



Display for pictorial statistics panels on standardized stands by Josef Frank, traveling exhibition of the Gesellschafts- und Wirtschaftsmuseum, Vienna, 1927

## The Guest Speakers of the Vienna Circle: Rudolph Carnap, Herbert Feigl, Otto Neurath, Hans Reichenbach

Peter Galison

On October 15, 1929, Rudolf Carnap, a leading member of the recently founded Vienna Circle, came to lecture at the Bauhaus in Dessau, southwest of Berlin. Carnap had just finished his magnum opus, *The Logical Construction of the World*, a book that immediately became the bible of the new antiphilosophy announced by the logical positivists. It was [at the Bauhaus] that Carnap addressed an enthusiastic audience on “Science and Life.” “I work in science,” he began, “and you in visible forms; the two are only different sides of a single life.”<sup>1</sup>

Though on opposite political poles of the Vienna Circle, the philosophers Otto Neurath and Ludwig Wittgenstein each spent years pursuing architectural concerns. Throughout their writings Carnap, Neurath, and others singled out modern architecture as the cultural movement with which they most identified; their interests were reciprocated as the logical positivists were more prominent as visitors to the Dessau Bauhaus than members of any other single group outside art and architecture. Further, the two movements faced the same enemies—the religious right, nationalist, anthroposophist, *völkisch*, and Nazi opponents—and this drove them even closer together, toward the conjoint life they had in mind. Both enterprises sought to instantiate a modernism emphasizing what I will call “transparent construction,” a manifest building up from

simple elements to all higher forms that would, by virtue of the systematic constructional program itself, guarantee the exclusion of the decorative, mystical, or metaphysical. There was a political dimension to this form of construction: by basing it on simple, accessible units, they hoped to banish incorporation of nationalist or historical features.

From simple observation reports ("protocol statements") and logical connectives (such as "if/then," "or," "and"), the logical positivists sought to ground a "scientific," antiphilosophical philosophy that would set all reliable knowledge on strong foundations and isolate it from the unreliable. Since all valid inferences would be built out of these basic statements, the sciences would be unified by their shared starting points. In the place of traditional philosophy the Circle wanted to erect a unified structure of science in which all knowledge—from quantum mechanics to Marxist sociology and Freudian psychology—would be built up from logical strings of basic experiential propositions.

For their part, the *Bauhäusler* hoped to use scientific principles to combine primitive color relations and basic geometrical forms to eliminate the decorative and create a new antiaesthetic aesthetic that would prize functionality. [In] the late 1920s and early 1930s ... the connecting links between art and philosophy were real, not metaphorical, [so that] the modernism of the Bauhaus and the Vienna Circle self-consciously reinforced each other, and in so doing began to articulate a common vision of what both called a modern "form of life."

#### Aufbau and Bauhaus

Neurath and Carnap together forged many of the Vienna Circle's most self-consciously modern texts. During the revolution Neurath clearly allied himself with the workers' cause, but always in his capacity as a neutral, scientific expert. Even when reporting to the Munich Workers' Council in January 1919, Neurath introduced his summary by reminding the audience that the considerations he would discuss regarding social configurations, shelter, food, clothing, and working time were "unpolitical." Elsewhere that same year he described the social engineer as the direct analogue of the mechanical engineer: both transformed the world through scientific work, through the systematic analysis of modern statistics. Evidently his stance of neutral engineering appealed to those in charge, for shortly after Kurt Eisner (minister-president of the Bavarian revolutionary government) was killed in February 1919, Neurath was asked to be president of the central planning office for Bavaria. "I accepted," he recounted a few months later, "stressing that I wished to be an unpolitical administrator."<sup>2</sup>

Neurath's scientism—his faith in the neutral, binding threads of statistics, physics, and logic—was key to the consolidation of the Verein Ernst Mach. But even as the Verein was in its infancy, Neurath continued his "unpolitical" technical social work and revealed a deep interest in workers' housing, art, and architecture. For Neurath, mass accommodation had several important political functions: it met the immediate material needs of the workers; it encouraged a collective form of life; and it served to build, sector by sector, Neurath's ultimate goal of full socialization of the economy. By the early 1920s Neurath had become a central figure in the housing movements in and around Vienna, drawing him into the circle of politically engaged modern artists and architects. To Franz Roh, an art critic and close friend, Neurath wrote in 1924 ...; Gropius himself had just spoken in Vienna, leaving Neurath dissatisfied. But while he complained that Gropius had failed to bring sufficiently new ideas to Vienna, Neurath nonetheless told Roh of his outrage at attempts to abolish the Bauhaus on political grounds.<sup>3</sup>

With the move to Dessau and pressure from various sides, including the spartan geometrists of the De Stijl, the *Bauhäusler* began a profound shift away from the mystical and toward the streamlined and industrial. Nothing pleased Neurath more than this new, scientific turn. Insofar as the Bauhaus followed a technical, socially driven agenda, Neurath believed, it would serve the great revolution associated with the new form of societal and personal life (*Neugestaltung des gesellschaftlichen und persönlichen Lebens*). Since he believed that "artists were leading the battle for a spiritual liberation from the past," the Bauhaus's cultural role could not have been greater.<sup>4</sup> In his 1928 book *Lebensgestaltung und Klassenkampf* (*Form of Life and Class Struggle*), ... the philosopher insisted that it was the architect "more than any other creative person" who could anticipate and so shape the future form of life (*Lebensform*).<sup>5</sup> Since rationality and scientificity were to characterize the revolutionary proletariat orientation, the architecture of modernity demanded rationality and functionalism. Modern architecture, Neurath believed, could both reflect and shape "the spirit of modern times." Again and again, he argued that "significant movements of the age" striving to shake loose of the past would ignore the example of the Bauhaus only at their peril.<sup>6</sup>

The notion that technical innovation could alter the form of life lay deep in the political ideology of left-liberal modernism, especially in architecture.

Indeed, the claims for a reformation of life based on modern principles of science became a common slogan of the left-leaning architects in post-World War I Germany—and an irritant to those on the right, who were determined to preserve a *völkisch* life form, imbued with history, nationalism, and racial identity. Gropius himself began to speak with growing conviction about the science of art as well as architecture. Most important,

Gropius created a new architecture department under the direction of Hannes Meyer, who, while continuing the scientific orientation of the earlier Dessau Bauhaus, to the dismay of some of his colleagues, put his materialism up front.

Building is not an aesthetic process. ... Architecture which 'continues a tradition' is historicist ... the new house is ... a product of industry and as such is the work of specialists: economists, statisticians, hygienicists, climatologists, experts in ... norms, heating techniques ... the architect? He was an artist and is becoming a specialist in organization ... building is only organization: social, technical, economic, mental organization.<sup>7</sup>

Here was a man after Neurath's own heart; at last there was a powerful *Bauhäusler* who put engineering before aesthetics. Instead of the backward-looking "historical" buildings, Meyer wanted the standardized, worker-oriented housing project.

In January 1928 Gropius quit, and despite the resignation of Moholy-Nagy and the resistance of others, Meyer took over and led architecture to center stage. One of his first moves was to invite guest lecturers in sociology, physics, and philosophy to the Bauhaus to set the tone of scientific progressivism. Meyer's fascination with the scientific and the technical led him to invite Herbert Feigl, a founding member of the Vienna Circle, to the Bauhaus as the official representative of what the Circle called their "new scientific world conception." Feigl spent a week (July 3-10, 1929) lecturing and getting to know Wassily Kandinsky, Paul Klee, and others. Apparently his visit was a smashing success, as a few weeks later Carnap wrote to Neurath: "just received a very friendly letter from Hannes Meyer. I'm to come for a week to lecture at the Bauhaus on the scientific world conception. Feigl's efforts seem not yet to have sated them, rather only to have agreeably whetted their appetite. In principle I've said I'll go."<sup>8</sup> Meanwhile the Bauhaus asked Reichenbach to come lecture at Dessau; Reichenbach was the chief Berlin ally of the Vienna Circle. Neurath himself was invited to lecture at the Bauhaus at the end of May 1929 and again in 1930.

For Carnap, Feigl, and Neurath, the timing of their Bauhaus excursions was perfect; they came at just that moment when the logical positivists were doing everything they could to bring their efforts into public view. During the spring of 1929 they printed a flyer soliciting membership in their Verein Ernst Mach:

"To all friends of the Scientific World View!"

We live in a critical spiritual [*geistigen*] situation! Metaphysical and theological thought is taking hold in certain groups; astrology,

anthroposophy and similar movements are spreading. On the other side: ever more conscious efforts for a scientific world view, logical-mathematical and empirical thought.

The Verein's project was grandly ambitious as it sought (in words by then standard among the radical architects) to use the methods of "modern empiricism" to reform not only public but also private forms of life [*Lebensgestaltungen*]. In the logical positivists' attempt to create a new form of life that necessarily extended beyond one's specialty, the positivists were in full accord with the *Bauhäusler*. Given Neurath's involvement with the Bauhaus controversy and his stated admiration for the architects' leading role in cultural reform, it is perhaps understandable that the Verein's statement of purpose affiliated the logical positivist movement "with wide circles who have trust in the scientific world conception." All were invited to join.

The first project announced for this new widened public of the Verein was a series of lectures to include mathematics, astronomy, sociology of science, modern architecture, and (of course) arguments against metaphysics. Of particular interest to us is that the very first talk, on April 19, 1929, was given by the Austrian architect Josef Frank, the brother of Philipp Frank of the Vienna Circle. His presentation was entitled "Modern World Conception and Modern Architecture."

If Frank was at the center of the new architecture, he was not far from the vortex of the new scientific philosophy. For several years he designed architecture for Neurath's museum for picture statistics, a place where facts about the material conditions of the different classes could be presented in clear displays of billboards and graphs. It was a project that Neurath had held to be absolutely essential as a means of educating the masses; by its reliance on images rather than language, the picture museum would bridge the gap between nationalities. Neurath never lost faith that "just through its neutrality, and its independence of separate languages, visual education is superior to word education. *Words divide, pictures unite.*" As with his commitment to the simplified universal jargon of "Basic English," his focus on the protocol sentences, and his apolitical politics, Neurath's pictures were intended as clear, universal building blocks on which all else could be built. Its international character, its constructivist dimension, and its visual simplicity all would have been appealing to the *Bauhäusler* when Neurath presented his work in 1929. Out of simple pictorial elements such as a machine, a worker, or coal, one could construct standardized representations of the distribution of industry, housing, and other aspects of material life. The ISOTYPE system (as it was called) was essentially a linguistic and pictorial form of transparent construction.



## The Architecture of the Aufbau

For Carnap, by 1929, architecture would have stood out as an exemplar of modern culture. The new building style would have been a subject of concern not only in his meetings with Wittgenstein but in his conversations with Neurath and in the Verein's own 1929 lecture series, in which Carnap took part. That series began with Josef Frank's discussion linking the modern worldview with modern architecture. Carnap's contribution was "Pseudo Problems of Philosophy: God and the Soul."

In its final form, the group's *Wissenschaftliche Weltauffassung* resembled far more the polemical manifestos of art, architecture, and politics than the staid volumes of philosophy. Even the style of writing, with its declamations and call to action, paralleled the daring pronouncements of the Italian futurists or the Russian constructivists far more than the dense philosophical works of the British Hegelians or the German neo-Kantians. Its stated ambition was grand: "The Vienna Circle does not confine itself to collective work as a closed group. It is also trying to make contact with the living movements of the present, so far as they are well disposed toward the scientific world-conception and turn away from metaphysics and theology."<sup>9</sup>

According to the manifesto, all was to be grounded on the simplest elements of observation and then built up from them: "First [the scientific world-conception] is *empiricist and positivist*: there is knowledge only from experience, which rests on what is immediately given. This sets the limits for the content of legitimate science. *Second*, the scientific world-conception is marked by application of a certain method, namely *logical analysis*." Through this analysis the goal is to reach a unified science by "constituting" all scientific theories out of the elementary bits of perception. From the elementary aspects of the individual psyche it would rise to "a layer above" containing physical objects; these would then "constitute" other minds, and finally the objects of social science. With this building-up method, the constructional form [*Aufbauform*] of unified science would become clear.<sup>10</sup>

The commitment to "removing the metaphysical and theological debris of millennia" was a distinctly modernist, and political, endeavor. As the *Bauhäusler* did on every possible occasion, Neurath, Carnap, and the others used the manifesto to tie their mission to the image of industrial machinery, to the "modern process of production, which is becoming ever more rigorously mechanised and leaves ever less room for metaphysical ideas." The modernism both groups had in mind would not stop at the traditional boundaries of science or art; they would reform fundamental aspects of daily life. Again the Vienna Circle manifesto: "We witness the spirit of the

scientific world-conception penetrating in growing measure the forms of personal and public life, in education, upbringing, architecture, and the shaping of economic and social life according to rational principles."<sup>11</sup>

Not surprisingly, since Carnap helped to draft it, the goals set out by the *Wissenschaftliche Weltauffassung* were closely tied to the goals of his just-completed masterwork, *Der Logische Aufbau der Welt*.<sup>12</sup>

Indeed, Carnap was enormously impressed with Bertrand Russell's foundational view of objects as a logical construction of simple sense perceptions. As the epigram for the *Aufbau*, Carnap quoted (in English) from Russell's 1914 book, *Our Knowledge of the External World*: "The supreme maxim in scientific philosophizing is this: Wherever possible, logical constructions are to be substituted for inferred entities."

In the *Aufbau*, Carnap tried to realize the constructional program announced in the *Wissenschaftliche Weltauffassung* and promised in the margins of Russell's *Our Knowledge of the External World*:

Unlike other conceptual systems, a constructional system undertakes more than the division of concepts into various kinds ... it attempts a step-by-step derivation or "construction" of all concepts from certain fundamental concepts, so that a genealogy of concepts results in which each one has its definite place. It is the main thesis of construction theory that all concepts can in this way be derived from a few fundamental concepts, and it is in this respect that it differs from most other ontologies.<sup>13</sup>

Even Carnap's imagery is strongly architectural: the system has its *Grundbegriff*, *Grundgegenstand*, *Grundelemente*, *Grundwissenschaft*, and all the levels that build on them. Indeed, in summing up the task facing the scientific philosopher, Carnap insists that it is "no longer the task of the individual to erect the whole structure [*Gebäude*] of philosophy in one bold stroke." Elsewhere he adds that the philosopher's task is one of a "long, planned construction [*Aufbau*] of knowledge upon knowledge"; "a careful stone-by-stone erection of a sturdy edifice [*Bau*] upon which future generations can build."<sup>14</sup>

It may be possible to interpret some of the above remarks as metaphorical, as such foundationalism was a long-standing theme in German philosophy. But in the preface to the *Aufbau*, Carnap makes the link to architecture literal and relaxes his otherwise technically encumbered language:

We do not deceive ourselves about the fact that movements in metaphysical philosophy and religion which are critical of such [a scientific] orientation have again become very influential of late. Whence

then our confidence that our call for clarity, for a science that is free from metaphysics, will be heard? It stems from the knowledge or, to put it somewhat more carefully, from the belief that these opposing powers belong to the past. We feel that there is an inner kinship between the attitude on which our philosophical work is founded and the intellectual attitude which presently manifests itself in entirely different walks of life; we feel this orientation in artistic movements, especially in architecture, and in movements which strive for a meaningful form of human life [*Gestaltung des menschlichen Lebens*], of personal and collective life, of education, and of external organization in general. We feel all around us the same basic orientation, the same style of thinking and doing. ... Our work is carried on by the faith that the future belongs to this attitude.<sup>15</sup>

Again, Carnap is after more than a contribution to philosophy; he is trying to participate in the creation of a "form of life" of which the *Aufbau*, the scientific world-conception, and modern architecture are all a part.

#### Carnap in Dessau

Carnap arrived in Dessau on Tuesday, October 15, 1929 and was plunged immediately into a discussion about whether one should pursue only the aesthetic properties of materials. For the *Bauhäusler* this was a pressing issue, and the split between the "functional" and the aesthetic divided the faculty. Meyer led the charge against the aesthetic because it was metaphysical, that is, it included purely compositional content over and above what was technically demanded. After lecturing on "Science and Life," Carnap met with Ludwig Hilberseimer, Meyer's crucial appointment to the architectural department. Hilberseimer and his colleagues insisted that not only the artists' theories but also their objects (such as the Bauhaus lamps) still contained metaphysics, and that these needed to be purged.<sup>16</sup> In fact, the Bauhaus lamps provide an exemplary illustration of the tensions between conflicting impulses within the movement.

By the time of Carnap's visit in 1929, this conflict between artisanal reality and industrial aspirations had evidently broken to the surface, for it is the residual craft component that Hilberseimer derided as "metaphysical." By coordinating their causes and language, Hilberseimer and Carnap located a common foe in the ornamental and nonfunctional, be it in decorative art or metaphysical philosophy. On Wednesday, October 16, Carnap gave his lecture "The Logical Construction of the World," beginning with the logical positivists' rallying cry: "There is only one Science

('Unified Science'), not separate subjects. ... for all knowledge stems from one source of knowledge: experience—the unmediated content of experience such as red, hard, toothache, and joy. These make up the 'given.'" In summary, he deduced four theses: (1) there are no things outside of the experiential—no realism about things; (2) there are no forces over and beyond relative motions—no metaphysics of force; (3) there is no psychology of the other that is not grounded in an individual's own experience—no psychorealism; (4) there are no social objects such as the state or the *Volk*. On this last point—and this would have been well received by Meyer's faction of the Dessau Bauhaus—he insisted that the Marxist conception of history was allowable because it was based on the empirically determinable.

[I]n 1929 Carnap's four theses bore a manifest coherence in their opposition to powerful right-wing forces that sought to unify these ideas of *Volk*, metaphysics, the state, and God. The journal of the German Philosophical Society, *Blätter für Deutsche Philosophie*, is replete with examples. Consider, for example, the volume for 1929/30, which included lead articles such as "Volk as the Bearer of Education," "The Historical-Metaphysical Sense of Germanity [*Deutschtums*] and Its Surrounding World," and favorable book reviews of *The Logic of the Soul*, *The Doctrine of the State as Organism*, and *Godliness in the Character of the "Volk."*<sup>17</sup> The avowedly politicized, religious, and nationalistic character of such polemics helped bind together, by their opposition, the left-wing modernists of the Vienna Circle and the Dessau Bauhaus. Both were committed to a rationalism, secularism, and internationalism that they hoped to secure by a logical and empirical construction. In the days that followed, Carnap lectured on the four-dimensional world and on the misuses of language. Following his main interest—the elimination of all that did not flow from the simple unifying elements of experience—Carnap argued in one discussion that the *Bauhäusler* still had not rid themselves of metaphysics in their theoretical work. His example was that the proposition "black or white is heavy" could not be interpreted directly; its only significance came through psychological association.<sup>18</sup>

On Sunday, Alfred Arndt took Carnap to the Bauhaus exhibition, where the philosopher was particularly impressed by the fundamental researches of the preliminary course: geometrical surface theory and forms made out of paper and wire screens. Carnap's fascination with these ethereal geometrical forms was perfectly understandable: ever since his doctoral dissertation in Jena on "Space,"<sup>19</sup> he had pursued his interest in geometry; moreover, the subject of geometry, as axiomatized and revived by the mathematician David Hilbert, provided a model for the construction process he had in mind for all of philosophy. At the preliminary course exhibition, Carnap met Kandinsky for the first time.

Not only would Carnap have found the subject matter of these geometrical explorations interesting, but the sentiment would surely have been returned. Carnap's thesis on space and his *Aufbau* were cited, for example, when the *Bauhäusler* wrote on space.<sup>20</sup> Carnap and Kandinsky shared the basic faith in a building up from the elementary. In the book that grew out of his preliminary course, Kandinsky called his artistic goal "practical" science.<sup>21</sup>

The analysis into parts and reconstruction from geometry and color directly paralleled the project of Carnap's *Aufbau*. In the place of color and geometry, Carnap and his Vienna Circle had protocol sentences (expressing primitive sense experiences) and combinations of these protocol sentences using logic. Carnap's *Stufenform* (ascension forms) built up the complexities of all scientific terms out of these elements just the way Kandinsky's elementary geometrical forms made up the human figure. In both Bauhaus and *Aufbau*, construction from the intelligible simples eliminated the metaphysics of the unnecessary, the merely decorative. Despite Kandinsky's attempt to make a "practical" science of color and form, he and others often referred to the "temperature" or the "weight" of particular colors. Obviously offended by the "metaphysical" quality of such utterances, Carnap insisted that such propositions could only properly be understood as psychological. Joost Schmidt, one of the most versatile sculptors and painters at the Dessau Bauhaus, gave such a view a sympathetic hearing. But though Schmidt "was clear" on these issues, Carnap recorded his impatience to see Meyer himself. On Monday, October 21, Meyer returned, and he and Carnap met. To Carnap he commented that, in the old Bauhaus of Gropius, one found the expression of an individual-sentimental attitude.<sup>22</sup> Instead of sentiment, historicity, or nationality, the basic elements of housing design were to be fixed empirically.

As Meyer insisted, the logical-empirical construction was inseparably associated with its internationality: "this constructive world of forms [*konstruktive Formenwelt*] knows no native country. it is the expression of an international attitude in architecture."<sup>23</sup> Meyer sought to render architecture in the neutral and universal idiom of engineering; Carnap pursued the analogous goal for philosophy.

In the months that followed, Neurath came back to deliver two more lectures at the Bauhaus, and Philipp Frank offered a series of three presentations on the impact of modern physics on ideas of space and time.

## Conclusion: The Construction of Modernism

[T]he modernist construction of form out of elemental geometric shapes and colors is a correlate of the verbal development of theories out of logic and elementary bits of perception. Both artist and philosopher fastened on the simple and the functional; both sought to unify disparate domains through a common foundation. But what linked logical positivism and the Bauhaus went beyond mere structural parallels. The two movements drew on a common set of scientific and machine-centered images; both called for their domains to be brought into accord with "modern methods of production." They were bound together through personal and familial relations, through Feigl's, Philipp Frank's, Reichenbach's, Carnap's, and Neurath's visits to the Dessau Bauhaus, through Josef Frank's collaboration with Neurath and his contribution to the Circle's lecture series, and through a complex process of mutual legitimation: the Vienna Circle bestowed an aura of scientificity on the Bauhaus and the Bauhaus conferred an image of progressivism and postwar reform on the Vienna Circle. [L]ogical positivism was in the form of life espoused by the Bauhaus, and the Bauhaus rationalization of the objects around us played a part in the form of life advocated by the logical positivists. Both were attempts to interiorize an image of the machine world they saw on the outside, one through language, logic, and thought, the other through color, geometry, and architecture. Personal and collective forms of life would be reformed by the same means.

This process of interiorization took many forms, but above all the *Bauhäusler* and Vienna positivists of the late 1920s espoused a neutral stance modeled on their image of technology. Theirs was to be an *apolitical politics* (even when it was Marxist) predicated on organization, planning, and analysis. Here was ground on which Neurath could find common cause with the leaders of the Dessau Bauhaus. Similarly, Meyer and many of his colleagues pressed for an *unaesthetic aesthetics*, a move away from the decorative, historical, spiritual, or nationalistic toward the world of knowledge predicated only on a scientific orientation. Finally, the logical positivists urged a doctrine of an *unphilosophical philosophy*, a conception of the world of knowledge that would be predicated only on science. This triad of philosophy, politics, and aesthetics was grounded in a building up from clear, technical, first principles. Together these elements were supposed to form a joint enterprise; they were to be moments of the same drive toward a "modern" way of life, freed from ideology and grounded on a vision of the machine age, if not its reality.

If the left wings of the Dessau Bauhaus and the Vienna Circle made common cause in their espousal of a certain image of the machine and

modernity, it does not mean that any commitment to machines and things technical was leftist, nor does it follow that the right-wing opposition was necessarily against technology. Quite the contrary. As Jeffrey Herf has argued eloquently in *Reactionary Modernism*, there were all manner of technology-embracing philosophies that glorified new means of transport, killing, and communication while denying reason an essential role in the conduct of individuals and society. What distinguished Carnap, Neurath, Meyer, Schmidt, and the other figures discussed here from right-wing technologists is the cultural significance they accorded technology. For the right, technology was part of a glorification of work, power, and domination. As one writer put it, technology was defined as the “mobilization of the world through the *Gestalt* of the worker,” where “in the *Gestalt* lies the whole, which encompasses more than the sum of its parts.” This whole meant that the symbols of technology—the hydroelectric dam, tanks, motorcycles—were to be considered as an inseparable part of a new authoritarian world order in which the technical was inseparable from the intentions and desires of the worker-soldier.<sup>24</sup> Though right and left shared a picture of modernity embodied in technology, nothing could be further from a transparent Bauhaus lamp or the quasi-axiomatic image of philosophy that Carnap presented in his *Aufbau*, in which every action had its visible purpose and function. Technology, like modernism more generally, was coveted ideological ground.

Looking back at this modernist ambition from the present, a time in which modernism is being reexamined, we can no longer take for granted claims of neutrality. It is clear that many of the Bauhaus products were infused with a style that was not only independent of pure function but often impeded function. Similarly, with each passing year in the late 1930s, the belief that a purely technical approach to social problems could avoid politics also began to falter. As fascists, communists, and Christian Democrats fought it out in the 1930s, there was no demilitarized zone left for social, artistic, or philosophical neutrality.

This article is an excerpt of Peter Galison, “Aufbau/Bauhaus: Logical Positivism and Architectural Modernism,” *Critical Inquiry* 16, no. 4 (1990): pp. 709–52.

1  
 Rudolf Carnap, lecture notes for his Bauhaus lecture, “Wissenschaft und Leben,” prepared Oct. 1, 1929 and delivered Oct. 15, 1929, transcription from shorthand by Gerald Heverly, Carnap Papers in the Archives of Scientific Philosophy, University of Pittsburgh Libraries, University of Pittsburgh (hereafter abbreviated CP, PASP), document RC 110-07-49. Quoted by permission of the University of Pittsburgh. All rights reserved. Translations are my own unless otherwise noted.

2  
 Neurath, *Empiricism and Sociology*, trans. Paul Foulkes and Marie Neurath, ed. Marie Neurath and Robert S. Cohen (Dordrecht and Boston, 1973), pp. 151–52; hereafter abbreviated *ES*.

3  
 Neurath to Franz Roh, n.d. [probably 1924], *Correspondence and Miscellaneous Papers of Franz Roh*, Archives of the History of Art, Getty Center for the History of Art and the Humanities, Los Angeles; hereafter designated as Roh Collection.

4  
 Neurath, “Das Neue Bauhaus in Dessau,” *Der Aufbau* [Vienna] 1, no. 11/12 (1926): pp. 210–11; hereafter abbreviated “NB.”

5  
*ES*, p. 257. See also the German version of Neurath’s *Lebensgestaltung und Klassenkampf*, *Gesammelte philosophische und methodologische Schriften*, ed. Haller and Heiner Rutte, 2 vols. (Vienna, 1981), vol. 1: pp. 235–36.

6  
 “NB,” p. 211.

7  
 Hannes Meyer, “bauen,” in Hannes Meyer, *Bauen und Gesellschaft*, Dresden 1980, pp. 47–49.

8  
 Carnap to Neurath, August 15, 1929, CP, PASP, document 029-15-02.

9  
*ES*, p. 305.

10  
*ES*, p. 309.

11  
*ES*, pp. 317–18.

12  
*ES*, p. 309. In the original German edition: “In die wissenschaftliche Beschreibung kann nur die *Struktur* (Ordnungsform) der Objekte eingehen, nicht ihr ‘Wesen’” (*Wissenschaftliche Weltauffassung der Wiener Kreis* [Vienna, 1929], p. 20). Carnap’s own *Der Logische Aufbau der Welt: Scheinprobleme in der Philosophie* (1928; Hamburg, 1961) has a separate section on “Die Strukturbeschreibung” (pp. 14–15), hereafter abbreviated *A*. *The Logical Structure of the World: Pseudoproblems in Philosophy*, trans. Rolf A. George (Berkeley and Los Angeles, 1969) is the standard translation of Carnap’s *Aufbau*; hereafter abbreviated *LS*. Where possible I have used this translation, though occasionally I have modified the translation on certain crucial points.

13  
*A*, p. 1. *LS*, p. 5.

14  
*A*, p. xix. *LS*, pp. xvi–xvii.

15  
*A*, p. xx. *LS*, pp. xvii–xviii.

16  
 See Carnap diary, Oct. 15, 1929; CP, PASP document RC 025-73-03.

17  
 See *Blätter für deutsche Philosophie* 3 (1929/30).

18  
 Carnap diary, (Saturday), Oct. 19, 1929.

19  
 Carnap, “Der Raum: Ein Beitrag zur Wissenschaftslehre,” in *Kant-Studien*, Erg. Heft Nr. 56 (1922), pp. 1–87.

20  
 László Moholy-Nagy, *The New Vision: Fundamentals of Design, Sculpture, Architecture*, trans. Daphne M. Hoffmann (New York 1938), p. 162.

21  
 Wassily Kandinsky, *Point and Line to Plane*, trans. Howard Dearstyne and Hilla Rebay (New York, 1947), p. 20.

22  
 Carnap diary, Sunday, Oct. 20 and Monday, Oct. 21, 1929.

23  
 Meyer, “Building,” *bauhaus* 2, no. 4 (1928), reprinted in Winkler, *Bauhaus*, pp. 154, 153.

24  
 Jeffrey Herf, *Reactionary Modernism: Technology, Culture, and Politics in Weimar and the Third Reich* (Cambridge, 1984), pp. 101–08.