carnap links the procedure to the constitutional definition for the cultural objects.⁵¹ Carnap first mentions the method in Sect. 49 of the *Aufbau*:

⁴⁷ Carnap (1998 [1928], Sect. 150).

⁴⁸ Beiser (2012, p. 328).

⁴⁹ Cassirer (2011 [1942], pp. 37–59).

⁵⁰ Cassirer (2011 [1942], p. 42).

⁵¹ For a more thorough discussion of the position to *Verstehen* by a number of logical empiricists, see Uebel (2010, pp. 291–308).

In many cases, especially in the *Geisteswissenschaften*, when we are concerned, for example, with the stylistic character of a work of art, etc., the indicators [*Kennzeichnungen*] are given either very vaguely or not at all. In such a case the decision as to whether a certain state of affairs obtains is not made on the basis of rational criteria but by empathy. Such empathy decisions are justly considered scientific decisions. The justification for this rests upon the fact that either it is already possible, even though very complicated in the individual case, to produce indicators whose application does not require empathy or else that the task of finding such indicators has been recognized as a scientific task and is considered as solvable in principle.⁵²

The method of empathy (later equated with *Verstehen*, cf. Sect. 55) is scientific because it should always be possible to make the criteria explicit when, for example, the stylistic characters of a work of art are obtained. The indicators [*Kennzeichnungen*] are the constitutional definitions of the cultural objects. These definitions state which physical states or psychological objects document or manifest cultural content. So, while the initial recognition of a painting as an expressionist painting can be based on intuition, one should (in principle) always be able to rationally reconstruct this intuitive recognition. Finding a path for the constitution of the object based on the relation of manifestation or documentation is the discursive aspect of *Verstehen*, e.g., grasping [*Erfassung*] a marble sculpture as an aesthetic art object is not independent from the constitutional definition of that art object.⁵³ The constitutional definition stipulates which physical and psychological objects are manifestations of an art object. The non-intuitive discursive act of *Verstehen* determines which physical and psychological objects manifest aesthetic content. According to Carnap, the implicit intuitive aspect of *Verstehen* always relies on the possibility to make the relationship between a cultural object and its physical or psychological expression explicit.

Within the framework of the *Aufbau*, the method of *Verstehen* is a methodological aspect of what Carnap calls the ‘first’ task of science: the logical construction of a constitutional system. This task has priority in the logical sense: it gives a full logical determination of the objects of scientific investigation within a constitutional system.⁵⁴ The necessity of this logical investigation, however, should in no way keep science from engaging with higher-level objects that have not yet been fully constituted, such as cultural objects, “if at least science does not want to abstain from those important fields which are meaningful for their practical application”.⁵⁵ In real scientific processes, scientists are justified in using a merely intuitive constitution of their object, as long as they also have the task of giving a full logical characterization. Carnap’s call for a phenomenology of the *Geisteswissenschaften* is specifically directed toward this last practical task.

Concerning *Verstehen*, we again see a convergence between Dilthey’s and Carnap’s positions; Carnap uses ideas from Dilthey to articulate possible constitutional

⁵² Carnap (2003 [1928], Sect. 49).

⁵³ Carnap (1998 [1928], Sect. 55).

⁵⁴ Carnap (1998 [1928], Sect. 179).

⁵⁵ Carnap (2003 [1928], Sect. 179).

rules for cultural objects within the boundaries of the constitution theory that he has set out. This articulation, however, is only an indication to researchers in the cultural sciences. It should prove to them that Carnap's constitution theory does not exclude their subject matters from science. Carnap accepts Dilthey's and Windelband's starting point that cultural objects form a valid domain of scientific knowledge. How to actually constitute specific cultural objects, and relate these constructions to one another and to physical or psychological objects, is not answered by Carnap – this is an open question for researchers in the field. Carnap has no philosophical position about these sciences, in particular: manifestation and documentation are merely indications of how one could think about the constitution of cultural objects. Carnap does not state that cultural objects need to be constituted as manifestations or a documentations. Carnap was not philosophically committed to Dilthey's terminology, or its philosophical background. He only produced practical indications of how one could plausibly incorporate cultural objects in a constitutional system.

3.6 Neurath's Criticism of “*Geisteswissenschaften*”

That the relations of manifestation and documentation are merely indications is also revealed in Carnap's discussion of the *Geisteswissenschaften* during the rest of his career. After the publication of the *Aufbau*, Carnap was addressed by Otto Neurath regarding his account of cultural objects in the *Aufbau*. In Carnap's diary entry on the 19th of December 1929, he reports the following:⁵⁶

With Feigl to Neurath. Neurath rants at my discussion of the “*Geisteswissenschaften*” in the *Aufbau*. It is too idealistic for him; he had points of attack: Dilthey was mentioned: “custom”, “state”, “manifestation”. Back in the house at one o'clock.⁵⁷

Neurath was not pleased that Carnap had used the theoretical terminology of Dilthey for his incorporation of the cultural sciences in the constitutional system. Carnap's terminology, like the confusing German word “Geist” and the suspiciously metaphysical term “Manifestation”, could easily be replaced with terminology that stemmed from an empiricist tradition of ideas. Since Carnap had no philosophical constraints on how one could constitute cultural objects, it was easy for him to comply with Neurath's remarks. Carnap completely discarded Dilthey's terminology

⁵⁶In his *Abriss der Logistik*, Carnap is still committed to incorporate the *Geisteswissenschaften* into a constitutional system that can represent the sciences. However, Carnap no longer mentions anything like a logic or phenomenology of the *Geisteswissenschaften*. See Carnap (1929, pp. 88–90).

⁵⁷“Mit Feigl zu Neurath. Neurath schimpft über meine Darstellung der ‚Geisteswissenschaften‘ im ‚Aufbau‘. Ist ihm zu idealistisch; hat Angriffspunkte: Dilthey wird genannt: ‚Sitte‘, ‚Staat‘, ‚Manifestation‘. 1 Uhr zu Hause” (diary entry of December 19, 1929, RC 025-73-03 ASP). I accessed the diaries via the website of Christian Damböck's project “Early Carnap in Context: Three Case Studies and the Diaries”, at https://homepage.univie.ac.at/christian.damboeck/carnap_diaries_2015-2018/index.html. This diary entry was already noted by Thomas Uebel (2007, p. 137).

after the *Aufbau*. In his 1930 paper “Die alte und die neue Logik”, Carnap abandoned the use of the terms “Logik der Geisteswissenschaften” and “Phänomenologie der Geisteswissenschaften” to describe specific tasks within the formation of a constitutional system. Instead, he openly attacks the use of this terminology:

In the implacable judgement of the new logic, “Geisteswissenschaftliche Philosophie” proves itself to be, not just directly false, but actually logically untenable and therefore meaningless.⁵⁸

One year later, in his paper “Die physikalische Sprache als Universalsprache der Wissenschaft”, Carnap aimed to counter any possible philosophical distinction between the natural sciences and the *Geisteswissenschaften* based on a distinction between their objects of study, their methods or their sources of knowledge. The only division between the sciences that Carnap accepts is a practical division of labour.⁵⁹ In the *Aufbau*, Carnap was still inclined to give the task of constituting cultural objects a name of its own, like “phenomenology of the *Geisteswissenschaften*”. This terminological integration, along with the tradition from Dilthey, disappeared thereafter. “Geist”, a word that was featured heavily in the *Aufbau*, was considered dangerous terminology that could not be integrated into the physicalist language:

The sciences mentioned (“Geisteswissenschaft” or “cultural sciences”) often in their present form contain pseudo-concepts [*Scheinbegriffe*], viz. such as have no correct definition, and whose employment is based on no empirical criteria; such words stand in no inferential relation to the protocol language and are therefore formally incorrect. Examples: ‘objective spirit’ [*objektiver Geist*], ‘the meaning of history’ [*Sinn der Geschichte*], etc.⁶⁰

Similarly, *Verstehen* is now (only) understood as a harmful intuitive procedure that is unrelated to the constitution of cultural objects.⁶¹ Instead of Dilthey’s terminology, Carnap uses Neurath’s terminology to incorporate these sciences:

By (empirical) sociology is intended the aggregate of the sciences in these regions in a form free from such metaphysical contaminations. It is clear that Sociology in this form deals only with situations, events, behaviour of individuals or groups (human beings or other animals), action and reaction on environmental events, etc.⁶²

Incorporating sociological or cultural objects into the physicalist conception of science, remains, however, for Carnap an important task in the logic of science.⁶³ In 1938, when Carnap wrote an article in English on the “Logical Unity of Science”, he used the term “social sciences and the so-called humanities”. As in the *Aufbau*, he maintained that concepts in these sciences could be constituted out of already constituted concepts in a given language system, but Carnap refrained from incor-

⁵⁸ “‘Geisteswissenschaftliche Philosophie’ erweist sich vor dem unerbittlichen Urteil der neuen Logik nicht etwa nur als inhaltlich falsch, sondern als logisch unhaltbar, daher sinnlos” (Carnap 1930, p. 13).

⁵⁹ Carnap (1931, p. 432).

⁶⁰ Carnap (2011 [1931], pp. 72–73).

⁶¹ Carnap (1931, p. 434).

⁶² Carnap (2011 [1931], p. 73).

⁶³ Carnap (1934a, p. 17, 1934b, p. 253).

porating any terminology that could be linked to the German historical philosophy from Dilthey, Windelband or Rickert.⁶⁴ Ten years after the publication of the *Aufbau*, nothing remained of Carnap's incorporation of terminology from Dilthey, Rickert or Windelband. He would never again talk about overcoming the problem of individuality through relational logic, defending the autonomy of the *Geisteswissenschaften*, incorporating the method of *Verstehen* or a phenomenology of the *Geisteswissenschaften* into constitutional theory. Nonetheless, Carnap maintained that contemporary concepts in the social sciences could be incorporated into a physicalist language in some form or another. Whatever form this might be, it could only be determined by the researchers themselves, not by philosophers.

Thus, throughout his career, Carnap upheld the historical insight which he had ascribed to Dilthey, Windelband and Rickert in the *Aufbau*: Social, historical and cultural objects are valid subject matters of the sciences. This motivates Carnap's consistent incorporation of the "*Geisteswissenschaften*" and later "the social sciences" into the program of the Unity of Science: determining how social terms/concepts can be defined in a proper language system always remained part of that program. One aspect of Windelband's challenge, how to account for the *Geisteswissenschaften* as sciences, is consistently taken over by Carnap. However, unlike most earlier German attempts to answer Windelband's challenge, Carnap denied that there is anything philosophically interesting to say regarding these sciences. This makes his position interesting in comparison to those of his contemporaries: according to Carnap, the concepts of the *Geisteswissenschaften* are, from a logical point of view, similar to those in any other science. One only needs to incorporate these concepts on a practical level within a constitutional system or what Carnap would later call a properly defined language system, for which the logicians determine the rules. Carnap always took the possibility of such an incorporation of cultural concepts for granted, and he left the practical execution to specialists in the relevant fields. This assumption is not self-evident. Possibly a proper engagement with conceptual problems in historiography and sociology could have shown Carnap that his assumption was untenable, but Carnap decided to leave such a proper engagement to people who were more familiar with the relevant social and historical fields, like Otto Neurath.

3.7 Conclusion

In the writings of Rudolf Carnap there is little of interest for scholars who want to know what makes the humanities, as domains of knowledge, different from the natural sciences, or why one should value them in particular. Unlike Dilthey, Windelband or Rickert, one cannot read Carnap to illuminate these questions. One can, however, read Carnap to dissolve the philosophical puzzles that Dilthey, Windel-

⁶⁴Carnap (1991, p. 402).

band and Rickert bequeathed to us. Carnap is not sceptical about the possibility of ascertaining knowledge about the cultural world, or its past. In the *Aufbau* and in his later writings Carnap consistently conceives the humanities and the social sciences as domains of knowledge that are equal to the natural sciences. However, Carnap is sceptical about the philosophical questions that one can pose about the humanities: (epistemo)logically, there is no distinction which one can make between the humanities and the natural sciences. Although Carnap in the *Aufbau* integrates some terminology from Dilthey, Windelband and Rickert, he never accepted their philosophical questions about the humanities as legitimate. In his later writings, following Otto Neurath, he openly distanced himself from terminology that could be associated with such questions, and he never again spoke in a programmatic fashion about cultural concepts, like he had done in the *Aufbau*. Just like Zilsel, Carnap eventually decided to avoid both a philosophical and a programmatic attitude towards the humanities. Both attitudes are still common today: what distinguishes the humanities from the natural sciences and why we should value this different domain of knowledge remains a concern in the twenty-first century. Here, Carnap's position can serve as an inspiration for asking if these are the right questions to pose about the humanities.

References

- Beiser, F.C. 2012. *The German historicist tradition*. Oxford: Oxford University Press.
- Birkeland, A., and H. Nilsen. 2002. Thinking in forms: Ernst Cassirer and his critique of the idio-graphic–nomothetic distinction. In *Forms of knowledge and sensibility: Ernst Cassirer and the human sciences*, ed. G. Foss and E. Kasa, 98–118. Kristiansand: Norwegian Academic Press.
- Carnap, R. 1929. *Abriß der Logistik*. Vienna: Springer.
- . 1930. Die alte und die neue Logik. *Erkenntnis* 1:12–26.
- . 1931. Die physikalische Sprache als Universalsprache der Wissenschaft. *Erkenntnis* 2: 432–465.
- . 1934a. *Die Aufgabe der Wissenschaftslogik*. Vienna: Gerold & Co.
- . 1934b. *Logische Syntax der Sprache*. Vienna: Julius Springer.
- . 1991 [1938]. Logical foundations of the unity of science. In *The philosophy of science*, ed. R. Boyd, P. Gasper, and J.D. Trout, 393–404. Cambridge MA/London: MIT Press.
- . 1998 [1928]. *Der logische Aufbau der Welt*. Hamburg: Felix Meiner.
- . 2003 [1928]. *The logical structure of the world and Pseudoproblems in philosophy*. Trans. R.A. George. Chicago: Open Court.
- . 2011 [1931]. *The unity of science*. London: Routledge.
- Cassirer, E. 2004 [1910]. *Substance and function and Einstein's theory of relativity*. Mineola: Dover.
- . 2011 [1942]. *Zur Logik der Kulturwissenschaften: Fünf Studien*. Hamburg: Meiner.
- Creath, R. 2017. Metaphysics and the unity of science: Two hundred years of controversy. In *Integrated history and philosophy of science: Problems, perspectives, and case studies*, ed. F. Stadler, 3–15. Cham: Springer.
- Damböck, C. 2012. Rudolf Carnap and Wilhelm Dilthey: “German” empiricism in the *Aufbau*. In *Rudolf Carnap and the legacy of logical empiricism*, ed. R. Creath, 67–88. Dordrecht: Springer.
- . 2017. *(Deutscher Empirismus:) Studien zur Philosophie im deutschsprachigen Raum 1830–1930*. Dordrecht: Springer.

- Dewulf, F. 2020. The place of historiography in the network of logical empiricism. *Intellectual History Review* 30:321.
- Dilthey, W. 1927. *Der Aufbau der geschichtlichen Welt in den Geisteswissenschaften*, Wilhelm Diltheys gesammelte Schriften. Vol. 7. Leipzig: B. G. Teubner.
- Freyer, H. 1923. *Theorie des objektiven Geistes*. Leipzig/Berlin: B. G. Teubner.
- Friedman, M. 2000. *A parting of the ways: Carnap, Cassirer, and Heidegger*. Chicago: Open Court.
- Gabriel, G. 2004. Introduction: Carnap brought home. In *Carnap brought home: The view from Jena*, ed. S. Awodey and C. Klein, 3–23. Chicago/LaSalle: Open Court.
- Hegselmann, R., and G. Siegart. 1991. Zur Geschichte der "Erkenntnis". *Erkenntnis* 35: 461–471.
- Horkheimer, M. 1937. Der neueste Angriff auf die Metaphysik. *Z Sozialforsch* 6:4–53.
- Iggers, G. 1983. *The German conception of history: The national tradition of historical thought from Herder to the present*. Middletown: Wesleyan University Press.
- Ikonen, S. 2011. Cassirer's critique of culture. *Synthese* 179(1):187–202.
- Mormann, T. 2012. A virtual debate in exile: Cassirer and the Vienna Circle after 1933. In *Rudolf Carnap and the legacy of logical empiricism*, ed. R. Creath, 149–167. Dordrecht: Springer.
- Neurath, O. 1931. *Empirische Soziologie*. Vienna: Springer.
- Reichenbach, H. 1930. Zur Einführung. *Erkenntnis* 1:1–3.
- Richardson, A.W. 1998. *Carnap's construction of the world: The Aufbau and the emergence of logical empiricism*. Cambridge: Cambridge University Press.
- Rickert, H. 1929. *Die Grenzen der naturwissenschaftlichen Begriffsbildung: Eine logische Einleitung in die historischen Wissenschaften*. Tübingen: J. C. B. Mohr (Paul Siebeck).
- Schlick, M. 1934. Philosophie und Naturwissenschaft. *Erkenntnis* 4:379–396.
- Stadler, F. 2015. *The Vienna circle: Studies in the origins, development, and influence of logical empiricism*. Dordrecht: Springer.
- Taylor, C. 1971. Interpretation and the sciences of man. *The Review of Metaphysics* 25(1): 3–51.
- Tuboly, A. 2018. The constitution of *geistige Gegenstände* in Carnap's *Aufbau* and the importance of Hans Freyer. In *Logischer Empirismus und die deutsche Jugendbewegung*, ed. C. Damböck, G. Sandner, and M. Werner. Dordrecht: Springer.
- Uebel, T. 2007. *Empiricism at the crossroads: The Vienna Circle's protocol-sentence debate*. Chicago: Open Court.
- . 2010. Opposition to *Verstehen* in orthodox logical empiricism. In *Historical perspectives on Erklären and Verstehen*, ed. U. Feest, 291–308. Dordrecht: Springer.
- Windelband, W. 1904. Nach hundert Jahren. *Kant-Stud* 9(1–3): 5–20.

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